Western New England College

ACADEMIC CALENDAR

2000 Fall Semester
August 28 2000 Fall Classes Begin 8:00 a.m.
September 4 Labor Day - No Classes
September 5 Last Day to Add Course(s) Without Instructor’s Permission
September 8 Last Day for Applying for Degrees Awarded in October
September 12 Last Day to Add Course(s) With the Instructor’s Written Permission
September 16 Last Day to Change Course Status from Audit to Credit or Credit to Audit
September 18 In-Progress Closing of Grades (100 level) to SAS
September 21 In-Progress Closing of Grades (200+ level) to SAS
September 22 Last Day for Applying for Degrees Awarded in February
November 13 Last Day to Add Course(s) Without Instructor’s Permission
December 1 Priority Registration for 2001 Spring Semester
December 12 In-Progress Closing of Grades (200+ level) to SAS
December 17 In-Progress Closing of Grades (200+ level) to SAS
December 19 Last Day for Withdrawing from Course(s) - “W” issued
December 22 2000 Fall Final Grades Due to SAS by 9:00 a.m.

2001 Winter Term
January 2-12 Winter Term (9 days-Monday through Friday)

2001 Spring Semester
January 15 Martin Luther King Day - No Classes
January 16 2001 Spring Classes Begin 8:00 a.m.
January 23 Last Day to Add Course(s) Without Instructor’s Permission
January 29 Last Day to Resolve 2000 Fall incomplete grades – Unresolved Fall “I”s are Converted to “F”s
January 30 Last Day to Add Course(s) With the Instructor’s Written Permission
January 31 Last Day to Change Course Status from Audit to Credit or Credit to Audit
February 2 Last Day for Applying for Degrees Awarded in May
February 23 In-Progress Closing of Grades (100 level) to SAS
March 9 In-Progress Closing of Grades (200+ level) to SAS
March 12-18 Spring Break Recess
April 9 - 24 Priority Registration for 2001 Fall Semester
April 16 No Day Classes - Evening Classes Resume as of 5:00 p.m.
April 20 Last Day for Withdrawing from Course(s) - “W” issued
May 4 Last Day of Spring Classes
May 5&6 Reading Days (Saturday and Sunday)
May 7-12 Final Exam Period (Monday through Saturday)
May 15 2001 Spring Final Grades Due to SAS by 9:00 a.m.
May 19 Commencement for On-Campus Undergraduate Students
May 20 Commencement for On- and Off-Campus Program (OCP) Graduate Students and
Off-Campus Program (OCP) Undergraduate Students
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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 programs of study, with faculty who are experts in their fields and who are skilled teachers. Graduate programs are offered in business and in engineering, and the Western New England College School of Law has provided legal education to thousands of students, who, like all Western New England College alumni, are 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 the commitment to students on the part of all of us at this College.

As President of the College, I extend a special greeting to all who peruse this catalogue wanting to learn more about the College and to our students utilizing these pages to plan their programs of study.

Anthony 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 Business, Engineering, and Law. There are 134 full-time faculty members in the College’s four schools: the Schools of Arts and Sciences, Business, Engineering, and Law. The College also offers undergraduate and graduate degree programs at 20 sites across the Commonwealth of Massachusetts.

The College enrolls over 5,100 students: 1,950 full-time undergraduates, 600 in full and part-time programs in the School of Law, and approximately 2,600 in part-time undergraduate and graduate degree programs offered on campus and at the College’s off-campus locations. The College attracts students from 30 states, the District of Columbia, Puerto Rico, and more than 16 foreign countries. There are approximately 30,000 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 co-curricular, 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: the combination of broad knowledge and critical thinking with professionally focused depth, and the ability to apply theory to real-world issues. The College seeks innovative ways to achieve this integration for students in all major programs.

Emphasis on learning beyond 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. The campus and the external community are learning laboratories for students.

Collaboration and synergy among the Schools of the College
The conscious and sustained collaboration among and within the distinctive 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**

In 1919 the education committee of the Springfield Central YMCA, after experimentation with informal classes, decided to offer college-level courses for credit. As a result, the Springfield Division of Northeastern College, known as Springfield-Northeastern, was established. Classes, held in the evening in the YMCA building on Chestnut Street for students studying part-time, were offered in law, business, and accounting. The first thirteen graduates emerged in 1922 with the degree Bachelor of Commercial Science. In 1923, the first seven law graduates were recognized.

The parent institution, now Northeastern University, decided to cease operations in Springfield. In 1951, an autonomous charter was obtained to grant and confer the degrees of Bachelor of Business Administration and Bachelor of Laws. The Springfield Division of Northeastern University became Western New England College. Dr. John D. Churchill, who had served as director of the Springfield Division from 1919 to 1951, became the College’s first president, serving until 1954. 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, early in the presidency of Dr. Beaumont A. Herman, the actual purchase of land for the current Wilbraham Road campus was completed. 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 in 1968 permission was granted to award all degrees as usually conferred in the Commonwealth of Massachusetts except for the doctorate. In 1970 the Western New England College School of Law began awarding the Juris Doctor degree. The College received accreditation as a general purpose institution in 1972.

The College flourished on its new campus. The decades of the Sixties, Seventies, and Eighties 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, and St. Germain Campus Center.

In 1993, the Alumni Healthful Living Center, a modern athletic and fitness center, was dedicated and in 1999, the LaRiviere Center, a residential living and learning center featuring suite-style living with a computer lab and meeting rooms, was dedicated. The campus originally consisted of 34 acres and has grown to 215 acres of contiguous property located four miles east of 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 interaction 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, through an affiliation agreement with American University in Washington, D.C., 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. Because the 20 major buildings are all less than 40 years old, the College has been able to maintain architectural harmony, with Georgian colonial style predominating.

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, snack bar, faculty lunch room, student lounges, conference and student organization rooms, activity areas, and 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 and football fields. A variety of athletic, recreational, and health-related activities are conducted in the Alumni Healthful Living Center that serves the entire College community.

D’AMOUR LIBRARY

The D’Amour Library, which opened in 1983, contains over 119,000 volumes and offers an inviting atmosphere for research and quiet study. WILDPAC, the on-line catalog, lists the holdings of both libraries on campus, the D’Amour Library and the Law Library. Both libraries use the Innovative Interfaces, Inc. software. There are Internet connections to library catalogs in the neighboring towns.

The library provides on-campus and off-campus access to Internet resources through its web page at libraries.wnec.edu. Resources available from the library’s web page include WILDPAC, an electronic encyclopedia, EBSCOhost, FirstSearch, Compendex, IAC, and Newsbank. These are a few of the fulltext and abstracting databases available both on and off campus. Articles from the databases and other resources online may be printed using the library’s intranet.

Free Internet access is available at the library for research by students. Library staff members have also searched and included a list of websites pertaining to courses offered at the College. These sites are updated on an ongoing basis.

At the request of faculty members, bibliographic instruction is also offered by reference librarians Monday through Thursday from 9 a.m. to 9 p.m. and Friday from 9 a.m. to 4 p.m. Individual bibliographic instruction is available any time.

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 its web page. Internet access to library databases is available 24 hours a day.

THE LAW LIBRARY

The School’s law library offers an extensive collection of printed and electronic resources, as well as a highly dedicated staff to assist in students’ research efforts. The library’s collection of more than 360,000 volumes includes the newest research and reference volumes as well as reprints of important earlier texts. Suppleming these resources are audio and video collections, microform
materials, and online research services such as Lexis-Nexis and Westlaw, which provide access to additional materials.

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

**CAMPUS COMPUTING AND TECHNOLOGY**

The College is committed to providing students, as a part of their programs of study, with access to a wide range of computing hardware and software. Students are expected to learn and use current computing technology in their courses for accessing materials, doing research, writing assignments, submitting work, and communicating with faculty, staff, and peers.

To facilitate this use the College has a campus-wide network linking all buildings, multiple T-1 lines to the Internet, and hundreds of networked PCs in public areas including CyberCafe, Churchill Hall Computer Lab, D’Amour Library (access to online catalogues and databases and specialized PC laboratories with digital projection equipment), the Writing and Mathematics Centers, the Accounting Lab, the School of Law, and the Engineering Labs. All registered students have Internet e-mail accounts with access via PCs in the labs, the College’s high speed modem pool, or from residence hall rooms equipped with direct access through Ethernet lines. All students have access to voice-mail and Internet connections, and residential students have an option for cable TV.

The College labs are equipped with networked Intel Pentium PCs and run a variety of specialized and standard software packages including MS Windows, MS Office, and Netscape Navigator. A special web browser based collaborative courseware package called Manhattan was created to supplement course contact time with electronic-based communication. This software allows secure file transport between faculty and students.

**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 Bachelor of Social Work program is accredited by the Council on Social Work Education (CSWE).

**In Business:**

The School of Business is in candidacy for accreditation by AACSB—The International Association for Management Education.

**In Engineering:**

The Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (ABET) 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 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—The International Association for Management Education.
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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 also have the opportunity to attend a series of Open House Programs. These programs are held on 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 www.wnec.edu. The Admissions Office can be contacted through the following means:

- Telephone: 800-325-1122, ext. 1321 or: 413-782-1321
- Fax: 413-782-1777
- E-mail: 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.
2. The completed application form should be returned with the nonrefundable $30 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 an official copy of transcripts of final secondary school 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.

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 international application from the College’s Undergraduate Admissions Office.
2. The completed application form should be returned with the nonrefundable $30 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 an official English translation of transcripts of final secondary school work as well as any previous undergraduate study, to the Admissions Office.
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 4 units English; 1 unit laboratory science; 2 units mathematics equivalent to two of the following: algebra I, geometry, or algebra II; 1 unit United States history.

1 One unit of chemistry is required for prospective majors in biology, chemistry, and environmental science. In addition, one unit of physics is recommended for prospective majors in chemistry and environmental science.
2 Prospective majors in pre-pharmacy and pre-physician assistant are required to present 2 units of laboratory science, including biology and chemistry. In addition, physics with laboratory is recommended.
3 Prospective majors in chemistry and environmental science are required to present 3 units of mathematics. Prospective majors in mathematics, and computer science are required to present 3 units of mathematics, a fourth year is recommended.
4 Prospective majors in pre-pharmacy and pre-physician assistant are required to present 3 units of mathematics, including algebra I and II and geometry. In addition, pre-calculus is recommended.
School of Business
The School of Business requires 4 units English; 1 unit laboratory science; 3 units mathematics equivalent to algebra I, geometry, and algebra II; 1 unit United States history.

School of Engineering
The School of Engineering requires 4 units English; 1 unit United States history; 4 units mathematics equivalent to algebra I, geometry, algebra II, and an additional year beyond algebra II which includes trigonometry; 1 unit laboratory science; and 1 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 health care 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 amount of transfer credit allowed is based upon work completed at previous institutions. 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. 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 its merits on a course-by-course basis. 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.

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).

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 are allowed the opportunity 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 re-admission (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 or disciplinary dismissal must have the approval of the dean of the academic school to which they seek re-admission.
3. The student is subject to all rules, regulations, and academic requirements effective in the College at the time of re-admission.

UNDERGRADUATE ADMISSIONS FOR PART-TIME STUDY

How to Apply for Admission to Part-time Study
The Office of Continuing Education provides assistance for those seeking admission to part-time study. Part-time students are defined as those enrolled for 11 or fewer credit hours per semester.

1. Application forms may be obtained from the Office of Continuing Education.
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 submit written recommendations and SAT or ACT scores. 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. Part-time Master of Business Administration and Master of Science applicants may be admitted for the fall or spring semester. The One-Year Weekend MBA Program requires a one-year course of study beginning in October. The Accelerated MBA Program requires an 18-month course of evening study beginning in September. 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 12 credit hours. 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 12 credit hours. The usual minimum grade is B (3.0).

Time Limits. Accepted graduate credit may be applied toward graduate degree requirements for no more than eight years. For example, an acceptable graduate course completed in the fall semester of 2000 counts toward graduation only until the end of the 2008 summer session.

Application Procedures for Graduate Programs:

1. Obtain an application for the evening Master of Business Administration and Master of Science programs from the Office of Continuing Education or the appropriate dean’s office.
2. Submit a completed, signed application for graduate admission with the required fee.
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. The admission standards and procedures for the One-Year Weekend MBA Program and Accelerated MBA Program are managed directly by the dean of the School of Business. Applicants may request information from the Office of the Dean of the School of Business.
6. The Office of Continuing Education and the dean of the School of Business administer admission to the Accelerated MBA Program.
School of Business. For the Master of Business Administration (MBA), Master of Science in Accounting (MSA), and Master of Science in Management Information Systems (MSIS) degrees the requirements are:

1. Submit an official score report for the Graduate Management Admissions Test (GMAT) taken not more than five years prior to the date of admission to Western New England College graduate study. However, applicants who satisfy one of the criteria listed below and who supply official records are exempted from the GMAT requirement:
   a. An undergraduate cumulative grade point average, from all schools attended, of 3.0 or higher on a 4.0 scale.
   b. The completion of a graduate degree from an accredited college or university.
   c. A combined score of 1530 or higher on the Graduate Record Examination (GRE) taken no more than five years prior to the date of admission to Western New England College graduate study.
   d. Professional certification, such as Certified Public Accountant, which meets Western New England College School of Business standards.
   e. Completion, with at least a 3.3 (B+) average, of the following Western New England College graduate courses:
      - MBA applicants: CIS 610 and either one 600 level course from the Department of Management or BUS 640
      - MSIS applicants: CIS 610 and one 600-level course from the Department of Management
      - MSA applicants: one 600-level course from the Department of Management and one 600 level course in accounting
2. Successful completion of at least six credit hours of college-level English composition or writing courses.
3. Demonstrate successful completion of at least six credit hours of college-level mathematics courses.

For the Master of Science in Criminal Justice Administration (MSCJA) degree requirements, see page 181.

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

1. A baccalaureate degree in engineering, or a closely related field, from an accredited college or university.
2. A grade point average in the last half (usually 60 credit hours) of undergraduate work must be a minimum of B (3.0).
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.

Applicants judged by the admission review committee to be deficient in verbal, quantitative, or general academic preparation may be required to submit official results of the GRE, or they may be conditionally admitted at the discretion of the committee. Conditions may include, but are not limited to, satisfactory completion of prerequisite courses and/or demonstrated ability to maintain a specified level of performance in graduate courses at Western New England College. Conditionally admitted students are informed of their special requirements at the time of acceptance.

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 is available by contacting:

Admissions Office, Western New England College School of Law, 1215 Wilbraham Road, Springfield, MA 01119, 413-782-1406, or electronically at: lawadmis@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 the GMAT test score, submitted as part of the application. Applicants judged by the admissions review 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, academic performance at a specified level in Western New England College graduate courses, undergraduate English courses, and/or undergraduate 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, letters of recommendation, and other indicia that 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.
NON-DEGREE STATUS

How to Register for Courses Taken in Non-degree Status
The Office of Continuing Education offers non-degree enrollment for students who wish to earn credit before they are formally admitted to a Western New England College degree program and for visiting students from other institutions. While reasonable efforts are made to assure that non-degree students choose courses that will assist them in reaching their academic goals, the ultimate responsibility for these choices rests with the student alone. 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. To avoid such potential difficulties, all students are strongly encouraged to complete their admission applications as soon as possible, but qualified persons may begin their studies in a temporary, non-degree category subject to the following regulations.

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 prerequisites and may be required to submit official transcripts as proof of appropriate preparation. Advising of non-degree students is provided through the Office of Continuing Education.

Graduate Non-degree Study
Permission to register requires proof of a completed baccalaureate degree from an accredited college or university. Continuing registration requires minimum grades of B (3.0) in all Western New England College graduate courses. Rejection of a graduate admission application will result in suspension of further registration privileges until the student is formally admitted. Graduate non-degree students may accumulate a normal maximum total of 12 credit hours (four courses). Continuing registration after the 12-credit limit requires formal admission to a degree program. Non-degree students must satisfy published course prerequisites, and may be required to submit official transcripts as proof of appropriate preparation. Advising of non-degree students is provided through the Office of Continuing Education.
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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.

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.

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 re-admission.

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 (freshman and sophomore years), see p. 36
2. School requirements designed to broaden and deepen students’ knowledge of disciplines outside of their majors (sophomore and junior years).
3. The requirements of a major (junior and senior years), see p. 45.

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

It is the student’s responsibility to understand the requirements of the chosen degree program and to plan for their orderly fulfillment. Each full-time student is assigned a faculty advisor who assists in making decisions to attain the student’s desired academic goals. Although the advisor will be helpful, the ultimate responsibility for decisions remains with the student. Academic advising is also provided for part-time students. In the freshman year of full-time study, the academic advisor is assigned on the basis of enrollment in First Year Seminar.

It is important that students work with their academic advisors to develop an academic plan enabling them to complete most of the General College Requirements by the end of the sophomore, or second, full year of their four year program. While this may not always be possible due to schedule limitations, students should work 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.

It is important for students to choose elective courses that both broaden and deepen their knowledge of disciplines and skills that are important for success and well-being beyond their college experiences. This can be done by careful planning with an academic advisor.

Finally, it is crucial that students complete all the requirements for graduation in their major. An academic major is a structured program of study in a specialized field leading to a bachelor’s degree. Successful completion of a major is designated on the student’s diploma; for example, a Bachelor of Science in Chemistry, a Bachelor of Arts in History, a Bachelor of Science in Business Administration in Management, a Bachelor of Science in Electrical Engineering, etc.

POLICIES AND PROCEDURES

Student Schedules, Registration, and Adding or Dropping Courses

The faculty advisor must approve a student’s schedule of courses before the student may register for classes. Any change in a student’s schedule of courses following registration also requires the approval of the faculty advisor. In addition, when class sessions have started, the student is expected to consult with the course instructor before dropping a course. A student may not add a class after it has met for the equivalent of one week without the course professor’s express and written consent. For any change of schedule, including withdrawals, to be valid, the student must complete a schedule change form that can be obtained at the Student Administrative Services (SAS) office and must submit it to that office for processing. Absence from class without completing the form does not constitute withdrawal from a course.

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 Administrative Services (SAS) 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.

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 force for that entire semester. The statement of policy on attendance, appropriate to each class, is read 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. Final examinations are given in all courses in accordance with a schedule published by the Academic Schedule Office. Students must take examinations on the day and at the time posted unless other arrangements have been approved in advance by the school dean and Academic Schedule Office. Updates of the final exam schedule are posted at strategic locations around campus, on the College’s web site, and in the course schedule booklet published prior to each semester.

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. 138-142). 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 that is under the supervision of the Director of the College Writing and Reading Program. In the Center, which is equipped with a computer room as well as print resources, trained writing assistants work with students at all ability levels in all phases of the writing process. There, 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 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 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 heath 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.”

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 some other 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.
Interpretation of the Grading System

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

<table>
<thead>
<tr>
<th>Grade</th>
<th>Grade Point Equivalent</th>
</tr>
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<tbody>
<tr>
<td>Superior</td>
<td>A (4.0)</td>
</tr>
<tr>
<td></td>
<td>A- (3.7)</td>
</tr>
<tr>
<td>Above Average</td>
<td>B+ (3.3)</td>
</tr>
<tr>
<td></td>
<td>B (3.0)</td>
</tr>
<tr>
<td></td>
<td>B- (2.7)</td>
</tr>
<tr>
<td>Average</td>
<td>C+ (2.3)</td>
</tr>
<tr>
<td></td>
<td>C (2.0)</td>
</tr>
<tr>
<td></td>
<td>C- (1.7)</td>
</tr>
<tr>
<td>Passing</td>
<td>D+ (1.3)</td>
</tr>
<tr>
<td></td>
<td>D (1.0)</td>
</tr>
<tr>
<td>Failure</td>
<td>F (0)</td>
</tr>
</tbody>
</table>

In certain courses (ED 380, 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 instructor’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. 216.) 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 urged to consult with the Dean of Students, the Dean of Freshman 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 Student Administrative Services office is considered to be the date of withdrawal. (See the section on Withdrawals and Refunds, p. 216.)

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.
Probation and Dismissal

Student academic progress is reviewed each semester to assure consistency with the standards outlined in the following statements. For the purpose of review, the number of credit hours defined in the standards will include credits transferred.

In instances when the opportunity to appeal suspension or dismissal for academic reasons is given, students must exercise that option within one week of the date of the notice of intent. If option to appeal is not exercised, the notice of intent (dismissal or suspension) shall be automatically imposed. All matters relating to academic status are made part of the student record.

All notices of suspension and dismissal shall be mailed to the home address of the student by both regular first class mail and certified return receipt mail. A copy of the notice will be sent to the student's faculty advisor and the assistant dean of the student's school.

Students with fewer than 19 credit hours will automatically be placed on academic probation if they attain less than a 1.7 grade point average at the end of their first semester at the College. A student with less than a 1.3 grade point average placed on academic probation must confer or meet with the Dean of Freshmen and Transfer Students no later than the end of the first week of the next academic semester and reach a written agreement with the Dean as to the conditions that the student must meet to continue at the College. A student who does not confer or meet with the Dean of Freshmen and Transfer Students will be automatically dismissed from the College. If the student fails to meet the conditions stated in the written agreement, the student shall be suspended from the College with the right of appeal to the Academic Standards Committee.

A student on probation who does not achieve a 2.0 semester grade point average in the following semester shall be automatically suspended from the College for one semester. Students suspended from the College may file an appeal with the Academic Standards Committee. Upon review, the Academic Standards Committee may lift the suspension immediately (if the appeal is filed and decided prior to the end of the first week of the next academic semester) and permit the student to continue at the College on probation with written conditions, or may suspend the student for one semester and establish conditions which must be met prior to the student returning to the College and/or conditions (i.e., specified course load or credit limitations) which the student must meet upon returning to College. In cases in which conditions are imposed, the student may be dismissed from the College if the conditions are not met. Should the student not appeal the suspension by the end of the "suspension semester," the suspension shall convert to a dismissal from the College without the right of appeal.

Following the completion of 87 credit hours (Arts and Sciences or Business) or 95 credit hours (Engineering), any student with a cumulative grade point average of less than a 2.0 overall or in their 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 end of the first week of the next semester and enter into a written agreement stating the conditions upon which the student may continue at the College. If those conditions are not met, the student shall be suspended from the College with a right of appeal to the Academic Standards Committee.

The Academic Standards Committee shall meet during the intersession between fall and spring semesters, as well as at the end of the spring semester.
SPECIAL ACADEMIC OPPORTUNITIES

Advanced Placement (AP)
The College will normally grant credit for an AP course in which a student scores a 3, 4 or 5. 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 listed.

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. Upon completion of the program, students receive commissions as second lieutenants in the U.S. Army.

Air Force/Army ROTC
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.

Upper-level students (juniors and seniors) who commit to pursuing the commission receive a $150 per month stipend while participating in ROTC. 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 $150 per month stipend. The College also provides incentives for ROTC Scholarship recipients.

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 information contact the assistant professor of military science at the Western New England College ROTC Building 413-782-1332 or 1-800-434-WNEC.

Army ROTC
Full-time undergraduate and graduate students with at least four semesters remaining to graduation 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.

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 at www.umass.edu/afrotc.

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. 214.) 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 Weekend MBA, the Accelerated MBA, and 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 Certificate Programs in chemistry, computer studies, and communication can be found on p. 117.

College-Level Examination Program (CLEP)

This nationwide program of credit-by-examination allows undergraduate students to demonstrate academic competence in satisfying up to 30 hours of their degree program. Five general examinations and 35 subject 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 should be submitted to the Student Administrative Services (SAS) office for evaluation. CLEP credit may not be used to meet upper-level course requirements.

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 a course each semester at any one of the other CCGS institutions, provided that the course is 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, winterim, and continuing education classes. Information concerning additional guidelines and registration procedures may be obtained from the Student Administrative Services (SAS) office.

Credit-in-Escrow

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

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, and voluntary associations. Work place experience may also be considered. Decisions on the award of 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 Guide to the Evaluation of Educational Experiences in the Armed Services.

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 by 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 chance for success, 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 goal setting and decision-making, time management, study skills, health maintenance, personal identity, and relationships.
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 is administered by three Honors Committees all of which involve student as well as faculty participation. Entering freshmen with high school GPA’s of 3.5 and SAT scores of 1100 will be invited to apply to the program. The application includes an essay explaining why the student wishes to participate in the program. Decisions will be made by the Honors Admissions Committee before or during the Summer Orientation and Registration program (SOAR). Those students who do not meet these numerical targets but who would like to be considered for acceptance into the program because of certain special circumstances are encouraged to apply and explain the situation in the essay. In some cases, the Honors Admissions Committee will conduct interviews with prospective honors students.

In the second semester of the freshman year, students who have achieved a 3.5 in their first semester may also apply to the program. They must complete the 21 credits by substituting any elective seminar for HON 103.

Students in the program must maintain a 3.3 GPA to graduate with Honors. Students whose GPA falls below 3.3 for a semester will have one semester of probation. Any student whose grade point average stays below 3.3 for two consecutive semesters will have to leave the program.

Available in all three undergraduate schools, the Honors Program consists of 21 credits. The first 9 credits are as follows:

- HON 102 History equivalent
- HON 103 English Composition II equivalent
- HON 203 Elements of Culture “CA” equivalent

(Engineers will take HON 201 as their history equivalent as will all students in the other two schools who join the program after their freshman year. Engineers will also take HON 293, a Math honors equivalent, in the sophomore year. They will take HON 203 in the junior year.)

Students who join the program in the first semester of the sophomore year in addition to substituting HON 201 for HON 102 will also have to take another seminar in lieu of HON 103.

The general outline for the rest of the credits in the program is as follows:

- HON 3xx Multidisciplinary Seminar
  (Engineers will take any Arts and Sciences seminar. Business and Arts and Sciences students will take the Multidisciplinary Seminar which will be team taught by an Arts and Sciences and Business faculty member.)

- HON 3xx or 293 Honors Elective Seminar
  (Students outside of Engineering with the Calculus II prerequisite may take HON 293.)

- HON 3xx 3 credits to be filled by either taking — or — another seminar or adding 3 H’s 3 H’s 1 credit onto 3 non-honors classes
  (Engineering students will typically take a 4 credit Technical Elective, an Arts and Sciences or interdisciplinary Honors Seminar elective together with HON 203 in the junior year and first semester of the senior year.)

A variety of specialized courses with enrollment restricted to students in the Honors Program, many team taught and all subject to the suggestions of the students themselves will constitute the bulk of the elective Honors seminars. The one-credit add-ons will be discipline specific.

- HON 4xx Project (2 credits in Engineering, 3 credits in the other two schools) to be completed under the close supervision of at least one Honors faculty member.

Independent Study

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 where by 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.

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 internship coordinator, Office of Career and Human Resources, prior to registration. An internship application must be completed and signed by the student, the field supervisor, the faculty sponsor, the department chair, and the internship coordinator. If the student’s academic dean approves the internship, the student will be authorized to register for the internship.

Off-Campus Programs

Western New England College was selected by Hanscom Air Force Base to conduct educational programs for both military and civilian personnel. At present, programs are offered leading to the following degrees: Bachelor of Science in Business Administration, Associate of Arts in Liberal Studies, Bachelor of Arts in Liberal Studies, Bachelor of Science in Law Enforcement, Master of Business Administration, Master of Science in Engineering Management, and Master of Science in Criminal Justice Administration.

In addition, the College offers instruction at the following sites: Boston Police Patrolmen’s Association, Berkshire Community College, Norwood Junior High School, Malden High School, Plymouth North High School, Cape Cod Technical School, Upper Cape Regional Vocational and Technical High School, Western New England College Falmouth Office, Masconomet Regional High School, Marlboro Police Department, Rogers Junior High School in Lowell, Auburn High School, Archbishop Williams High School in Braintree, Hanover High School, Greater New Bedford Regional Vocational Technical High School, Quaker Fabrics in Fall River, Trinity Catholic High School in Newton, and at the Off-Campus Programs Campus at Devens.

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 at the 50th percentile on the LSAT (or at the median score for the previous year’s matriculants, whichever is higher). Students who qualify can enter the School of Law in the fall of their fourth 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.

Transfer students must successfully complete at least 15 credit hours of undergraduate studies at Western New England College in order to apply for this program.

It is not possible, however, for all majors to qualify for the 3-3 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 and environmental science would require some summer course work to finish.

Students considering a career in law are eligible for membership in a pre-law society that provides co-curricular 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 register with the pre-law advisor, Prof. William Mandel, Department of History and Government, 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 post-graduate 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.

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 thirteen leading national higher education associations.

Washington Semester

Western New England College participates in the Washington Semester Program offered by American University in Washington, D.C. This program, which is open to juniors and seniors, provides an opportunity to study and intern in Washington, D.C. Programs are offered in American Government and Politics, British Government and Politics, Business, Arts and Humanities, Journalism, Justice, Foreign Policy, Urban Affairs, or Public Administration. 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 the dean of the School of Arts and Sciences.

Study Abroad

Western New England College provides numerous study abroad opportunities. These programs enhance career opportunities and graduate school qualifications, increase understanding of other cultures in the global community and international marketplace, improve foreign language skills, facilitate communication with other ethnic and national groups, and enable students to gain insights into themselves as they encounter the differences of other cultures. Besides air fares, the costs are usually equivalent to those of Western New England
Undergraduate Academic Programs

College, and the educational experience can be priceless. Financial aid either from the institution or the government, can be carried over.

Western New England College students have a wide variety of institutions to choose from depending on their interests. They include the following:

**Regent’s College**. London, has a student population of 750 students and offers a full range of undergraduate courses with majors in business, international relations, management, international business, and psychology. Internships are available at sites such as CNN News, the Museum of London, and constituency offices of Parliament as well as at galleries, therapy centers, lobbying organizations, and archives.

**Richmond College**. London, an institution of 1,100 students in two London locations, also offers a complete undergraduate curriculum. The college’s majors include anthropology/sociology, art history, business administration, British studies, communications, computing, economics, environmental studies, history, international business, international relations, literature, mathematical science, political science, psychology, studio art, systems engineering, management, and theatre arts. Internships are available at such sites as the Institute for Economic Affairs, CNN News, Merrill Lynch, Chancarel Publishing, Poole Edwards, and the U.S. Embassy. Richmond also offers semesters at their Study Centres in Italy and Japan.

**The Alliance Francaise**. Paris, an institute for the promotion of French language and culture, offers courses at various levels in French, specialized French, and teacher training. The French government issues certificates and diplomas. Especially significant are the programs for students who want to teach French and the French-for-foreigners programs which train people for general business, the hotel industry, and administrative work.

**Accent**. Accent functions as an international education organization that creates study abroad programs tailored to the needs of institutions and individual groups of students. It has offices in Florence, London, Stratford-upon-Avon as well as Paris. The programs range from survey courses in arts and humanities to specialized programs for architecture, fine arts, engineering, international business, and foreign languages. The programs are offered through the Sorbonne or other universities, and include short courses that explore French chateaus, the gardens of Paris, architecture, art, and music.

**The American University of Rome** offers a semester or a year in Rome as well as Summer Study programs. The courses offered include Italian language, literature, art, architecture, Western civilization, communications, cinema, anthropology, economics, international relations, politics, sociology, business administration, finance, and banking. Accommodations are arranged at nearby apartments, and cultural excursions to Rome and the surrounding region are integral to the academic program. Internships sites have included American Express, Am-
While Western New England College programs are widely reciprocal with other states, students are advised that some states may require competency examinations for certification. In some of those states these must be successfully passed before an application for certification will be accepted.

A regional teaching certificate, 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 then to have up to two years to complete any unmet requirements for certification in the new state. For further information, students should consult with their advisor or the appropriate program coordinator.

Certification 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 several alternative procedures to meet these standards.

**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 humanities, social sciences, mathematics, and the sciences. Following this tradition, in 1997 the College initiated a teacher certification program for students interested in preparing for careers in elementary education, grades 1-6.

Students preparing for Elementary Teacher certification must select a major in one of the following liberal arts and sciences disciplines: American studies, English communication, English literature, environmental sciences, government, history, mathematics, psychology, or sociology. 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 certification requirements in four years. Therefore, undergraduates are urged to work with their academic advisors early in their college careers to carefully plan their college course of study. Detailed information sheets are available from the coordinator of the program. Application for acceptance into the Elementary Education program may be made as early as the second semester of the freshman year, but no later than December 1 of the sophomore year.

Minimum eligibility requirements for acceptance into the program are:

1. Submission of an Elementary Program Application by December 1 of the sophomore year and an interview with the coordinator of the Elementary Education program
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, and
3. Approval from the chairperson of the student’s major department.

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 Education program’s Literacy and Communication Test.

Required courses for students enrolled in the Elementary Education Program:

1. **General College Requirements**
   - ENGL 132  English Composition I*
   - ENGL 133 English Composition II*
   - MATH 107 Math for Elementary Educators I (Mathematics)*
   - MATH 108 Math for Elementary Educators II (Mathematics)*
   - BIO 101 Basic Biology: Organisms (Laboratory Science)*
   - BIO 102 Basic Biology: Populations (Laboratory Science)*
   - SO 314 American Culture and The Black Experience

   *= or higher sequence

2. **Requirements of the School of Arts and Sciences**

   **AREA I REQUIREMENTS:**
   - ART: Select one art history/appreciation (Art)
   - MUS 101 Music Appreciation (Music)
   - ENGL 39x Children’s Literature (Literature)
   - PHILOSOPHY (3 credits)

   **AREA II REQUIREMENTS:**
   - GO 102 American Government (Government)
   - HIST 111 United States History to 1877 (History)
   - or —
   - HIST 112 United States History 1878 to the Present (History)
   - PSY 101 Introduction to Psychology (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 211 Developmental Psychology
   - 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 150 hours of full-time field-based practicum. Students must complete 135 hours of direct instructional or other appropriate responsibilities.

Students must also take the Lifetime Activity series course PEHR 163 Games Children Play.

Since ED 425, ED 479, and ED 480 are taken as a block, 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 certification comes at the end of the practicum semester and is a joint recommendation of the college supervisor and the cooperating teacher based on the student’s successful completion of competency standards set down by the Massachusetts Department of Education.

Currently the College’s elementary teacher program offers students the opportunity to prepare for the Massachusetts Provisional Certificate with Advanced Standing, the second stage of Massachusetts’s certification. The Massachusetts Standard Certificate, which is the third stage of certification, is offered to college graduates following a successful employment in teaching and the completion of a master’s degree. Plans for the development of a state approved graduate program are a part of the future plans under consideration by the Western New England College School of Arts and Sciences.

Successful completion of the College’s state approved program leads the graduate to certification in Massachusetts and almost 40 other states through the NASDTEC/Interstate Certification Compact (ICC). Regional certification, 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 certification allows an applicant to receive the initial certification in a regional compact state and to take two years to complete any special certification requirements unique to that state.

To better plan for certification 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 the additional certification.

**Secondary Education Program**

Students may prepare for a provisional certificate to teach in the secondary schools (grades 9-12 in Massachusetts, 7-12 in other states) in the following programs: biology, business, chemistry, English, history, mathematics, and social studies (includes majors in history, psychology, and sociology).

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 Teacher 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 certification 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. The Secondary Education Program can be combined with many of the majors. However, since it requires the integration of 22 credit hours of course work in education into the major program, students are encouraged to start planning for it early in their academic careers. Application may be made as early as the second semester of the sophomore year, when tentative approval will be granted, and must be made by December 1 of the junior year, when final approval will be granted.

Minimum eligibility requirements for acceptance into the program are:

1. Completion of 21 credit hours in the student’s major by the end of the first semester of the junior year,
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, and
3. Approval from the chairperson of the student’s major department.

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 Education Program’s Literacy and Communication Test.

Final selection is made by the Director of the Secondary Education Program.

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.

Group activities are stressed so those prospective candidates can appreciate their roles as members of teaching teams. Practical experience in the form of 75 clock-hours of field study is mandatory for certification applicants and must be completed prior to practice.
teaching. Upon application and acceptance into the Secondary Education Program, the students receive a Field Study Manual and Log Book to use during their field studies.

**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.

**GENERAL COLLEGE REQUIREMENTS**

The faculty of the College believe that certain skills, attributes, and attitudes are basic to all areas of learning.

Further, the faculty believe that the academic program of each student should be so structured that by the time of graduation each student will have ample opportunity to reach all curricular goals.

The student’s major program offers the theoretical and applied knowledge requisite for job entry and continued professional development.

By completing the requirements of the major and the general college requirements, students will be able to participate effectively and responsibly in society and the global community and to lead rich and satisfying personal lives.

To these ends, the faculty have adopted the following requirements for each graduate:

1. **Communication.** Effective communication is essential for realizing the fullest potential of human relationships, both personal and professional. Therefore, each graduate must complete at least two courses in English writing with grades of “C” or better; must assemble a satisfactory writing portfolio in the freshman and sophomore years; must satisfy the upper level writing requirements of the major; and must complete one designated course having an oral presentation as an integral requirement. Furthermore, a portion of the grade in each course is based on writing proficiency.

2. **Mathematics.** An understanding of mathematics is essential because today’s world, dependent as it is on complex technology, surrounds us with an abundance of numerical data. Therefore, each graduate must complete at least two college-level mathematics courses with a grade of “C” or better in at least one. Each graduate must also complete at least one designated course in the use of computers.

3. **History.** An understanding of the past is essential to thoughtful consideration of current issues. Therefore, as a first step toward achieving this end each graduate must complete at least one course in history.

4. **Science.** Familiarity with the basic sciences is a practical necessity for all citizens because of the influence that science has upon all areas of human endeavor. Therefore, each graduate must complete two courses in a laboratory science.

5. **Elements of Culture.** Every society in the world develops elements of culture which reflect fundamental human needs and characteristics. Among those universal facets of human culture are quests for beauty and truth, creative artistic expression, exploration of values, and concepts of good and evil. The College believes a study of how these essential human concerns are pursued in different cultures is a necessary part of every degree program. Therefore, each graduate must complete one course concerned with a culture other than one’s own (designated “CA”) and one course devoted to the arts (designated “A”), or Business and Engineering majors have the option of taking one course (designated “CA”) which combines these two elements of culture.

6. **Values.** The well being of individuals and the health of society are dependent upon their values and the choices they make. Therefore, every major program must include significant discussion and examination of ethical values and concerns, especially as they influence the subject field or profession.

7. **Critical Thinking.** The ability to think critically-to balance discipline with creativity and synthesis with intuition—is essential to all forms of learning. Therefore, every curriculum must include material that specifically addresses the process of critical thinking.

8. **Knowledge in Depth.** Study in depth is necessary for intellectual growth, preparation for employment, and professional development. Therefore, each graduate must complete a major program, a sequence of courses providing increasing complexity of subject matter and an exposition of the mental tools necessary to pursue continuing and coherent study in the discipline.
9. Skills for Success. The faculty believe the development of skills and attitudes necessary for successful completion of the above requirements must be emphasized in the curriculum during the freshman year. Further, the faculty agree that those skills and attitudes are School-specific and sometimes major program-specific. Therefore, all entering freshman and transfer students with fewer than 15 credit hours are required to complete a First Year Seminar course (LA 100, BUS 101, or ENGR 102) within their School of study.

10. Physical Education, Health, and Recreation. Since healthy lifestyles are important for success in and beyond college, all entering freshman students are required to complete two Physical Education, Health, and Recreation courses: a one semester course in Personal Health and Wellness (PEHR 151) and one 7 1/2 week course from the Lifetime Activity Series.

SCHOOL OF ARTS AND SCIENCES

Dean Saeed Ghahramani
Assistant Dean Delmar Wilcox

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 American studies, economics, English, government, history, international studies, liberal studies, mathematics, psychology, or sociology; a Bachelor of Science degree with majors in biology, chemistry, computer science, environmental science, criminal justice, or law enforcement; 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 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 offered by the School of Arts and Sciences are listed on p. 113. Students wishing to take a minor must complete a form in the Office of the Dean, School of Arts and Sciences, not later than the beginning of the final semester.

Department Chairs and Faculty

Department of Criminal Justice and Sociology
Associate Professor Larry Field, Chair
Associate Professor Richard Luxton;
Instructors Alfred Ingham, Denise Kindschi Gosselin

Department of Economics
Professor Michael Meeropol, Chair
Professor John Andrulis;
Associate Professors Herbert Eskot, Richard Skillman;
Assistant Professor Schiller Casimir

Department of Education
Associate Professor Robert Klein, Chair
Assistant Professor Marilyn Gass, Deb Patterson

Department of English and Humanities
Associate Professor Charles Fish, Chair
Professors Eugene Angus, Emmett Barcalow,
Nancy Hoar, Edward Jansen, Burton Porter;
Associate Professors Glen Ebisch, Martha Garabedian,
Richard Haber, Shelly Regenbaum, Delmar Wilcox;
Assistant Professors Janet Bowdan, Jean-Marie Higiro;
Professional Educators William Grohe, Linda J. Oleksak,
Anne Rice
Undergraduate Academic Programs

Department of History and Government
Associate Professor Marc Dawson, Chair
Professors John Anzalotti, Vladimir Wozniuk;
Associate Professors William Mandel, Theodore
 Johnson-South, Donald Williams;
Assistant Professor John Seung-Ho Baick

Department of Mathematics and Computer Science
Professor Dennis Luciano, Chair
Professors Saeed Ghahramani, Richard Pelosi,
Leh-Sheng Tang;
Associate Professors Alan Gorfin, Lorna Hanes,
Jay Jackson, Ann Kizanis;
Assistant Professors Lisa Hansen, David Mazur;
Professional Educators Theresa Barton, John Willemain

Department of Physical and Biological Sciences
Professor Lorraine Sartori, Chair
Professors Richard Ball, Robert Holdsworth,
David Savickas;
Associate Professors Walter Coombs, Gail Fletcher,
David Kline, Richard Murphy, Ann Poirot;

Department of Psychology
Professor Dennis Kolodziejski, Chair
Professor Kathleen Dillon;
Assistant Professors Sheralee Tershner, Carolyn West

Requirements
Students in the School of Arts and Sciences are not
required to take a common curriculum. Each student’s
program is developed in close consultation with a faculty
advisor. However, in addition to fulfilling the general
requirements of the College, 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 course concerned with a
culture other than one’s own (designated “C” or “CA”)
and one course devoted to the arts (designated “A”).

4. AREA I requirements. Complete at least nine credit
hours chosen from among American studies, criminal
justice, economics, education, geography, government,
history, international studies, psychology, social work,
and sociology. Of these, at least three credit hours must
be in government or 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.

5. AREA II requirements. Complete at least nine credit
hours chosen from among American studies, criminal
justice, economics, education, geography, government,
history, international studies, psychology, social work,
and sociology. Of these, at least three credit hours must
be in government or 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. NOTE: No ROTC courses may
count as advanced courses.

SCHOOL OF BUSINESS

Dean Stanley Kowalski, Jr.
Assistant Dean for Graduate Programs Anil Gulati
Assistant Dean for Undergraduate Programs
Gail Olmsted

Programs of Study
The mission of the School of Business is to provide an
educational opportunity for a broad spectrum of stu-
dents so that they may explore and evaluate career
options in business, develop understanding and profes-
sional competencies for contribution to a dynamic busi-
ness environment, and prepare for meaningful and pro-
ductive roles in society.

The primary objective of the School of Business is to
provide comprehensive programs of traditional and con-
tinuing education normally leading to undergraduate and
graduate degrees in business. The School also provides
an environment within which individual students can
develop their potentialities. Additionally, the School aims
to serve the needs of the local, national, and multina-
tional business firms and organizations that comprise
the general community.

Goals for students in the School of Business include:

1. Integrated understanding of the fundamental sys-
tems of business (management, marketing, accounting,
finance, and information systems).

2. Depth of understanding and specific competencies
in at least one of these fundamental business systems.

3. Effectiveness in personal and professional commu-
nication. (Ability to listen and to present ideas clearly,
both orally and in writing, in organizational settings.)

4. Capacity for effective and ethical decisions. (Abil-
ity to generate, evaluate, select, and implement alterna-
tives consistent with decision goals and standards of
ethical behavior.)
5. Ability to research industries, organizations, and issues to support business decision processes. (Identify and access appropriate information sources, select and summarize relevant information.

6. Ability to apply critical thinking skills (analysis, inference, explanation, interpretation, and evaluation) to understand and respond to business issues.

7. Ability to use statistical and financial analysis in evaluating data and business problem solving.

8. Ability to generate new alternatives and innovative solutions to business problems.

9. Integrated understanding of the broad range of factors (global, political, social, legal, regulatory, environmental, technological, and demographic) that shape and transform the business environment.

10. Ability to perform effectively on teams. (Ability to work collaboratively to complete complex tasks, to provide and accept task-related input and feedback, and to share responsibility for team performance.)

11. Competency in the use of computer/information technology (business information software and systems, the Internet, and other data sources) to access and manage information, and to support communication.

12. Capacity to select a career direction and to identify and pursue career oriented learning and employment opportunities.

Requirements

All 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, international 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, Regulations, 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)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS 101</td>
<td>First Year Seminar*</td>
</tr>
<tr>
<td>CIS 102</td>
<td>Computer Tools for Business</td>
</tr>
<tr>
<td>MAN 101</td>
<td>Principles of Management</td>
</tr>
<tr>
<td>AC 201</td>
<td>Financial Reporting</td>
</tr>
<tr>
<td>MK 200</td>
<td>Principles of Marketing</td>
</tr>
<tr>
<td>CIS 202</td>
<td>Introduction to Information Systems</td>
</tr>
<tr>
<td>AC 202</td>
<td>Managerial Accounting</td>
</tr>
<tr>
<td>QM 201</td>
<td>Introduction to Business Statistics</td>
</tr>
<tr>
<td>FIN 214</td>
<td>Corporation Finance</td>
</tr>
<tr>
<td>BUS 301</td>
<td>Integrated Business Operations</td>
</tr>
<tr>
<td>LS 301</td>
<td>Legal Aspects of Business</td>
</tr>
<tr>
<td>QM 310</td>
<td>Quality and Operations Management</td>
</tr>
<tr>
<td>BUS 450</td>
<td>Business Strategy</td>
</tr>
</tbody>
</table>

*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.
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 any two: biology, chemistry, geology, meteorology, or physics (6 cr)
EC 205-206 Principles of Economics I & II (6 cr)
PSY 101 Introduction to Psychology
— or —
SO 101 Introduction to Sociology
HIST xxx History Requirement
ENGL 201 Principles of Communication
PH 310 Ethics in the Professions
HUM xxx Elements of Culture Requirement
PEHR 151* Personal Health and Wellness (1 cr)
PEHR 153-159* Lifetime Activities Series (1cr)

*Not required for off-campus location 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.

SCHOOL OF ENGINEERING

Dean Eric Haffner
Assistant Dean Richard Grabiec, Jr.

Programs of Study

Engineering is a profession in which science and mathematics are integrated with design practice and experience to provide society with an efficient and economical use of energy, materials, and human resources.

The School of Engineering offers undergraduate curricula leading to the Bachelor of Science in Biomedical Engineering, Bachelor of Science in Electrical Engineering, Bachelor of Science in Industrial Engineering, and Bachelor of Science in Mechanical Engineering degrees. The programs leading to the B.S.E.E., B.S.I.E. and B.S.M.E. degrees are accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (ABET).

Since many of the same fundamental concepts underlie most branches of engineering, engineering majors take the same courses during the first three semesters. Thus students can change majors at any time during their freshmen and sophomore years without loss of progress toward a specific degree.

All of the curricula are based on mathematics and the basic sciences coupled with the engineering sciences common to all branches of the profession. Each program is designed to prepare a graduate to enter practice as a professional engineer or to continue in graduate study. Devoting approximately forty percent of the engineering program to the arts and sciences provides the broad liberal balance needed by the modern professional engineer.

The engineering profession led the industrial revolution by extending human hands and arms through the harnessing and control of energy. It is due to contributions of engineers that society now presents a work environment that is cleaner, quieter, more productive, less oppressive, and more exciting. The engineering profession is now engaged in developing tools and machines that can extend the human mind and present information in a form that can help make important decisions. Engineers are at the forefront of the information age.

The School of Engineering at Western New England College offers laboratory-intensive, practice-oriented programs culminating in a capstone senior design project. Many of the topics for projects are supplied by industry, giving students the opportunity to work with industrial sponsors in an actual engineering setting. Engineering internships in local industry are also available. Programs are available to serve the needs of students seeking a degree on either a full-time or part-time basis.

Graduate study is offered by the School of Engineering leading to a Master of Science in Engineering Management, a Master of Science in Electrical Engineering, and a Master of Science in Mechanical Engineering.

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 articulation agreements have been signed with the following community colleges: Adirondack, Berkshire, Cape Cod, Dutchess, Greenfield, Holyoke, Hudson Valley, Mercer County, Manchester Technical, Middlesex County, Mohawk Valley, Orange County, Rhode Island, and Springfield Technical, as well as Southern Connecticut State University. Other agreements are being developed. A 3+2 program with Siena College is also available. Under this program a student can receive a Bachelor of Arts degree in Math or Science from Siena in three years and a Bachelor of Science in Engineering from Western New England College in two more years.
Department Chairs and Faculty

**Department of Electrical Engineering**  
Associate Professor James Moriarty, Chair  
Professors Stephen Crist, Ronald Musiak;  
Associate Professor Kouroush Rahnamai

**Department of Industrial and Manufacturing Engineering**  
Professor J. Byron Nelson, Chair  
Professor Eric Haffner;  
Associate Professors Richard Grabiec, Gary Teng;  
Assistant Professors Abdul Kamal, Mary Vollaro

**Department of Mechanical Engineering**  
Professor Richard Veronesi, Chair  
Professors Said Dini, Alan Karplus, Mohammed Khosrowjerdi, Walter Presz

**Biomedical Engineering Program**  
Assistant Professor Steven Schreiner, Director

Requirements

A common curriculum for the first three 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 academic advisors permit students to participate in both the determination of their current status and the planning and scheduling of further course work. The College is committed to helping students succeed and seeks to challenge students with strong backgrounds and gives advanced placement for those who qualify. On the other hand, students who would benefit from a slower pace are urged to consult their academic advisors about alternative entry levels for chemistry, mathematics, and physics.

**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 110 Computer Applications in Engineering  
MATH 134 Calculus II  
ME 106 Statics  
PEHR 153-199 Lifetime Activity Series  
PHYS 134 Electricity and Magnetism

**SOPHOMORE YEAR**

*Fall Semester*

CHEM 105 General Chemistry I  
EC 205 Principles of Economics I  
EE 205 Introduction to Electrical Engineering I  
MATH 235 Calculus III  
ME 203 Dynamics

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 First Year Engineering Seminar and Introduction to Engineering. 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)**

Electives supplement the engineering student’s technical program. Humanities/social science electives may be selected from the list of humanities and social science courses approved by the School of Engineering. To ensure depth of knowledge, a two-semester sequence of courses in one area is required. 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. Undergraduate engineering students may take 500-level engineering courses for which they have satisfied the prerequisite requirements.
CONTINUING EDUCATION

Director Janet L. Castleman
Associate Director Harold F. Neunder
Coordinator of Services for Part-time Students
Judith A. Cadden

Part-time Day and Evening Study,
Undergraduate and Graduate

Western New England College has a long tradition of providing continuing education for students who need 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 time spent 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: Law Enforcement and Liberal Studies; in the School of Business: Accounting, Computer Information Systems, Finance, General Business, Management, and Marketing; in the School of Engineering: Electrical; Electrical with Computer option; Industrial; Industrial with Manufacturing option; Mechanical; Mechanical with Manufacturing option.

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.

Temporary non-degree study is also available for qualified undergraduate and graduate part-time students who need to take required courses prior to formal admission or who wish to explore new subject areas before entering a degree program. Non-degree students may also apply for the certificate programs, which are described in greater detail below.

Undergraduate Non-degree Options

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 Certificate Programs in chemistry, computer studies, and communication can be found on p. 117. Further information is available in the Office of Continuing Education.

Undergraduate Non-degree Courses

The temporary non-degree status is for students who wish to earn credit prior to formal admission or for visiting students from other colleges and universities. Qualifications include high school graduation or its equiva-
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 a broad range of positions in industrial, public, and institutional accounting. The combination of training in accounting, managerial 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 for a fifth-year, Master of Science in Accounting program that is intended to meet the academic requirement which 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 non-profit accounting. The major provides an excellent foundation for legal careers and advanced business degrees.

Faculty

Associate Professors: R. Loring Carlson, Mark Coffey, May Elgers-Lo
Assistant Professors: John Coulter, Thomas Vogel

Program Objectives

1. Understand the use of accounting information in the planning, controlling, and decision-making processes in organizations.
2. Classify and summarize financial information in accordance with generally accepted accounting principles.
3. Apply appropriate techniques of analysis and evaluation to financial and non-financial information.
4. Apply auditing standards and techniques and measure internal control objectives.
5. Knowledge of the basic concepts of federal taxation.

Course of Study

1. Core Requirements for All Business Majors (80 credit hours) See page 39.
   — plus —

2. Required Accounting courses (18 credit hours)
   AC 305    Financial Reporting II
   AC 306    Financial Reporting III
   AC 309    Cost Accounting
   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)
   ENGL 320    Professional Communication
   — or —
   ENGL 340    Business Communication
   EC 311    Money and Banking
   — plus —

4. Electives (18 credit hours)
   AC 3xx-4xx Accounting Elective (3 cr)
   AC 480    Accounting internship (3 cr)
   — or —
   Business Elective (3 cr)
   Non-Business Electives (12 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 AC305-306).

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

<table>
<thead>
<tr>
<th>Fall Semester</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS 101</td>
<td>First Year Seminar (GCR/BUSR) 3</td>
</tr>
<tr>
<td>ENGL 132*</td>
<td>English Composition I (GCR) 3</td>
</tr>
<tr>
<td>MATH 111*</td>
<td>Analysis for Business and Economics I (GCR/BUSR) 3</td>
</tr>
<tr>
<td></td>
<td>— or —</td>
</tr>
<tr>
<td>MATH 123*</td>
<td>Calculus I for Management, Life and Social Sciences (GCR/BUSR)</td>
</tr>
</tbody>
</table>
**Academic Programs**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>History</td>
<td>History Requirement (GCR) 3</td>
<td></td>
</tr>
<tr>
<td>MAN 101</td>
<td>Principles of Management (BUSR) — or —</td>
<td></td>
</tr>
<tr>
<td>CIS 102 *</td>
<td>Computer Tools for Business (BUSR) 3</td>
<td></td>
</tr>
<tr>
<td>PEHR 151*</td>
<td>Personal Health and Wellness (GCR) 1—</td>
<td></td>
</tr>
</tbody>
</table>

Demonstrated proficiency in Excel required for 2nd semester registration.

**Spring Semester**

- ENGL 133** English Composition II (GCR) 3
- MATH 112** Analysis for Business and Economics II (GCR/BUSR) 3
- 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—

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**Sophomore Year**

**Fall Semester**

- AC 201* ** Financial Reporting (BUSR) 3
- MK 200* ** Principles of Marketing (BUSR) 3
- CIS 202* ** Introduction to Information Systems (BUSR) 3
- EC 205* 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** Corporation Finance (BUSR) 3
- EC 206** Principles of Economics II (BUSR) 3
- ENGL 201** 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**

- BUS 301 Integrated Business Operations (BUSR) 3
- PH 310 Ethics in the Professions (BUSR) 3
- ENGL 320 Professional Communication (MR) — or —
- ENGL 340 Business Communication (MR)
- AC 305 Financial Reporting II (MR) 3
  Lab Science Laboratory Science Requirement (GCR) 3

15

**Spring Semester**

- LS 301 Legal Aspects of Business (BUSR) 3
- QM 310 Quality and Operations Management (BUSR) 3
- HUM xxx Elements of Culture Requirement (GCR) 3
- AC 306 Financial Reporting III (BUSR) 3
  Lab Science Laboratory Science Requirement (GCR) 3

15

**Senior Year**

**Fall Semester**

- AC 309 Cost Accounting (MR) 3
- AC 407 Financial Reporting IV 3
- AC 480 Accounting internship — or —
  Business Elective (BUSR) 3
- EC 311 Money and Banking (MR) 3
  Non-business Elective (BUSR) 3

15

**Spring Semester**

- BUS 450 Business Strategy (BUSR) 3
- AC 413 Fundamental Concepts of Taxation (MR) 3
- AC 419 Auditing and Assurance Services (MR) 3
- AC 3xx-4xx Accounting Elective (MR) 3
  Non-business Elective (BUSR) 3

15
In 1975, Western New England College was selected to offer academic programs at Hanscom Air Force Base for both military and civilian personnel. Throughout the country, professionals in the contracting field have become increasingly aware of the importance of standards of knowledge, ethics, and practical training in their chosen field of endeavor. Training in the economic, legal, and financial aspects of the procurement field has become increasingly important.

The professional in acquisition is responsible for cost analysis, forecasting of demands, pricing, negotiation, contracting, and administration of contracts to purchase materials and services for an organization in either the private or public sector.

Course of Study

1. Core Requirements for All Business Majors (78 credit hours) See page 39.
   — plus —
   Note: PEHR requirements are waived. Students should substitute a 3 credit elective in place of BUS101.
   — plus —

2. Required Legal Studies and Management courses (18 credit hours)
   LS 403  Government Contract Law
   MAN 202  Principles of Acquisition and Contracting
   MAN 203  Principles of Contract Pricing
   MAN 308  Employee Relations
   MAN 401  Contract Negotiation
   MAN 423  Human Resources Management
   — plus —

3. Other Required Courses (9 credit hours)
   AC 203  Government Accounting
   MK 201  Principles of Purchasing
   QM 336  Logistics/Physical Distribution

4. Electives (15 credit hours)
   MAN 480  Management Internship (3 cr)
   — or —
   Business Elective (3 cr)
   Non-Business Electives (12 cr)

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.

Suggested Sequence of Courses

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

Fall Semester

| Credit | ENGL 132*  English Composition I (GCR) 3
| Hours  | MATH 111* Analysis for Business and Economics I (GCR/BUSR) 3
|        | — or — MATH 123* Calculus I for Management, Life and Social Sciences (GCR/BUSR)
| History | History Requirement (GCR) 3
|        | Non-Business Elective (BUSR) 3
|        | General Elective (MR) 3
|        | 15

Demonstrated proficiency in Excel required for 2nd semester registration.

Spring Semester

| Credit | BUS 102* Business Problem Solving Using Spreadsheets (BUSR) 3
| Hours  | 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)
|        | MAN 101* Introduction to Management (BUSR) 3
|        | PSY 101 Introduction to Psychology (BUSR) 3
|        | — or — SO 101 Introduction to Sociology (BUSR) 3
|        | 15

Sophomore Year

Fall Semester

| Credit | AC 201*  ** Financial Accounting (BUSR) 3
| Hours  | MK 200** Principles of Marketing (BUSR) 3
|        | CIS 202** Introduction to Information Systems (BUSR) 3
### AMERICAN STUDIES MAJOR
School of Arts and Sciences

#### General Information
The major in American studies is designed for those students who are seeking a keener understanding of the character, opportunities, and challenges of the American experience. It offers an interdisciplinary approach because the politics, economic activity, religion, literature, arts, morality, and customs of America are inseparably connected in complex and important ways.

Note: Students majoring in American studies must develop a course plan with an academic advisor from either the Department of English and Humanities or the Department of History and Government. The selection of elective major courses in the senior year must adhere to the plan and be approved by the academic advisor.

#### Career Opportunities
This program of study will prepare students for a variety of careers that require a well-rounded perspective on American life, but is especially appropriate for students with an interest in education. In addition, the broad background of study prepares students for entry into an array of graduate school programs in the arts, humanities, or social sciences.

#### Faculty
Professors: John Andrulis, Eugene Angus, John Anzalotti, Emmett Barcalow, Jr., Michael A. Meeropol, Vladimir Wozniuk
Associate Professors: Charles Fish, Richard Haber, Robert R. Klein, William Mandel, Donald C. Williams
Assistant Professor: John Seung-Ho Baick

#### Program Objectives
The objectives of the American studies program are to provide the students with an interdisciplinary approach to the study of American history, literature, art, music, and culture. Students who successfully complete the program are expected:

1. To develop an appreciation of the distinctive elements of art, music, and literature that characterizes American culture, both past and present.

2. To make the connection between past political, social, and economic forces and the shaping of our contemporary world.

3. To acquire a core knowledge of public policies, ideologies, and institutions in the larger context of the American political process.

4. To appreciate the struggles of peoples of color for acceptance and equality in American society.

5. To demonstrate an advanced capability to read analytically and write effectively in a variety of genres.

### Academic Programs

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>EC 205*</td>
<td>Principles of Economics I (BUSR)</td>
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#### Spring Semester

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<tr>
<td>AC 202**</td>
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<tr>
<td>QM 201**</td>
<td>Introduction to Statistics (BUSR)</td>
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</tr>
<tr>
<td>FIN 214**</td>
<td>Corporation Finance (BUSR)</td>
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<td>Principles of Communication (BUSR)</td>
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Non-credit career planning – Completion of individual development/career plan required for registration for Junior year.

#### Junior Year

##### Fall Semester

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<tbody>
<tr>
<td>BUS 301</td>
<td>Integrated Business Operations (BUSR)</td>
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<td>PH 310</td>
<td>Ethics in the Professions (BUSR)</td>
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<tr>
<td>MAN 202</td>
<td>Principles of Acquisition and Contracting (MR)</td>
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#### Spring Semester

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<tr>
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<td>QM 310</td>
<td>Quality and Operations Management (BUSR)</td>
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<td>HUM xxx</td>
<td>Elements of Culture Requirement (GCR)</td>
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<tr>
<td>MAN 203</td>
<td>Principles of Contract Pricing (MR)</td>
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<td>Lab Science</td>
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#### Senior Year

##### Fall Semester

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<td>MAN 308</td>
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##### Spring Semester

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<tr>
<td>BUS 450</td>
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<td>Government Accounting (MR)</td>
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<td>MAN 401</td>
<td>Contract Negotiation (MR)</td>
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<td>MAN 423</td>
<td>Human Resources Management (MR)</td>
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<td><strong>Total</strong></td>
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</table>
6. To pursue their own individual interests and expertise through a variety of course electives both in American studies and the liberal arts and sciences.

**General and School Requirements**

See General College Requirements and Requirements of the School of Arts and Sciences, pp. 36-38. It should be noted that American studies majors must take EC 101, SO 101, and PSY 101 as prerequisites for several of the requirements listed below.

**Course of Study**

1. Required courses (45 credit hours)
   - The Arts in America-two courses (6 credit hours)
   - EC 316 American Economic History
   - ENGL 336 Ethnic American Literature
   - ENGL xxx another course in American Literature
   - GO 102 American Government
   - GO 336 Public Policy in America
   - HIST 111 United States History to 1877
   - HIST 112 United States History, 1878 to the Present
   - HIST 218 U.S. Social History, 1607-1877
   - HIST 219 U.S. Social History 1877 to the Present
   - PH 302 The American Intellectual Tradition
   - SO 311 Sociology of Minority Groups
   - SO 314 American Culture and the Black Experience
   - AMST 490 Seminar in American Studies

2. Elective courses (9 credit hours). American Studies majors must choose three of the following courses.
   - EC 361 Urban Economics
   - ED 302 History of American Education
   - GO 320 The U.S. Congress and Presidency
   - GO 324 Parties and Elections
   - GO 325 Constitutional Law
   - GO 350 American Foreign Policy
   - HIST 354 Civil War and Reconstruction
   - HIST 358 History of the United States since 1945
   - HIST 359 The United States in Vietnam

   The 2.0 required grade point average in the major is based upon all the AMST, ART, EC, ENGL, GO, HIST, and PH courses in the 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**

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<th>Course</th>
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<tr>
<td>HIST 111</td>
<td>United States History to 1877 (GCR/MR)</td>
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<tr>
<td>GO 102*</td>
<td>American Government (A&amp;SR/MR)</td>
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<tr>
<td>MATH 1xx*</td>
<td>Mathematics (GCR)</td>
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<td>ENGL 132*</td>
<td>English Composition I (GCR)</td>
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<td>LA 100</td>
<td>First Year Seminar (GCR)</td>
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**Spring Semester**

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<tbody>
<tr>
<td>HIST 112</td>
<td>United States History 1878-present (MR)</td>
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<tr>
<td>SO 101*</td>
<td>Introduction to Sociology (A&amp;SR)</td>
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<tr>
<td>MATH 1xx**</td>
<td>Mathematics (GCR)</td>
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<tr>
<td>ENGL 133**</td>
<td>English Composition II (GCR)</td>
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<td>GEN xxx</td>
<td>General Elective</td>
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<td>PEHR 151</td>
<td>Personal Health and Wellness (GCR)</td>
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**Sophomore Year**

**Fall Semester**

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<tr>
<th>Course</th>
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<tbody>
<tr>
<td>HIST 218</td>
<td>U.S. Social History, 1607-1877 (MR)</td>
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<td>EC 101*</td>
<td>Introduction to Economic Issues (MR/A&amp;S)</td>
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<td>LAB xxx</td>
<td>Laboratory Science Requirement (GCR)</td>
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<td>ENGL 2xx</td>
<td>American Literature (MR/A&amp;S)</td>
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<td>GEN xxx</td>
<td>General Elective</td>
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<td>PEHR 153-199</td>
<td>Lifetime Activities Series (GCR)</td>
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**Spring Semester**

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<tr>
<td>HIST 219</td>
<td>U.S. Social History 1878 to the Present (MR)</td>
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<tr>
<td>CS 131</td>
<td>Computing for the Arts and Sciences (GCR)</td>
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<tr>
<td>PSY 101*</td>
<td>Introduction to Psychology</td>
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<tr>
<td>LAB xxx</td>
<td>Laboratory Science Requirement (GCR)</td>
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<tr>
<td>AMST xxx</td>
<td>The Arts in America (A&amp;SR/MR)</td>
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<td>GEN xxx</td>
<td>General Elective</td>
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**Junior Year**

**Fall Semester**

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<tr>
<th>Course</th>
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<tbody>
<tr>
<td>PH 302**</td>
<td>The American Intellectual Tradition (MR)</td>
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<tr>
<td>SO 314**</td>
<td>American Culture and the Black Experience (MR)</td>
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<tr>
<td>EC 316**</td>
<td>American Economic History (MR)</td>
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<tr>
<td>ENGL 336**</td>
<td>Ethnic American Literature (MR)</td>
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<td>General Elective</td>
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**Spring Semester**

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<tr>
<th>Course</th>
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<tbody>
<tr>
<td>GO 336**</td>
<td>Public Policy in America (MR)</td>
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<tr>
<td>SO 311**</td>
<td>Sociology of Minority Groups (MR)</td>
</tr>
<tr>
<td>AMST xxx</td>
<td>The Arts in America (MR)</td>
</tr>
</tbody>
</table>
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.

Career Opportunities
Biology graduates are employed as laboratory technicians, product analysts, and quality control technicians. Others are in research, teaching, and in graduate work leading to the professions.

Faculty
Professors: Walter Coombs, Robert Holdsworth, Lorraine Sartori
Associate Professor: Gail Fletcher

Program Objectives
1. To demonstrate knowledge of basic structure and functioning of cells.
2. To understand the basic features of the synthetic theory of evolution.
3. To understand basic ecological principles.
4. To understand the principles and mathematical analysis of Mendelian and non-Mendelian inheritance.
5. To understand the structure and function of nucleic acids and molecular controls.
6. To understand the major morphologic transformations of vertebrate embryogenesis.
7. To understand the process and controls on the physiology of vertebrate organisms.
8. To achieve additional understanding in population biology, organismic biology, or cellular and molecular biology.
9. To develop quantitative problem solving skills and data analysis.

General and School Requirements
See General College Requirements and School of Arts and Sciences Requirements, pp. 36-38.

Course of Study
1. 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

2. Required chemistry courses (16 credit hours)
   CHEM 105-106 General Chemistry I & II
   CHEM 209-210 Organic Chemistry I & II
   CHEM 219-220 Organic Chemistry Laboratories I & II

3. Seven additional credit hours in biology courses at or above the 200 level (which may include CHEM 314 Biochemistry).

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 207 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

<table>
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<tr>
<th>Fall Semester</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>BIO 107*</td>
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<td>BIO 117*</td>
<td>General Biology Laboratory I (MR) 1</td>
</tr>
<tr>
<td>CHEM 105*</td>
<td>General Chemistry I (MR) 4</td>
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<tr>
<td>ENGL 132*</td>
<td>English Composition (GCR) 3</td>
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<td>LA 100</td>
<td>First Year Seminar (GCR) 2</td>
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<td>MATH 109</td>
<td>Pre-Calculus Mathematics (GCR/MR) 3</td>
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<tr>
<td>BIO 108**</td>
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<td>BIO 118**</td>
<td>General Biology Laboratory II (MR) 1</td>
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<td>CHEM 106**</td>
<td>General Chemistry II (MR) 4</td>
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<td>ENGL 133**</td>
<td>English Composition II (GCR) 3</td>
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<td>MATH 207</td>
<td>Introductory Statistics for the Arts and Sciences (GCR/MR) 3</td>
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<td>PEHR 151</td>
<td>Personal Health and Wellness (GCR) 1</td>
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Sophomore Year

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<td>BIO 201**</td>
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<td>CHEM 209**</td>
<td>Organic Chemistry I (MR) 3</td>
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<td>CHEM 219**</td>
<td>Organic Chemistry Laboratory I (MR) 1</td>
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<td>AR xxx</td>
<td>Area I Requirement – Literature or Philosophy (A&amp;SR) 3</td>
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<td>HIST xxx</td>
<td>History Requirement (GCR) 3</td>
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<td>PEHR 153-199</td>
<td>Lifetime Activities Series (GCR) 1</td>
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<td>ARII xxx</td>
<td>Area II Requirement – EC xxx or GO xxx (A&amp;SR) 3</td>
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Junior Year

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<td>Elementary Physics I (MR) 3</td>
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<td>GEN xxx</td>
<td>General Elective 5</td>
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<th>Credit Hours</th>
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<td>Biology Elective (MR) 3</td>
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<td>Literature/Philosophy/Art (A&amp;SR) 3</td>
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<td>Elementary Physics II (MR) 3</td>
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Senior Year

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<td>ARII xxx</td>
<td>Area II Requirement – PSY xxx or SO xxx (A&amp;SR) 3</td>
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<td>ARII xxx</td>
<td>Area II Elective (A&amp;SR) 3</td>
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<tr>
<td>BIO 210</td>
<td>Vertebrate Physiology 3</td>
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<td>Vertebrate Physiology Laboratory 1</td>
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<td>Cell Biology (MR) 4</td>
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<tr>
<td>GEN xxx</td>
<td>General Elective 3</td>
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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 one of three concentration areas: electrical engineering, mechanical engineering, or the life sciences. The student will acquire expertise in these areas by enrolling in established courses within the related programs (EE, ME, Biology/Chemistry). 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 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

Assistant Professors: Steven Schreiner, Mary Vollaro
Affiliated Faculty: John Grippo

Program Objectives

Upon the successful completion of the degree requirements, the graduate will be able to:
1. Mathematically model and analyze physiological systems.
2. Design, analyze, and simulate electrical circuits and/or mechanical systems.
3. Practice quality laboratory procedures with a solid understanding of instrumentation and measurement.
4. Communicate effectively in both written reports and oral presentations.
5. Apply the knowledge and skills acquired to a variety of professional biomedical engineering positions in both the public and private sectors in product design, development, research, manufacturing, consulting, and sales; or in graduate or professional school.

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

Freshman Year

<table>
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<th>Fall Semester</th>
<th>Credit Hours</th>
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<tbody>
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<td>ENGL 132*</td>
<td>English Composition I (GCR/ER/MR) 3</td>
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<td>ENGR 103*</td>
<td>Introduction to Engineering (ER/MR) 4</td>
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<tr>
<td>MATH 133*</td>
<td>Calculus I (GCR/ER/MR) 4</td>
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<td>PEHR 151</td>
<td>Personal Health and Wellness (GCR) 1</td>
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<tr>
<td>PHYS 133*</td>
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<td>Computer Applications in Engineering (GCR/ER/MR) 2</td>
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<td>MATH 134***</td>
<td>Calculus II (GCR/ER/MR) 4</td>
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<td>ME 106***</td>
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<td>PEHR 153-199**</td>
<td>Lifetime Activities Series (GCR) 1</td>
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<td>PHYS 134**</td>
<td>Electricity and Magnetism (GCR/ER/MR) 4</td>
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Sophomore Year

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<tbody>
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<tr>
<td>EC 205</td>
<td>Economics I (MR) 3</td>
</tr>
<tr>
<td>EE 205**</td>
<td>Introduction to Electrical Engineering (MR) 3</td>
</tr>
<tr>
<td>MATH 235**</td>
<td>Calculus III (ER/MR) 3</td>
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<tr>
<td>ME 203**</td>
<td>Dynamics (ER/MR) 3</td>
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<table>
<thead>
<tr>
<th>Spring Semester</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>CHEM 106**</td>
<td>General Chemistry II (MR) 4</td>
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<tr>
<td>CPE 205</td>
<td>Introduction to Computer Programming (MR) 2</td>
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<tr>
<td>EE 206**</td>
<td>Introduction to Electrical Engineering II (ER/MR) 3</td>
</tr>
<tr>
<td>MATH 236**</td>
<td>Differential Equations (ER/MR) 3</td>
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<tr>
<td>ENGR 212**</td>
<td>Probability and Statistics (ER/MR) 3</td>
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Electrical Engineering Option

<table>
<thead>
<tr>
<th>Junior Year</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>Fall Semester</td>
<td>Credit Hours</td>
</tr>
<tr>
<td>BME 301**</td>
<td>Engineering Physiology I (MR) 4</td>
</tr>
<tr>
<td>BME 331**</td>
<td>Bioinstrumentation (MR) 3</td>
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<tr>
<td>MATH 350**</td>
<td>Engineering Analysis I (ER/MR) 3</td>
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<tr>
<td>EE 301**</td>
<td>Signals &amp; Systems I (MR) 3</td>
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<td></td>
<td>Humanities/Social Science (ER/MR) 3</td>
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<table>
<thead>
<tr>
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<th>Credit Hours</th>
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<tbody>
<tr>
<td>BME 302**</td>
<td>Engineering Physiology II (MR) 4</td>
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<tr>
<td>BME 350**</td>
<td>Biomedical Thermodynamics (MR) 3</td>
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<tr>
<td>HUM 2xx**</td>
<td>Elements of Culture (GCR/ER/MR) 3</td>
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### Senior Year

#### Fall Semester
<table>
<thead>
<tr>
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<th>Course Title</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>IE 410**</td>
<td>Engineering Project Management</td>
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</tr>
<tr>
<td>BME 451**</td>
<td>Biomechanics (MR)</td>
<td>3</td>
</tr>
<tr>
<td>HIST xxx</td>
<td>History Elective (GCR/ER/MR)</td>
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<tr>
<td>ME 425**</td>
<td>Design of Machine Elements (MR)</td>
<td>3</td>
</tr>
<tr>
<td>ME 313**</td>
<td>Mechanical Engineering Lab I (MR)</td>
<td>2</td>
</tr>
<tr>
<td>Design Elective (ER/MR) &amp; 3</td>
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#### Spring Semester
<table>
<thead>
<tr>
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<th>Course Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>BME 440**</td>
<td>Senior Design Projects (MR)</td>
<td>3</td>
</tr>
<tr>
<td>ME 314**</td>
<td>Mechanical Engineering Lab II (MR)</td>
<td>2</td>
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<tr>
<td>ME 316**</td>
<td>Fluid Mechanics (MR)</td>
<td>3</td>
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<tr>
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<tr>
<td>ME 543**</td>
<td>Introduction to Computer-aided Manufacturing</td>
<td>3</td>
</tr>
<tr>
<td>ME 590**</td>
<td>Special Topics in Mechanical Engineering</td>
<td>3</td>
</tr>
<tr>
<td>ME 312**</td>
<td>Engineering Economic Analysis</td>
<td>3</td>
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</tbody>
</table>

### Electrical Engineering Option Electives

- CPE 271 Digital Design
- EE 314** Fields and Waves
- EE 422** Control Systems
- EE 511** Random Signals and Noise
- EE 525** Linear Systems Theory
- EE 535** Fuzzy Logic
- EE 545** Neural Networks
- EE 570** Computer Controlled Systems
- EE 580** Signal Processing
- EE 590** Special Topics in Electrical Engineering
- IE 312** Engineering Economic Analysis

### Mechanical Engineering Option Electives

- EE 422** Control Systems
- ME 320** Mechanical Vibrations
- ME 511** Advanced Mechanics of Materials
- ME 519** Experimental Stress Analysis
- ME 542** Computer-aided Engineering
- ME 543** Introduction to Computer-aided Manufacturing
- ME 590** Special Topics in Mechanical Engineering
- IE 312** Engineering Economic Analysis

### Life Sciences Option

#### Junior Year

#### Fall Semester
<table>
<thead>
<tr>
<th>Course ID</th>
<th>Course Title</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>BME 301**</td>
<td>Engineering Physiology I (MR)</td>
<td>4</td>
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<tr>
<td>BME 331**</td>
<td>Bioinstrumentation (MR)</td>
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</tr>
<tr>
<td>MATH 350**</td>
<td>Engineering Analysis I (ER/MR)</td>
<td>3</td>
</tr>
<tr>
<td>ME 312**</td>
<td>Kinematics and Dynamics of Machinery (MR)</td>
<td>3</td>
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<tr>
<td></td>
<td>Humanities/Social Science (GCR/ER/MR)</td>
<td>3</td>
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#### Spring Semester
<table>
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<tr>
<th>Course ID</th>
<th>Course Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>BME 302**</td>
<td>Engineering Physiology II (MR)</td>
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<tr>
<td>BME 350**</td>
<td>Biomedical Thermodynamics (MR)</td>
<td>3</td>
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<tr>
<td>HUM 2xx**</td>
<td>Elements of Culture (GCR/ER/MR)</td>
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<tr>
<td>BME 340**</td>
<td>Biomaterials (MR)</td>
<td>3</td>
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<tr>
<td>ME 208**</td>
<td>Mechanics of Materials (MR)</td>
<td>3</td>
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<td>16</td>
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</table>
Senior Year

**Fall Semester**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>IE 410** Engr. Project Management (MR)</td>
<td>3</td>
</tr>
<tr>
<td>BME 451** Biomechanics (MR)</td>
<td>3</td>
</tr>
<tr>
<td>HIST xxx History Elective (GCR/ER/MR)</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 209** Organic Chemistry I (MR)</td>
<td>3</td>
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<tr>
<td>CHEM 219** Organic Chemistry I Lab (MR)</td>
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<tr>
<td>BIO 310* Cell Biology (MR)</td>
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**Spring Semester**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BME 440** Senior Design Projects (MR)</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 210** Organic Chemistry II (MR)</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 220** Organic Chemistry II Lab (MR)</td>
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<tr>
<td>Humanities/Social Science (GCR/ER/MR)</td>
<td>3</td>
</tr>
<tr>
<td>Life Science Option Elective (MR)</td>
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<tr>
<td>Life Science Option Elective (MR)</td>
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**Life Sciences Option Electives**

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>BIO 303** Microbiology</td>
</tr>
<tr>
<td>BIO 304** Histology</td>
</tr>
<tr>
<td>BIO 306** Genetics</td>
</tr>
<tr>
<td>BIO 312** Developmental Biology</td>
</tr>
<tr>
<td>BIO 313** Microbiology Lab</td>
</tr>
<tr>
<td>BIO 455** Evolution</td>
</tr>
<tr>
<td>CHEM 314** Biochemistry</td>
</tr>
<tr>
<td>CHEM 324** Biochemistry Lab</td>
</tr>
<tr>
<td>IE 312*** Engineering Economic Analysis</td>
</tr>
</tbody>
</table>

1. A humanities course with a “CA” description satisfies this GCR requirement. Students may also satisfy this GCR by taking two courses: a humanities course designated with a “C” and another course designated with an “A.” Upon approval of the academic advisor, the second course may be used to satisfy a Humanities/Social Science requirement. Course descriptions are in the catalogue.

2. Engineering science electives are selected in consultation with a faculty advisor.

3. Design electives must be selected from a list published in each semester’s course schedule.

Total credit hours required for graduation –
132 (ME or EE Option)
134 (Life Science Option)

The 2.0 required grade point average in the major is based upon all engineering courses pursued in the student’s degree program with the exception of ENGR 100.

---

**CHEMISTRY MAJOR**

**School of Arts and Sciences**

**General Information**

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 or related fields including medicine and biochemistry. Many graduates of the program have sought and gained entrance to graduate study in chemistry and other related fields.

**Faculty**

Professor: Richard Ball
Associate Professor: Anne Poirot

**Program Objectives**

1. To understand and apply the scientific method as a logical means to discover and test chemical concepts.
2. To gain an understanding of some fundamental physical laws of nature governing the behavior of substances.
3. To develop laboratory techniques and skills, using both classical and modern instrumental methods, necessary to determine chemical and physical properties of materials and make accurate qualitative and quantitative assessment of material compositions.
4. To learn to represent in two and three dimensions the structures of ions, molecules, and other chemical complexes using various notations or conventions.
5. To identify functional groups in complex molecules and predict and understand their properties and reactivities.
6. To understand the role of chemical forces, both intramolecular and intermolecular, in determining chemical and physical properties of substances.
7. To develop an awareness of the chemical literature as a reflection of current knowledge.

**General and School Requirements**

See General College Requirements and Arts and Sciences Requirements pp. 36-38.

**Course of Study**

1. Required chemistry courses (39 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

2. Mathematics and physics courses (19 credit hours)
MATH 133-134  Calculus I & II
MATH 235  Calculus III
PHYS 133  Mechanics
PEHR 151  Personal Health and Wellness

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.

* 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
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

Spring Semester
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

Sophomore Year

Fall Semester
CHEM 209**  Organic Chemistry I (MR) 3
CHEM 211**  Analytical Methods (MR) 3
CHEM 219**  Organic Chemistry Laboratory I (MR) 1
CHEM 221  Analytical Methods Laboratory (MR) 1

MATH 235**  Calculus III (MR) 3
CS xxx  Computer Requirement (GCR) 3
ARII xxx  Area II Requirement-PSY xxx or SO xxx (A&SR) 3

Spring Semester
CHEM 210**  Organic Chemistry II (MR) 3
CHEM 220**  Organic Chemistry Laboratory II (MR) 1
CHEM 312  Instrumental Analysis (MR) 3
CHEM 322  Instrumental Analysis Laboratory (MR) 1

Junior Year

Fall Semester
CHEM 317**  Physical Chemistry I (MR) 3
CHEM 327**  Physical Chemistry Laboratory (MR) 1
CHEM 314**  Biochemistry (MR) 3
CHEM 324**  Biochemistry Laboratory (MR) 1
HUM 2xx  Elements of Culture-Humanities Requirement 3
GEN xxx  General Elective 3

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

Senior Year

Fall Semester
ARII xxx  Area II Requirement –EC xxx/GO xxx (A&SR) 3
HIST xxx  History Requirement (GCR) 3
ARI xxx  Literature/Philosophy/Art (A&SR) 3
ARI xxx  Area II Elective (A&SR) 3
CHEM 421**  Inorganic Chemistry (MR) 3

Spring Semester
ARI xxx  Area I Requirement –Literature/Philosophy/Art (A&SR) 3
ARTS xxx  Elements of Culture –Arts Requirement (GCR) 3
CHEM xxx  300 or 400 CHEM Elective 3
GEN xxx  General Elective 3
GEN xxx  General Elective 3

A&SR  School of Arts and Sciences Requirement
GCR  General College Requirement
MR  Major Requirement

COMPUTER INFORMATION SYSTEMS MAJOR
School of Business

General Information
The computer information systems major emphasize application of computer systems to the solution of complex problems in business, government, and non-profit 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, Jerzy Letkowski, Marilyn Pelosi
Associate Professors: Robert Gray, David Russell

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 page 39.
   — plus —
2. Required CIS courses (19 credit hours)
   CIS 206 Object Oriented Language I (4cr)
   CIS 210 Technological Foundations of Information Systems
   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-4xx Electives* (3 cr)
   CIS 480 CIS Internship (3 cr)
   — or —
   Business Elective (3 cr)
   Non-Business Electives (18 cr)

Total credit hours required for graduation – 123

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.
   • Not to include CIS 480

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**

<table>
<thead>
<tr>
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<tbody>
<tr>
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<td>ENGL 132*</td>
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<td>MATH 111*</td>
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<tr>
<td>MATH 123*</td>
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<tr>
<td>History</td>
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<td>MAN 101</td>
<td>3</td>
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<tr>
<td>CIS 102 *</td>
<td>3</td>
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<tr>
<td>PEHR 151*</td>
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Demonstrated proficiency in Excel required for 2nd semester registration.

**Spring Semester**

<table>
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<tbody>
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<tr>
<td>MATH 124**</td>
<td>3</td>
</tr>
<tr>
<td>MAN 101*</td>
<td>3</td>
</tr>
<tr>
<td>CIS 102 *</td>
<td>3</td>
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<td>PSY 101</td>
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<td>SO 101</td>
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<td>PEHR 153-159**</td>
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## Sophomore Year

**Fall Semester**

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<tbody>
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<td>AC 201* **</td>
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<tr>
<td>MK 200* **</td>
<td>3</td>
</tr>
<tr>
<td>CIS 202* **</td>
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</tr>
<tr>
<td>EC 205*</td>
<td>3</td>
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<td>— or —</td>
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<tr>
<td>EC 205*</td>
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**Spring Semester**

<table>
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<th>Credit Hours</th>
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<tbody>
<tr>
<td>AC 202**</td>
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<td>QM 201**</td>
<td>3</td>
</tr>
<tr>
<td>FIN 214**</td>
<td>3</td>
</tr>
<tr>
<td>EC 206**</td>
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<tr>
<td>ENGL 201**</td>
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## Junior Year

**Fall Semester**

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>BUS 301</td>
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<td>PH 310</td>
<td>3</td>
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<tr>
<td>CIS 206</td>
<td>4</td>
</tr>
<tr>
<td>Lab Science</td>
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</tbody>
</table>

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

**Spring Semester**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>LS 301</td>
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<tr>
<td>QM 310</td>
<td>3</td>
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<td>HUM xxx</td>
<td>3</td>
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<tr>
<td>CIS 210</td>
<td>3</td>
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<tr>
<td>Lab Science</td>
<td>3</td>
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</table>

## Senior Year

**Fall Semester**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit Hours</th>
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<tbody>
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<td>CIS 321</td>
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<tr>
<td>CIS 413</td>
<td>3</td>
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<tr>
<td>CIS 3xx-4xx</td>
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<tr>
<td>CIS 480</td>
<td>3</td>
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**Spring Semester**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>BUS 450</td>
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<tr>
<td>CIS 417</td>
<td>3</td>
</tr>
<tr>
<td>CIS 430</td>
<td>3</td>
</tr>
<tr>
<td>CIS 480</td>
<td>3</td>
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<tr>
<td>— or —</td>
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</tbody>
</table>

Non-credit career planning – Completion of individual development/career plan required for registration for Junior year.
COMPUTER SCIENCE MAJOR
School of Arts and Sciences

General Information
The computer science major stresses the scientific, mathematical, and theoretical aspects of the design of computer systems and their applications. The program is interdisciplinary in nature and involves course work in computer science, computer engineering, and mathematics. Students focus on the conceptual design and development of the written instructions, or coding, known as software, that directs computers or computer applications, and the interaction of this coding with computer machinery. Students are also introduced to the design of hardware in small and large computer systems.

The program includes a solid foundation in mathematics, a necessity for any computer scientist. There is sufficient flexibility to allow students to pursue additional course work in software and/or hardware development, mathematics, business, and data processing.

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 professional areas such as software design, software development, software management, systems programming, and systems analysis.

Leading to a Bachelor of Science degree, the program has been structured to follow the current recommendations of the Computer Science Curriculum Committee of the Association of Computing Machinery.

Career Opportunities
The nationwide demand for graduates in computer science with substantial technical and mathematical training is strong, and future employment projections indicate that the demand will continue to increase. Career opportunities in computer science cover a wide range from systems programming and systems analysis in data processing environments to application programming in scientific and technical areas. Increasingly sophisticated uses of computers are 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 Professor: Jay Alan Jackson
Assistant Professor: Lisa Hansen
Professional Educator: John Willemain

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

1. To learn concepts of computer science:
   - Become independent learners
   - Have the foundation and framework for learning new concepts
   - Prepare for rapid acquisition and assimilation of specifics of real problems and systems

2. To develop and justify theories:
   - Analyze complex systems, make conjectures
   - Argue the truth of assertions systematically

3. To apply the process of abstraction:
   - Conduct systematic investigations
   - Derive general principles and abstractions
   - Experiment to verify principles and correctness of abstractions
   - Use statistical analysis of experiments

4. To design systems:
   - Discover and analyze requirements for a system
   - Create well-structured and testable specifications
   - Design a system to meet the specifications
   - Construct and implement a system meeting the specification and satisfying the requirements

5. To gain experience:
   - In communication in technical and non-technical area
   - In analysis and design of systems
   - In collaborative group work

6. To develop skills:
   - In high-level language programming in two standard languages
   - In design and application of data structures
   - In algorithm selection and design
   - In hardware principles; hardware/software tradeoffs
   - In systems analysis

General and School Requirements
See General College Requirements and School of Arts and Sciences Requirements, pp. 36-38.

Course of Study
Notes:
* Is a prerequisite
** Has a prerequisite
MR Major Requirement
GCR General College Requirement
A&SRT School of Arts and Sciences Requirement

1. Required computer science and engineering courses
(32 credit hours)
   CS 181  Computer Science I
   CS 182  Computer Science II
   CS 283  Data Structures
   CS 351  Organization of Programming Languages
   CS 411  Operating Systems
CS 490  Software Engineering  
CPE 271  Digital Design  
CPE 310  Machine and Assembly Language  
CPE 420  Computer Architecture  
CPE 450  Design and Analysis of Algorithms  

2. Required mathematics and science courses  
(29 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 Mathematical Foundations and Methods for Computer Science  
PH 104  Elementary Logic  
PHYS 133  Mechanics  
PHYS 134  Electricity & Magnetism  

3. Technical Elective (three credit hours). One additional CS or CPE course numbered 300 or above.  

Notes:  
Students with a strong secondary school mathematics background and an interest in engineering and science may elect to enroll in MATH 133 and MATH 134 in lieu of MATH 123 and MATH 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 upon all CS, MATH, CPE, and CIS 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

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<thead>
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<th>Credit Hours</th>
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<tbody>
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<td>Calculus I for Management, Life, and Social Sciences (MR/GCR)</td>
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Spring Semester

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### Sophomore Year

#### Fall Semester

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<td>MATH 261**</td>
<td>Discrete Structures I (MR)</td>
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#### Spring Semester

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<td>Electricity and Magnetism (MR/GCR)</td>
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### Junior Year

#### Fall Semester

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<td>MATH 363**</td>
<td>Mathematical Foundations and Methods for Computer Science (MR)</td>
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<td>Linear Algebra (MR)</td>
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<td>Elements of Culture – Arts Requirement</td>
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<td>GEN xxx</td>
<td>CS xx Elective or General Elective (GCR)</td>
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<td>Elements of Culture – Humanities Requirement (GCR)</td>
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<td>General Elective</td>
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#### Spring Semester

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<th>Title</th>
<th>Credit Hours</th>
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<tr>
<td>CPE 271*</td>
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<td>CS 351**</td>
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<td>MATH 306**</td>
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<td>Elements of Culture – Humanities Requirement (GCR)</td>
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<tr>
<td>GEN xxx</td>
<td>General Elective</td>
<td>3</td>
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</table>

### Notes for Sophomore and Junior Year Courses:

- Many courses are prerequisites for other courses.
- Students are encouraged to consult with their academic advisors to plan their course selections.
- Course requirements may vary by year and program.
Senior Year

**Fall Semester**

<table>
<thead>
<tr>
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**Spring Semester**

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<th>Course Title</th>
<th>Credits</th>
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<td>CPE 450**</td>
<td>Design and Analysis of Algorithms (MR)</td>
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<td>CS 411**</td>
<td>Operating Systems (MR)</td>
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<td>— or —</td>
<td>Software Engineering (MR)</td>
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<td>General Elective</td>
<td>3</td>
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<tr>
<td>GEN xxx</td>
<td>General Elective</td>
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</tbody>
</table>

**Note:** Alternate course suggestions appear in several semesters because all 300-400 level CS courses as well as MATH 363 are offered on an alternate year basis. The student takes whichever of the alternates is offered in that semester. MATH 306 is offered every spring semester, but not every fall semester.

**Faculty**

Associate Professor: Larry Field  
Professional Educators: Alfred Ingham, 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.
5. Professional preparation in the specific field of juvenile justice: to understand its history, development, and operation.

**General and School Requirements**

See General College Requirements and School of Arts and Sciences Requirements, pp. 36-38.

**Course of Study**

1. Required criminal justice courses (36 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 Introduction to Law Enforcement
   - CJ 220 Evidence
   - CJ 310 Criminal Law
   - CJ 311 Criminal Investigation
   - CJ 312 Criminal Procedure
   - CJ 314 The Judicial Process
   - CJ 325 Forensic Science
   - CJ 340 Ethical Decision-making in Law Enforcement
   - CJ 342 Juvenile 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
### Undergraduate Academic Programs

<table>
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<tr>
<th>Course</th>
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<tbody>
<tr>
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<td>English Composition I</td>
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<td>ENGL 133</td>
<td>English Composition II</td>
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<tr>
<td>ENGL 2xx-3xx</td>
<td>Literature</td>
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<tr>
<td>ENGL 2xx-3xx</td>
<td>Literature</td>
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<tr>
<td>GO 102</td>
<td>American Government</td>
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<tr>
<td>GO 325</td>
<td>Constitutional Law</td>
</tr>
<tr>
<td>HIST 1xx</td>
<td>History</td>
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<tr>
<td>HIST 1xx</td>
<td>History</td>
</tr>
<tr>
<td>HUM 2xx</td>
<td>Elements of Culture</td>
</tr>
<tr>
<td>LA 100</td>
<td>First Year Seminar</td>
</tr>
<tr>
<td>MATH 105</td>
<td>Contemporary Mathematics I</td>
</tr>
<tr>
<td>MATH 106</td>
<td>Contemporary Mathematics II</td>
</tr>
<tr>
<td>PH 1xx</td>
<td>Philosophy</td>
</tr>
<tr>
<td>PSY 101</td>
<td>Introduction to Psychology</td>
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<tr>
<td>SO 101</td>
<td>Introduction to Sociology</td>
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<tr>
<td>SO 309</td>
<td>Social Deviation and Control</td>
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<tr>
<td>PSY 306</td>
<td>Abnormal Psychology</td>
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<tr>
<td>PSY 315</td>
<td>Social Environment and Human Behavior</td>
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<td>SO 314</td>
<td>American Culture and the Black Experience</td>
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<tr>
<td>SO 305</td>
<td>The Sociology of Urban Life</td>
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<tr>
<td>SO 311</td>
<td>Sociology of Minority Groups</td>
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</table>

### 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**

<table>
<thead>
<tr>
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<th>Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>CJ 101*</td>
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<td>SO 101*</td>
<td>Introduction to Sociology</td>
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</tr>
<tr>
<td>PSY 101</td>
<td>Introduction to Psychology (MR/A&amp;SR)</td>
<td>3</td>
</tr>
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<td>ENGL 132*</td>
<td>English Composition I (GCR/MR)</td>
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<tr>
<td>MATH 105*</td>
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<tr>
<td>PEHR 151</td>
<td>Personal Health and Wellness (GCR)</td>
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**Spring Semester**

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<th>Course</th>
<th>Title</th>
<th>Credit Hours</th>
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<tr>
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<tr>
<td>PSY 101</td>
<td>Introduction to Psychology (MR)</td>
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<td>CJ 218</td>
<td>Introduction to Law Enforcement</td>
<td>3</td>
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<tr>
<td>CJ 220</td>
<td>Evidence</td>
<td>3</td>
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<tr>
<td>GO 102*</td>
<td>American Government (MR/A&amp;SR)</td>
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<td>CJ 310</td>
<td>Criminal Law &amp; Procedure</td>
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<td>CJ 340</td>
<td>Ethical Decision-making in Law Enforcement</td>
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<tr>
<td>CJ 342</td>
<td>Juvenile Justice</td>
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<td>ENGL 2xx</td>
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<td>ART xxx</td>
<td>Elements of Culture - Arts Requirement</td>
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### Sophomore Year

**Fall Semester**

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<td>AR I Requirement - Literature (MR/A&amp;SR)</td>
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<tr>
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**Spring Semester**

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<tr>
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<td>Ethical Decision-making in Law Enforcement</td>
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[^1]: ** Notes:**

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

**Fall Semester**

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<td>CJ 312</td>
<td>Criminal Procedure</td>
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<td>CJ 314</td>
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<td>Computing for the Arts and Sciences (GCR)</td>
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<tr>
<td>CJ 210</td>
<td>Criminology</td>
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<tr>
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<td>CJ 342</td>
<td>Juvenile Justice (MR)</td>
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**Spring Semester**

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<tr>
<th>Course</th>
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<tr>
<td>CJ 211</td>
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</tr>
<tr>
<td>— or —</td>
<td>CJ 218</td>
<td>Introduction to Law Enforcement</td>
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<tr>
<td>— or —</td>
<td>CJ 220</td>
<td>Evidence (MR)</td>
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<tr>
<td>— or —</td>
<td>CJ 310</td>
<td>Criminal Law</td>
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<td>CJ 340</td>
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<td>— or —</td>
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<td>— or —</td>
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<td>Constitutional Law</td>
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<td>— or —</td>
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**Senior Year**

**Fall Semester**

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<tr>
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<td>CJ 312</td>
<td>Criminal Procedure</td>
</tr>
<tr>
<td>— or —</td>
<td>CJ 314</td>
<td>The Judicial Process (MR)</td>
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<tr>
<td>CJ 214</td>
<td>Drugs, Society, and the Criminal Justice System (MR)</td>
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<td>HUM 2xx</td>
<td>Elements of Culture - Humanities Requirement (GCR)</td>
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<tr>
<td>— or —</td>
<td>PH xxx</td>
<td>Area I Requirement - Philosophy (MR/A&amp;SR)</td>
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<td>— or —</td>
<td>GEN xxx</td>
<td>General Elective</td>
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<tr>
<td>— or —</td>
<td>CJ 480</td>
<td>Internship in Criminal Justice</td>
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<td>— or —</td>
<td>HIST xxx</td>
<td>History Requirement (GCR/MR)</td>
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**Spring Semester**

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<tr>
<td>SO 309</td>
<td>Social Deviation and Control</td>
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<td>— or —</td>
<td>PSY 306</td>
<td>Abnormal Psychology</td>
</tr>
<tr>
<td>— or —</td>
<td>PSY 315</td>
<td>The Social Environment and Human Behavior (MR)</td>
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<tr>
<td>— or —</td>
<td>CJ 310</td>
<td>Criminal Law</td>
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<tr>
<td>— or —</td>
<td>CJ 340</td>
<td>Ethical Decision Making</td>
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<tr>
<td>— or —</td>
<td>CJ 342</td>
<td>Juvenile Justice (MR)</td>
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<tr>
<td>— or —</td>
<td>SO 311</td>
<td>Sociology of Minority Groups</td>
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<td>— or —</td>
<td>GO 325</td>
<td>Constitutional Law (MR)</td>
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<td>— or —</td>
<td>CJ 481</td>
<td>Internship in Criminal Justice</td>
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<tr>
<td>— or —</td>
<td>CJ 325</td>
<td>Forensic Science (MR)</td>
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<td>— or —</td>
<td>CJ 410</td>
<td>Research Seminar in Criminal Justice</td>
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<tr>
<td>GEN xxx</td>
<td>General Elective</td>
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</table>

**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 36 hours of required CJ courses, 59 hours of required Arts and Sciences courses, 25 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 105 and 106 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 Comparative Systems 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.

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 going on for graduate work in economics can expect to find teaching positions at colleges and universities.

Faculty
Professors: John Andrulis, Michael Meeropol
Associate Professors: Herbert Eskot, Richard Skillman
Assistant Professor: Schiller Casimir

Program Objectives
1. To provide a thorough understanding in 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.
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 and School of Arts and Sciences Requirements, pp. 36-38.

Course of Study
1. Required economics and mathematics courses (24 credit hours):
   - EC 205 Principles of Economics I
   - or —
   - EC 101 Introduction to Economic Issues
   - EC 206 Principles of Economics II
   - or —
   - EC 208 Principles of Applied Microeconomics
   - 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 207 Introduction to Statistics for 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
   - FIN 311 Money and Banking
   - MAN 301 Structure of American Industry

3. Eighteen additional credit hours in social science courses (Area II), including three credit hours each of government, history, psychology, and sociology. (Also satisfies the Area II general requirement.)

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 and FIN 311 and MAN 301, if included.

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&S School of Arts and Sciences Requirement
**Freshman Year**

**Fall Semester**

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<td>EC 205*</td>
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<td>MATH 111*</td>
<td>3</td>
</tr>
<tr>
<td>LA 100</td>
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<td>CS 131</td>
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<tr>
<td>ENGL 132*</td>
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**Spring Semester**

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<td>ENGL 133**</td>
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<td>ARI xxx</td>
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<td>HIST xxx</td>
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**Sophomore Year**

**Fall Semester**

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<td>ARII xxx</td>
<td>3</td>
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**Spring Semester**

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<tr>
<td>LAB xxx</td>
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</tr>
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<td>ARII xxx</td>
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**Junior Year**

**Fall Semester**

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<td>EC 3xx**/4xx**</td>
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**Senior Year**

**Fall Semester**

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<tr>
<td>GEN xxx</td>
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<td>GEN xxx</td>
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**Spring Semester**

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<td>GEN xxx</td>
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</tr>
<tr>
<td>Total</td>
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</tr>
</tbody>
</table>

Note: A one-credit course must be taken at some point during the four-year sequence. Students who begin the program with EC 101 may wish to take that one credit as an independent study in economics.

1 FIN 311 or MAN 301 may be substituted for 300 level EC courses that are not specifically required.

---

**ELECTRICAL ENGINEERING MAJOR**

**School of Engineering**

**General Information**

Electrical and computer engineers are involved in designing, producing and supervising the operation and maintenance of a vast array of equipment and services including, but not limited to:

- Generation, transmission, distribution, and utilization of electrical energy;
- Telecommunication and wireless communication, telephones, radio and television;
Computer hardware and software systems for processing, storage, retrieval, and transmission of information;
Development of materials for electrical, electronic, and optical devices and systems;
Office machinery, photo copiers, and fax machines;
Control of machines associated with transportation, e.g., automobiles, airplanes, ships, and space vehicles;
Life saving medical equipment;
Audio and video systems for entertainment.

The avenues for practice of electrical engineering continue to proliferate and extend to all areas in engineering. The challenges and opportunities continue to increase. The knowledge in electrical and computer engineering is growing at a tremendous rate, doubling every five to seven years. The academic program in electrical engineering is, therefore, designed to give students a thorough background in mathematics, basic sciences, and engineering sciences common to all specialty areas in electrical engineering. This background is combined with elective structure to enable students to tailor their program to suit their career goals. The program also emphasizes practical application of engineering principles to real problems and products. Toward that end, the program provides intensive laboratory and project work.

There are two options within the program: electrical option and computer option. Both options 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 the Accreditation Board for Engineering and Technology (ABET).

**Career Opportunities**

The electrical option 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, telephone, automobile, chemical, and consumer electronic industries.

The computer option 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.

Consumer products have been changed by the addition of digital devices creating growth in manufacturing and employment opportunities. Electrical engineers with computer option continue to be in demand in all types of public and private enterprises. The biggest employers of electrical engineering graduates with computer option are software companies and the aerospace and defense industries.

**Design Experience**

Students are introduced to engineering design in the freshman year in First Year Engineering Seminar and Introduction to Engineering. 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. Humanities/social science electives may be selected from the list of humanities and social science courses listed in each semester’s course schedule. To ensure that some depth of knowledge is acquired, a two-semester sequence of courses in one area is required. Technical, design, and free 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. Undergraduate engineering students may take 500-level engineering courses for which they have satisfied the prerequisite requirements.

**Faculty**

Professors: Stephen Crist, Ronald Musiak
Associate Professors: James Moriarty, Kourosh Rahnamai

**Program Objectives**

In support of the program objectives for the school of engineering, all graduates in electrical engineering or electrical engineering with computer option will have the ability to do the following:

1. Model, analyze, simulate, and design electrical and electronic analog and digital circuits and systems.
2. Use computer tools for analysis, simulation, and design of these circuits and systems.
3. Build, test, and debug prototype circuits and systems.
4. Use laboratory test and measurement instruments.

**Common Core**

**Freshman Year**

Notes:
* Is a prerequisite
** Has a prerequisite
GCR General College Requirement
ER Engineering Requirement
MR Major Requirement
### Undergraduate Academic Programs

#### Fall Semester

<table>
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<tr>
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<th>Course Title</th>
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<tr>
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<td>English Composition I (GCR/ER/MR)</td>
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<td>ENGR 102*</td>
<td>First Year Engineering Seminar (GCR/ER/MR)</td>
<td>1</td>
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<td>ENGR 103*</td>
<td>Introduction to Engineering (ER/MR)</td>
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<td>MATH 133*</td>
<td>Calculus I (GCR/ER/MR)</td>
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<tr>
<td>PHYS 133*</td>
<td>Mechanics (GCR/ER/MR)</td>
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<td>PEHR 151</td>
<td>Personal Health and Wellness (GCR)</td>
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#### Spring Semester

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<tbody>
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<td>ENGR 110*</td>
<td>Computer Applications in Engineering (GCR/ER/MR)</td>
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<tr>
<td>MATH 134**</td>
<td>Calculus II (GCR/ER/MR)</td>
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<td>ME 106**</td>
<td>Statics (ER/MR)</td>
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<td>Electricity and Magnetism (GCR/ER/MR)</td>
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<td>Lifetime Activities Series (GCR)</td>
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#### Sophomore Year

#### Fall Semester

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<td>CHEM 105*</td>
<td>General Chemistry I (ER/MR)</td>
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<td>EC 205</td>
<td>Principles of Economics (ER/MR)</td>
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<td>EE 205**</td>
<td>Introduction to Electrical Engineering I (ER/MR)</td>
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<td>MATH 235**</td>
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<td>ME 203**</td>
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#### Spring Semester

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<th>Course Title</th>
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<tbody>
<tr>
<td>CPE 205**</td>
<td>Introduction to Computer Programming (MR)</td>
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<td>CPE 271*</td>
<td>Digital Design (MR)</td>
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<td>EE 206**</td>
<td>Introduction to Electrical Engineering II (MR)</td>
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<td>ENGR 212**</td>
<td>Probability and Statistics (ER/MR)</td>
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<td>MATH 236**</td>
<td>Differential Equations (ER/MR)</td>
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</table>

#### Electrical Engineering Option

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

#### Fall Semester

<table>
<thead>
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<td>Signals and Systems I (MR)</td>
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<td>EE 303**</td>
<td>Electronic Circuits I (MR)</td>
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<td>EE 312**</td>
<td>Electrical Materials and Devices (MR)</td>
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<td>EE 319**</td>
<td>Electrical Engineering Laboratory I (MR)</td>
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<td>MATH 350**</td>
<td>Engineering Analysis I (MR)</td>
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#### Spring Semester

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<td>Fields and Waves (MR)</td>
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<td>EE 322**</td>
<td>Electrical Engineering Laboratory II (MR)</td>
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<td>Elements of Culture Requirement (GCR/ER/MR)</td>
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### Senior Year

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<td>Senior Design Projects (MR)</td>
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</table>

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

2 A humanities course with a "CA" description satisfies this GCR requirement. Students may also satisfy this GCR by taking two courses. A humanities course designated with a "C" and a course designated with an "A." Upon approval of the academic advisor, the second course may be used to satisfy a Humanities/Social Science requirement.

3 Design electives must be selected from a list published in each semester's course schedule and approved by the 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.
Undergraduate engineering students may take 500-level engineering courses for which they have satisfied the prerequisite requirements.

**Computer Option**

Electrical engineering graduates with computer option 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

#### Junior Year

**Notes:**

* Is a prerequisite

** Has a prerequisite

**MR** Major Requirement

**GCR** General College Requirement

**ER** Engineering Requirement

#### Fall Semester

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>CPE 310**</td>
<td>Machine and Assembly Language (MR)</td>
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<tr>
<td>EE 301**</td>
<td>Signals and Systems I (MR)</td>
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<td>EE 303**</td>
<td>Electronic Circuits I (MR)</td>
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<td>EE 312**</td>
<td>Electrical Materials and Devices (MR)</td>
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<td>EE 319**</td>
<td>EE Laboratory I (MR)</td>
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<td>MATH 350**</td>
<td>Engineering Analysis I (MR)</td>
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Total credit hours required for graduation – 17

#### Spring Semester

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<td>CPE 360**</td>
<td>Microprocessor Systems &amp; Design (MR)</td>
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<tr>
<td>EE 302**</td>
<td>Signals and Systems II (MR)</td>
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<tr>
<td>EE 320**</td>
<td>Electronic Circuits II (MR)</td>
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<td>EE 322**</td>
<td>EE Laboratory II (MR)</td>
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<tr>
<td>HUM 2xx</td>
<td>Elements of Culture¹ (GCR/ER/MR)</td>
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</table>

Total credit hours required for graduation – 15

1. A humanities course with a “CA” description satisfies this GCR requirement. Students may also satisfy this GCR by taking two courses. A humanities course designated with a “C” and a course designated with an “A.” Upon approval of the academic advisor, the second course may be used to satisfy a Humanities/Social Science requirement.

2. Design electives must be selected from a list published in each semester’s course schedule and approved by the advisor.

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

#### Senior Year

**Fall Semester**

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<tr>
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<td>CPE 420**</td>
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<td>CPE 427**</td>
<td>Computer Laboratory (MR)</td>
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<td>EE 439**</td>
<td>Professional Awareness (MR)</td>
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<td>HIST xxx</td>
<td>History Requirement (GCR/ER/MR)</td>
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Total credit hours required for graduation – 15

**Spring Semester**

<table>
<thead>
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<tbody>
<tr>
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<td>Design and Analysis of Algorithms (MR)</td>
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<td>EE 440**</td>
<td>Senior Design Projects (MR)</td>
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<td>General Elective (MR)</td>
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<td>Humanities/Social Science Elective (ER/MR)</td>
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<td>Technical Elective³ (MR)</td>
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Total credit hours required for graduation – 15

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**ENGLISH MAJOR**

**School of Arts and Sciences**

**General Information**

The Department of English and Humanities offers a major in two concentrations: Literature and Communication. The two share some courses, and the B.A. degree in English is awarded to graduates in both tracks. The Department features excellent faculty, small classes, and individual attention to the students.

**General and School Requirements**

See General College Requirements and School of Arts and Sciences Requirements, pp. 36-38.

**Concentration in Literature**

**General Information**

The English literature major concentrates mainly on the careful reading of texts. Students not only gain a sound sense of the English and American literary traditions, but also develop valuable skills in reading, writing, and analysis.
Career Opportunities
With this specialized preparation, English literature majors are able to consider a wide variety of career opportunities. They may go on to graduate study in literature, law, journalism, and other fields; to careers in teaching, journalism, public relations, or to any work in which analyzing, assembling, and communicating information are important.

Faculty
Professors: Eugene Angus, K. Edward Jansen
Associate Professors: Charles Fish, Richard Haber, Shelly Regenbaum, Delmar Wilcox
Assistant Professors: Janet Bowdan

Program Objectives
These objectives are ambitious and comprehensive. They cannot be achieved without the hard work of the student.

I. Intellectual Range
• To enlarge and deepen the students’ understanding of human nature in its variety of character types, motives, aspirations, and moral and intellectual development.
• To enlarge and deepen the students’ understanding of human society in its variety of institutions, achievement, and capacity for good or ill.
• To extend the range of the students’ reading so that their minds and spirits will have sources of nourishment other than popular entertainment.
• To increase the students’ career opportunities by expanding their imaginative grasp of the world in which they work and of the people with whom they work.

II. Critical Skills
• To increase the students’ ability to read and understand a variety of literary works. Although not directly taught, the ability to read non-literary works should also increase.
• To increase the students’ ability to write clear, grammatical, rhetorically effective prose. Practice will come mainly in the form of critical essays about literature, but the fundamental writing skills should be useful in a wide variety of contexts.
• To help prepare students for their careers by increasing their communication skills as described in A and B.

III. Literary Content
• To increase the students’ knowledge of English, American, and world literature.

Course of Study
1. Required courses (36 credit hours):
   - ENGL 212 Introduction to Literary Studies
   - ENGL 311 The English Language
   - ENGL 315 Shakespeare: The Tragedies
     — or —
   - ENGL 316 Shakespeare: The Comedies and Histories
   - ENGL 344 Expository Writing
   - ENGL 410 English Seminar

Seven additional courses, one of which must treat a major author or authors, one a period, and one a theme.

Note: ENGL 320, Professional Communication, ENGL 340, Business Communication, and ENGL 348, Intercultural Communication, may not be counted among the requirements for the literature concentration.

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
<table>
<thead>
<tr>
<th>Credit</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>ENGL 132 English Composition I (GCR)</td>
<td>3</td>
</tr>
<tr>
<td>LA 100 First Year Seminar (GCR)</td>
<td>2</td>
</tr>
<tr>
<td>MATH 1xx Mathematics (GCR)</td>
<td>3</td>
</tr>
<tr>
<td>GEN xxx Area I Elective (A&amp;SR)</td>
<td>3</td>
</tr>
<tr>
<td>CS 131 Computing for the Arts and Sciences (GCR)</td>
<td>3</td>
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<tr>
<td>PEHR 151 Personal Health and Wellness (GCR)</td>
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Spring Semester
<table>
<thead>
<tr>
<th>Credit</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>ENGL 133 English Composition II (GCR)</td>
<td>3</td>
</tr>
<tr>
<td>PEHR 153-199 Lifetime Activities Series (GCR)</td>
<td>1</td>
</tr>
<tr>
<td>MATH 1xx Mathematics (GCR)</td>
<td>3</td>
</tr>
<tr>
<td>ARI xxx Philosophy (A&amp;SR)</td>
<td>3</td>
</tr>
<tr>
<td>ARII xxx Psychology or Sociology (A&amp;SR)</td>
<td>3</td>
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<tr>
<td>HIST xxx History Requirement (GCR)</td>
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Sophomore Year
Fall Semester
<table>
<thead>
<tr>
<th>Credit</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 212 Introduction to Literary Studies (MR)</td>
<td>3</td>
</tr>
<tr>
<td>ENGL xxx Two literature courses preferably at the 200 level and one of them preferably treating a period (MR)</td>
<td>6</td>
</tr>
</tbody>
</table>
Concentration in Communication

General Information

Students in the communication concentration explore all areas of communication studies including interpersonal communication, mass communication, oral communication, nonverbal communication, intercultural communication, and the various aspects of mediated communication. They learn to analyze a variety of communication situations and target messages to diverse audiences through a variety of channels.

Career Opportunities

Some graduates of the communication concentration continue their education in graduate school or law school. Others go to work for public service organizations, hospitals, newspapers, insurance companies, and other businesses. Some graduates become teachers. Many mention that their communication education 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
Assistant Professor: Jean-Marie Higiro

Program Objectives

These objectives are ambitious and comprehensive. They cannot be achieved without the hard work of the student.

I. Intellectual Range

- To enlarge and deepen the students’ understanding of human nature as reflected in and affected by various forms of communication, and as found in works of literature.
- To enlarge and deepen the students’ understanding of the role of communication in human society, its relationship to various social institutions, and its potential for good or ill.
- To extend the range of the students’ reading and deepen their understanding of the various forms of communication so that their minds and spirits will have sources of nourishment other than popular entertainment.
- To increase the students’ career opportunities by expanding their understanding of communication in the workplace.
II. Critical Communication Skills

- To increase the students' ability to read and understand a variety of literary and non-literary works, and to analyze a variety of forms of spoken and nonverbal communication.
- To increase the students' ability to write clear, grammatical, rhetorically effective prose. Practice will come mainly through various writing assignments on communication topics. The fundamental writing skills should be useful in a wide variety of contexts.
- To increase the students' ability to speak in public.
- To help prepare students for their careers by increasing their communication skills as described in the three items above.

III. Theoretical and Practical Communication Content

- To increase the students' knowledge of various theories of communication.
- To increase the students' knowledge of the various forms of communication important to the world today.
- To increase the students' ability to speak in a variety of public contexts.

Course of Study

1. Required Courses (36 credit hours)
   ENGL 201 Principles of Communication
   One of the following three courses:
   ENGL 205 Mass Communication
   — or —
   ENGL 218 Introduction to Journalism
   — or —
   ENGL 342 Theatre Practicum
   ENGL 301 Oral Communication
   ENGL 311 The English Language
   ENGL 320 Professional Communication
   ENGL 340 Business Communication
   — or —
   ENGL 344 Expository Writing
   ENGL 348 Intercultural Communication
   ENGL 480 Internship in English
   ENGL 490 Seminar in Communication
   Plus two of the following courses:
   ENGL 214 World Literature I
   ENGL 215 World Literature II
   ENGL 231 Masterpieces of British Literature I
   ENGL 232 Masterpieces of British Literature II
   ENGL 250 Masterpieces of American Literature
   Plus three credits of ENGL courses at the 300-level or above.

Suggested Sequence of Courses

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

Freshman Year

<table>
<thead>
<tr>
<th>Course of Study</th>
<th>Fall Semester</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 132</td>
<td>English Composition I (GCR)</td>
<td>3</td>
</tr>
<tr>
<td>LA 100</td>
<td>First Year Seminar (GCR)</td>
<td>2</td>
</tr>
<tr>
<td>MATH 1xx</td>
<td>Mathematics (GCR)</td>
<td>3</td>
</tr>
<tr>
<td>GEN xxx</td>
<td>General Elective</td>
<td>3</td>
</tr>
<tr>
<td>CS 131</td>
<td>Computing for the Arts and Sciences (GCR)</td>
<td>3</td>
</tr>
<tr>
<td>PEHR 151</td>
<td>Personal Health and Wellness (GCR)</td>
<td>1</td>
</tr>
<tr>
<td>**</td>
<td>**</td>
<td>15</td>
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<table>
<thead>
<tr>
<th>Course of Study</th>
<th>Spring Semester</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 133</td>
<td>English Composition II (GCR)</td>
<td>3</td>
</tr>
<tr>
<td>PEHR 153-199</td>
<td>Lifetime Activities Series (GCR)</td>
<td>1</td>
</tr>
<tr>
<td>MATH 1xx</td>
<td>Mathematics (GCR)</td>
<td>3</td>
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<tr>
<td>ARI xxx</td>
<td>Area I Requirement-Philosophy (A&amp;S)</td>
<td>3</td>
</tr>
<tr>
<td>ARII xxx</td>
<td>Area II Requirement – Economics or Government Psychology or Sociology (A&amp;S)</td>
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<tr>
<td>HIST xxx</td>
<td>History Requirement (GCR)</td>
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Sophomore Year

<table>
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<tr>
<th>Course of Study</th>
<th>Fall Semester</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>ENGL 201</td>
<td>Principles of Communication (MR)</td>
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<tr>
<td>ENGL 2xx</td>
<td>Choice of 214, 215, 231, 232, or 250 (MR)</td>
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<td>GEN xxx</td>
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<td>LAB xxx</td>
<td>Laboratory science Requirement (GCR)</td>
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<td>ARII xxx</td>
<td>Area II Requirement- Economics or Government Psychology or Sociology (A&amp;S)</td>
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<tr>
<th>Course of Study</th>
<th>Spring Semester</th>
<th>Credit Hours</th>
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<tr>
<td>ENGL 2xx</td>
<td>Choice of 214, 215, 231, 232, or 250 (MR)</td>
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<td>LAB xxx</td>
<td>Laboratory Science Requirement (GCR)</td>
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<tr>
<td>ENGL 218</td>
<td>Introduction to Journalism — or —</td>
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<td>ENGL 342</td>
<td>Theatre Practicum — or —</td>
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<tr>
<td>ENGL 205</td>
<td>Mass Communication (MR)</td>
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</table>
ENVIRONMENTAL SCIENCE MAJOR

School of Arts and Sciences

General Information

The educational goal of the environmental science program is to prepare the student for entry level employment as an environmental professional or to pursue advanced preparation at the graduate level.

Career Opportunities

College graduates with strong backgrounds in environmental science may seek careers in either the public or the private sector. Opportunities may range from employment with state or federal regulatory agencies to compliance management in industry or consulting with private engineering firms.

It is not uncommon for trained environmental professionals to eventually pursue self-employment by establishing their own consulting companies.
Suggested Sequence of Courses
Note: In years three and four the suggested sequence of courses is an example only. Some offerings for those 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

<table>
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<tr>
<th>Fall Semester</th>
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<td>CHEM 105*</td>
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<td>ENGL 132*</td>
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Spring Semester

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Sophomore Year

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Spring Semester

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Junior Year

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<td>ENVS 3xx**</td>
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Spring Semester

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<th>Hours</th>
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<td>CHEM 211**</td>
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<tr>
<td>BIO 213</td>
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Senior Year

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<td>ARTS xxx</td>
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<td>GEN xxx</td>
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<tr>
<td></td>
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</table>

Spring Semester

<table>
<thead>
<tr>
<th>Fall Semester</th>
<th>Credit</th>
<th>Hours</th>
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<tbody>
<tr>
<td>ENVS 3xx**</td>
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<tr>
<td>ENVS 3xx**</td>
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</tr>
<tr>
<td>ARI xxx</td>
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<tr>
<td>GEN xxx</td>
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<td></td>
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</tbody>
</table>

FINANCE MAJOR

School of Business

General Information
The major in finance offers students the opportunity to develop the technical background necessary for careers in the field of finance. In order to achieve this background, the curriculum relates accounting and economics to the field of finance. Quantitative techniques and subjective analysis are used to prepare the student to handle the
classical as well as the most current theories of financial analysis.

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 investments, macroeconomic analysis, or corporate financial management.

Career Opportunities

Finance majors find positions in security analysis, banking, corporate financial management, underwriting, funds management, and the insurance industry. Students are encouraged to take professional exams after graduation, and many graduates have gone on to earn master’s degrees.

Faculty

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

Program Objectives

Having completed a major in finance, the student should 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, 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 page 39.

2. Required Finance courses (15 credit hours)
   - FIN 312 Financial Markets and Institutions
   - FIN 317 Investments
   - FIN 318 Security Analysis
   - FIN 320 Intermediate Corporation Finance
   - FIN 420 Advanced Corporation Finance

3. Other required courses (6 credit hours)
   - AC 309 Cost Accounting
   - EC 305 Macroeconomics
   - EC 311 Money and Banking

4. Electives (21 credit hours)
   - FIN or AC 3xx-4xx Elective (6 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, AC 309 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

<table>
<thead>
<tr>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>Fall Semester</td>
</tr>
<tr>
<td>BUS 101</td>
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<tr>
<td>ENGL 132*</td>
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<tr>
<td>MATH 111*</td>
</tr>
<tr>
<td>MATH 123*</td>
</tr>
<tr>
<td>History</td>
</tr>
<tr>
<td>MAN 101</td>
</tr>
<tr>
<td>CIS 102 *</td>
</tr>
<tr>
<td>PEHR 151*</td>
</tr>
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</table>

Demonstrated proficiency in Excel required for 2nd semester registration.

<table>
<thead>
<tr>
<th>Spring Semester</th>
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<tbody>
<tr>
<td>ENGL 133**</td>
</tr>
<tr>
<td>MATH 112**</td>
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<tr>
<td>MATH 124**</td>
</tr>
<tr>
<td>MAN 101*</td>
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<td>CIS 102 *</td>
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### Undergraduate Academic Programs

**Sophomore Year**

<table>
<thead>
<tr>
<th>Semester</th>
<th>Course Code</th>
<th>Course Title</th>
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</thead>
<tbody>
<tr>
<td>Fall Semester</td>
<td>AC 201**</td>
<td>Financial Reporting (BUSR)</td>
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<tr>
<td></td>
<td>MK 200**</td>
<td>Principles of Marketing (BUSR)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>CIS 202**</td>
<td>Introduction to Information Systems (BUSR)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>EC 205*</td>
<td>Principles of Economics I (BUSR)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Non-business Elective (BUSR)</td>
<td>3</td>
</tr>
<tr>
<td>Spring Semester</td>
<td>AC 202**</td>
<td>Managerial Accounting (BUSR)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>QM 201**</td>
<td>Introduction to Statistics (BUSR)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>FIN 214**</td>
<td>Corporation Finance (BUSR)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>EC 206**</td>
<td>Principles of Economics II (BUSR)</td>
<td>3</td>
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<td>ENGL 201**</td>
<td>Principles of Communication (BUSR)</td>
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</table>

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

**Junior Year**

<table>
<thead>
<tr>
<th>Semester</th>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>Fall Semester</td>
<td>BUS 301</td>
<td>Integrated Business Operations (BUSR)</td>
<td>3</td>
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<tr>
<td></td>
<td>PH 310</td>
<td>Ethics in the Professions (BUSR)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>EC 305</td>
<td>Macroeconomics (MR)</td>
<td>3</td>
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<tr>
<td></td>
<td>EC 311</td>
<td>Money and Banking (MR)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>FIN 312</td>
<td>Financial Markets and Institutions (MR)</td>
<td>3</td>
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<tr>
<td></td>
<td>Lab Science</td>
<td>Laboratory Science Requirement (GCR)</td>
<td>3</td>
</tr>
<tr>
<td>Spring Semester</td>
<td>LS 301</td>
<td>Legal Aspects of Business (BUSR)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>QM 310</td>
<td>Quality and Operations Management (BUSR)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>HUM xxx</td>
<td>Elements of Culture Requirement (GCR)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>FIN 317</td>
<td>Investments (MR)</td>
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</tr>
<tr>
<td></td>
<td>Lab Science</td>
<td>Laboratory Science Requirement (GCR)</td>
<td>3</td>
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</table>

**Senior Year**

<table>
<thead>
<tr>
<th>Semester</th>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall Semester</td>
<td>FIN 318</td>
<td>Security Analysis (MR)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>FIN 320</td>
<td>Intermediate Corporation Finance (MR)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>FIN/AC 3xx-4xx</td>
<td>Finance or Accounting Elective (MR)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Non-business Elective (BUSR)</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>Non-business Elective (BUSR)</td>
<td>3</td>
</tr>
</tbody>
</table>

### GENERAL BUSINESS MAJOR

**School of Business**

**General Information**

The program in general business provides students with a thorough exposure to the basic areas of business administration while permitting wide latitude in the selection of additional courses according to individual interests. Students will be equipped with an understanding of the techniques needed in the broad spectrum of business administration, but beyond that they will be able to explore areas of concentration in greater depth.

**Career Opportunities**

General Business majors are equipped 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. General Business majors also enter graduate and law schools.

**Faculty**

Faculty in this major come from various departments in the School of Business.

**Program Objectives**

1. Prepare students to assume positions of responsibility in business, government, and industry.
2. Provide students with the knowledge 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 writers.
4. Provide students with the mathematical 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 agencies.

6. Equip students with an understanding of the technology used to develop, maintain, and manage information for decision-making purposes.

7. Teach students methods for solving management problems.

8. Provide students with an understanding of professionalism and the ethical responsibilities of professional managers.

**Course of Study**

1. **Core Requirements for All Business Majors (80 credit hours)** See page 39.

2. **Required Management and Legal Studies courses (9 credit hours)**

   - LS4 24 Legal Aspects of Human Resource Management
   - MAN 308 Employee Relations
   - MAN 423 Human Resources Management

3. **Electives (33 credit hours)**

   - BUS 480 Business Internship* (3 cr)
   - or
   - Business Elective (3 cr)
   - Business Electives (12 cr)
   - Non-Business Electives (18 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**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>BUS 101</td>
<td>First Year Seminar (GCR/BUSR) 3</td>
</tr>
<tr>
<td>ENGL 132*</td>
<td>English Composition I (GCR) 3</td>
</tr>
<tr>
<td>MATH 111*</td>
<td>Analysis for Business and Economics I (GCR/BUSR) 3</td>
</tr>
<tr>
<td>MATH 123*</td>
<td>Calculus I for Management, Life and Social Sciences (GCR/BUSR) 3</td>
</tr>
<tr>
<td>History</td>
<td>History Requirement (GCR) 3</td>
</tr>
<tr>
<td>MAN 101*</td>
<td>Principles of Management (BUSR) 3</td>
</tr>
<tr>
<td>CIS 102 *</td>
<td>Computer Tools for Business (BUSR) 3</td>
</tr>
<tr>
<td>PEHR 151*</td>
<td>Personal Health and Wellness (GCR) 1</td>
</tr>
</tbody>
</table>

Demonstrated proficiency in Excel required for 2nd semester registration.

**Spring Semester**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 133**</td>
<td>English Composition II (GCR) 3</td>
</tr>
<tr>
<td>MATH 112**</td>
<td>Analysis for Business and Economics II (GCR/BUSR) 3</td>
</tr>
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<td>MATH 124**</td>
<td>Calculus I for Management, Life and Social Sciences (GCR/BUSR) 3</td>
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<td>Non-Business Elective (BUSR) 3</td>
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<tr>
<td>MAN 101*</td>
<td>Principles of Management (BUSR) 3</td>
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<td>Computer Tools for Business (BUSR) 3</td>
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<td>PSY 101</td>
<td>Introduction to Psychology (BUSR) 3</td>
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<td>SO 101</td>
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<td>PEHR 153-159**</td>
<td>Lifetime Activity Series (GCR) 1</td>
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**Sophomore Year**

**Fall Semester**

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>AC 201* **</td>
<td>Financial Reporting (BUSR) 3</td>
</tr>
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<td>MK 200* **</td>
<td>Principles of Marketing (BUSR) 3</td>
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<td>CIS 202* **</td>
<td>Introduction to Information Systems (BUSR) 3</td>
</tr>
<tr>
<td>EC 205*</td>
<td>Principles of Economics I (BUSR) 3</td>
</tr>
<tr>
<td>Non-business Elective (BUSR) 3</td>
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</tbody>
</table>

**Notes:**
- * Is a prerequisite
- ** Has a prerequisite
- GCR General College Requirement
- BUSR School of Business Requirement
**Spring Semester**
- AC 202** Managerial Accounting (BUSR) 3
- QM 201** Introduction to Statistics (BUSR) 3
- FIN 214** Corporation Finance (BUSR) 3
- EC 206** Principles of Economics II (BUSR) 3
- ENGL 201** Principles of Communication (BUSR) 3

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

**Junior Year**

**Fall Semester**
- BUS 301 Integrated Business Operations (BUSR) 3
- PH 310 Ethics in the Professions (BUSR) 3
- Non-business Elective (BUSR) 3
- Business Elective (MR) 3
- Lab Science Laboratory Science Requirement (GCR) 3

**Spring Semester**
- LS 301 Legal Aspects of Business (BUSR) 3
- QM 310 Quality and Operations Management (BUSR) 3
- HUM xxx Elements of Culture Requirement (GCR) 3
- MAN 308 Employee Relations (MR) 3
- Lab Science Laboratory Science Requirement (GCR) 3

**Senior Year**

**Fall Semester**
- LS 424 Legal Aspects of Human Resource Management (MR) 3
- Business Elective (MR) 3
- Business Elective (MR) 3
- Non-business Elective (BUSR) 3
- Non-business Elective (BUSR) 3

**Spring Semester**
- BUS 450 Business Strategy (BUSR) 3
- MAN 423 Human Resource Management (MR) 3
- BUS 480 Business Internship (MR) — or — Business Elective (MR) 3
- Business Elective (MR) 3
- Non-business Elective (BUSR) 3

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**GOVERNMENT MAJOR**

**School of Arts and Sciences**

**General Information**

The general objective of the government (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. Government 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**

Professor: Vladimir Wozniuk
Associate Professors: Donald Williams, William Mandel

**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 and School of Arts and Sciences Requirements, pp. 36-38.

**Course of Study**

1. Required Government courses (21 credit hours)
   - GO 101 Introduction to Contemporary Global Issues
   - GO 102 American Government
   - GO 201 Comparative Politics
   - GO 203 International Relations
Undergraduate Academic Programs

GO 207  Western Political Thought
GO 490  Seminar in Government
GEOG 101  Introduction to Geography

2. Twenty-one additional credit hours of government including 15 additional credit hours of upper-level courses (GO 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 Area II including at least three credit hours each of economics, geography, history, psychology, and sociology. (Also satisfies Area II requirement.)

4. The 2.0 required grade point average in the major is based upon all GO 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 government 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

<table>
<thead>
<tr>
<th>Fall Semester</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>HIST xxx</td>
<td>History Requirement (GCR)</td>
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<tr>
<td>GO 102*</td>
<td>American Government (MR/A&amp;SR)</td>
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<td>MATH 1xx*</td>
<td>Mathematics Requirement (GCR)</td>
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<td>ENGL 132*</td>
<td>English Composition I (GCR)</td>
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<td>LA 100</td>
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<td>Spring Semester</td>
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<tr>
<td>GO 101</td>
<td>Introduction to Contemporary Global Issues (MR)</td>
</tr>
<tr>
<td>SO 101</td>
<td>Introduction to Sociology (A&amp;SR)</td>
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<tr>
<td>MATH 1xx**</td>
<td>Mathematics (GCR)</td>
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<tr>
<td>GEN xxx</td>
<td>General Elective</td>
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<td>PEHR 151</td>
<td>Personal Health and Wellness (GCR)</td>
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<tr>
<td>ENGL 133**</td>
<td>English Composition II (GCR)</td>
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Sophomore Year

<table>
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<tr>
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<tbody>
<tr>
<td>GO 201**</td>
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<tr>
<td>GO 203**</td>
<td>International Relations (MR)</td>
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<tr>
<td>EC 101</td>
<td>Introduction to Economic Issues</td>
</tr>
<tr>
<td>EC 205</td>
<td>Principles of Economics I (A&amp;SR)</td>
</tr>
<tr>
<td>LAB xxx</td>
<td>Laboratory Science Requirement (GCR)</td>
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<tr>
<td>PEHR 153-159</td>
<td>Lifetime Activities Series (GCR)</td>
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<tr>
<td>ARI xxx**</td>
<td>Area I Requirement – Literature (A&amp;SR)</td>
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<table>
<thead>
<tr>
<th>Senior Year</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>GO 3xx**</td>
<td>Upper Level Elective (MR)</td>
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<tr>
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<td>Upper Level Elective (MR)</td>
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<tr>
<td>GEN xxx</td>
<td>General Elective</td>
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</table>

| Spring Semester |
| GO 490**      | Seminar in Government (MR) | 3 |
| GEN xxx       | General Elective | 3 |
| GEN xxx       | General Elective | 3 |
| GEN xxx       | General Elective | 3 |
| GEN xxx       | General Elective | 3 |
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 civilization 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
Professor: John Anzalotti
Associate Professors: Marc Dawson, Theodore Johnson-South
Assistant Professor: John Seung-Ho Baick

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 and School of Arts and Sciences Requirements, pp. 36-38.

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 Seminar in History
   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 Area II including at least three credit hours each of economics, geography, government, psychology, and sociology. (Also satisfies the Area II requirement.)

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

<table>
<thead>
<tr>
<th>Credit</th>
<th>Fall Semester</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIST 105 World Civilization I (GCR/MR)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>GO 102 American Government (A&amp;SR)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>MATH 1xx* Mathematics (GCR)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>ENGL 132* English Composition I (GCR)</td>
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<tr>
<td>LA 100 First Year Seminar (GCR)</td>
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<table>
<thead>
<tr>
<th>Spring Semester</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>HIST 106 World Civilization II (MR)</td>
<td>3</td>
</tr>
<tr>
<td>SO 101 Introduction to Sociology (A&amp;SR)</td>
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</tr>
<tr>
<td>MATH xxx MATH 1xx **Mathematics (MR)</td>
<td>3</td>
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<tr>
<td>GEN xxx General Elective</td>
<td>3</td>
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<tr>
<td>ENGL 133** English Composition II (GCR)</td>
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<tr>
<td>PEHR 151 Personal Health and Wellness (GCR)</td>
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Sophomore Year

<table>
<thead>
<tr>
<th>Credit</th>
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<th>Credit Hours</th>
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<tbody>
<tr>
<td>HIST 111 U.S. History to 1877(MR)</td>
<td>3</td>
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<tr>
<td>EC 101 Introduction to Economic Issues — or —</td>
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<td></td>
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<tr>
<td>EC 205 Principles of Economics I (A&amp;SR)</td>
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<tr>
<td>LAB xxx Laboratory Science Requirement (GCR)</td>
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<tr>
<td>HUM 2xx Elements of Culture — Humanities Requirement (GCR)</td>
<td>3</td>
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</table>
INDUSTRIAL ENGINEERING
MAJOR
School of Engineering

General Information
In the BSIE program, the student can select either the systems or the manufacturing option. 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 and manufacturing 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. Graduates obtain significant hands-on project experience before they graduate.

We strive to educate engineers to have the ability to help their organizations make the most effective use of resources including people, equipment, money, and materials. Our graduates enable their organization to be fast, flexible, focused, and friendly. They use engineering skills to design effective systems and to devise procedures with which to operate these systems. They continuously strive to improve both themselves through continuous education and their organizations through avoidance and elimination of harmful or wasteful practices.

The program leading to the B.S.I.E. degree is accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (ABET).

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 and manufacturing engineering, operations research, computer science, engineering management, business administration, law, and other fields.
Faculty
Professors: Eric Haffner, J. Byron Nelson
Associate Professors: Richard Grabiec, S. Gary Teng
Assistant Professors: Abdul Kamal, Steven Schreiner, Mary Vollaro

Program Objectives
The IE student will learn, reinforce, and demonstrate the following abilities during the four-year program:
1. An ability to formulate objectives and goals of integrated systems of people, materials, and equipment.
2. An ability to develop, implement, and use information systems for identifying current and potentially future engineering and managerial problems and their underlying causes.
3. An ability to assess the relative benefits and costs of alternative design and improvement projects.
4. An ability to successfully design, improve, and install integrated systems.
5. An ability to communicate effectively in both oral and written presentations by the use of computer technology.
6. An ability to function on multi-disciplinary teams.
7. An ability to incorporate professional, ethical, and social contemporary concerns in engineering design and practice.

The two options in industrial engineering are identical for the first three semesters.

Freshman Year
Notes:
* Is a prerequisite
** Has a prerequisite
MR Major Requirement
GCR General College Requirement
ER Engineering Requirement

<table>
<thead>
<tr>
<th>Fall Semester</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>ENGL 132*</td>
<td>English Composition I (GCR/ER/MR) 3</td>
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<tr>
<td>ENGR 102*</td>
<td>First Year Engineering Seminar (GCR/ER/MR) 1</td>
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<tr>
<td>ENGR 103*</td>
<td>Introduction to Engineering (ER/MR) 4</td>
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<tr>
<td>MATH 133*</td>
<td>Calculus I (GCR/ER/MR) 4</td>
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<tr>
<td>PHYS 133*</td>
<td>Mechanics (GCR/ER/MR) 4</td>
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<tr>
<td>PEHR 151</td>
<td>Personal Health and Wellness (GCR) 1</td>
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<th>Spring Semester</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>ENGL 133**</td>
<td>English Composition II (GCR/ER/MR) 3</td>
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<tr>
<td>ENGR 110*</td>
<td>Computer Applications in Engineering (GCR/ER/MR) 2</td>
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<td>MATH 134* **</td>
<td>Calculus II (GCR/ER/MR) 4</td>
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<tr>
<td>ME 106* **</td>
<td>Statics (ER/MR) 3</td>
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<td>PHYS 134* **</td>
<td>Electricity and Magnetism (GCR/ER/MR) 4</td>
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<td>PEHR 153-199**</td>
<td>Lifetime Activities Series (GCR) 1</td>
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Sophomore Year

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<tr>
<th>Fall Semester</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>CHEM 105*</td>
<td>General Chemistry I (ER/MR) 4</td>
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<tr>
<td>EC 205</td>
<td>Principles of Economics I (ER/MR) 3</td>
</tr>
<tr>
<td>EE 205* **</td>
<td>Introduction to Electrical Engineering I (ER/MR) 4</td>
</tr>
<tr>
<td>MATH 235* **</td>
<td>Calculus III (ER/MR) 3</td>
</tr>
<tr>
<td>ME 203* **</td>
<td>Dynamics (ER/MR) 3</td>
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Systems Option Course of Study

Sophomore Year

<table>
<thead>
<tr>
<th>Spring Semester</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>CPE 240* **</td>
<td>Computer Instrumentation and Measurements (MR) 3</td>
</tr>
<tr>
<td>ENGR 205* **</td>
<td>Applied Visual BASIC (MR) 2</td>
</tr>
<tr>
<td>ENGR 212* **</td>
<td>Probability and Statistics (ER/MR) 3</td>
</tr>
<tr>
<td>MATH 236* **</td>
<td>Differential Equations (ER/MR) 3</td>
</tr>
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<td>Basic Science Elective (MR) 3</td>
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<tr>
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<td>Humanities/Social Science Elective (ER/MR) 3</td>
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Junior Year

<table>
<thead>
<tr>
<th>Fall Semester</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>HUM 2xx</td>
<td>Elements of Culture Requirement (GCR/ER/MR) 3</td>
</tr>
<tr>
<td>IE 308* **</td>
<td>Work Analysis and Design (MR) 3</td>
</tr>
<tr>
<td>IE 312* **</td>
<td>Engineering Economic Analysis (MR) 3</td>
</tr>
<tr>
<td>IE 318* **</td>
<td>Industrial Design Laboratory I (MR) 2</td>
</tr>
<tr>
<td>IE 326* **</td>
<td>Production Planning and Control (MR) 3</td>
</tr>
<tr>
<td>ME 309* **</td>
<td>Materials Science (MR) 3</td>
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<table>
<thead>
<tr>
<th>Spring Semester</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>IE 314**</td>
<td>Manufacturing Processes (MR) 3</td>
</tr>
<tr>
<td>IE 315* **</td>
<td>Quality Control and Engineering Statistics (MR) 3</td>
</tr>
<tr>
<td>IE 328* **</td>
<td>Industrial Design Laboratory II (MR) 2</td>
</tr>
<tr>
<td>IE 334**</td>
<td>Computer Simulation and Design (MR) 3</td>
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<tr>
<td>HIST xxx</td>
<td>History Requirement (GCR/ER/MR) 3</td>
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<td></td>
<td>Technical Design Elective (MR) 3</td>
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Senior Year

**Fall Semester**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>IE 410** Engineering Project</td>
<td>3</td>
</tr>
<tr>
<td>IE 425** Quality Engineering (MR)</td>
<td>3</td>
</tr>
<tr>
<td>IE 428** IE Design Laboratory III (MR)</td>
<td>2</td>
</tr>
<tr>
<td>IE 439** Project Preparation (MR)</td>
<td>1</td>
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<tr>
<td>Humanities/Social Science Elective (ER/MR)</td>
<td>3</td>
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<tr>
<td>Technical or Design Elective (MR)</td>
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**Spring Semester**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>IE 420** Operations Research (MR)</td>
<td>3</td>
</tr>
<tr>
<td>IE 427** Facility and Materials Handling</td>
<td>3</td>
</tr>
<tr>
<td>IE 440** Senior Design Projects (MR)</td>
<td>3</td>
</tr>
<tr>
<td>General Elective (MR)</td>
<td>3</td>
</tr>
<tr>
<td>Technical Design Elective (MR)</td>
<td>3</td>
</tr>
</tbody>
</table>

1 A humanities course with a “CA” description satisfies this GCR requirement. Students may also satisfy this GCR by taking two courses. A humanities course designated with a “C” and another course designated with an “A.” Upon approval of the academic advisor, the second course may be used to satisfy a Humanities/Social Science requirement.

2 Technical or design electives for the IE Systems program are engineering, business, math, or science courses normally numbered 300 or above and approved by the advisor.

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.

Manufacturing Option Course of Study

Manufacturing is concerned with the applications of the principles of science to increase productivity in industry. This involves the design of products and of manufacturing facilities so consumer goods may be made with a high level of quality, the least labor content, minimum material content, and the lowest investment of capital.

This involves a thorough knowledge of the principal manufacturing processes and systems and how these may be organized to produce a required end result. An important aspect of manufacturing engineering is the evaluation of several possible functional designs from the point of view of manufacturability and quality.

Sophomore Year

**Spring Semester**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ENGR 205** Applied Visual BASIC (MR)</td>
<td>2</td>
</tr>
<tr>
<td>ENGR 212** Probability and Statistics (ER/MR)</td>
<td>3</td>
</tr>
<tr>
<td>MATH 236** Differential Equations (ER/MR)</td>
<td>3</td>
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<tr>
<td>ME 208** Mechanics of Materials (MR)</td>
<td>3</td>
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<tr>
<td>Basic Science Elective (MR)</td>
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<td>Humanities/Social Science Elective (ER/MR)</td>
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Junior Year

**Fall Semester**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>HUM 2xx Elements of Culture¹ (GCR/ER/MR)</td>
<td>3</td>
</tr>
<tr>
<td>IE 308** Work Analysis and Design (MR)</td>
<td>3</td>
</tr>
<tr>
<td>IE 312** Engineering Economic Analysis (MR)</td>
<td>3</td>
</tr>
<tr>
<td>IE 318** Industrial Design Laboratory I (MR)</td>
<td>2</td>
</tr>
<tr>
<td>IE 326** Production Planning and Control (MR)</td>
<td>3</td>
</tr>
<tr>
<td>ME 309** Materials Science (MR)</td>
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**Spring Semester**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>IE 314** Manufacturing Processes (MR)</td>
<td>3</td>
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<tr>
<td>IE 315** Quality Control and Engineering Statistics (MR)</td>
<td>3</td>
</tr>
<tr>
<td>IE 328** Industrial Design Laboratory II (MR)</td>
<td>2</td>
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<tr>
<td>IE 334** Computer Simulation and Design (MR)</td>
<td>3</td>
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<tr>
<td>HIST xxx History Requirement (GCR/ER/MR)</td>
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Senior Year

**Fall Semester**

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>IE 410** Engineering Project</td>
<td>3</td>
</tr>
<tr>
<td>IE 425** Quality Engineering (MR)</td>
<td>3</td>
</tr>
<tr>
<td>IE 428** Industrial Design Laboratory III (MR)</td>
<td>2</td>
</tr>
<tr>
<td>IE 439** Project Preparation (MR)</td>
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</tr>
<tr>
<td>ME 312** Kinematics and Dynamics of Machinery (MR)</td>
<td>3</td>
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<tr>
<td>Humanities/Social Science Elective (ER/MR)</td>
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**Spring Semester**

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>IE 420** Operations Research (MR)</td>
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<tr>
<td>IE 427** Facility and Materials Handling</td>
<td>3</td>
</tr>
<tr>
<td>IE 440** Senior Design Projects (MR)</td>
<td>3</td>
</tr>
<tr>
<td>General Elective (MR)</td>
<td>3</td>
</tr>
<tr>
<td>Manufacturing Design Elective (MR)</td>
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</tbody>
</table>

¹ A humanities course with a “CA” description satisfies this GCR requirement. Students may also satisfy this GCR by taking two courses. A humanities course designated with a “C” and another course designated with an “A.” Upon approval of the academic advisor, the second course may be used to satisfy a Humanities/Social Science requirement.
2 Manufacturing design elective must be selected from the following list: IE 414, IE 426, IE 515, ME 542, ME 543.

3 Technical or design electives for the Manufacturing program are engineering, business, math, or science course normally numbered 300 or above and approved by the advisor.

Total credit hours required for graduation – 132.

The 2.0 required grade point average in the major is based upon all IE and ME 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.

Undergraduate engineering students may take 500-level engineering courses for which they have satisfied the prerequisite requirements.

5. To lead students to find elements in disciplines that reinforce each other.

General and School Requirements
See REQUIREMENTS, pp. 36-38.

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.

INTENATIONAL BUSINESS MAJOR
School of Business

Major will not be offered to entering freshman after the 2000-2001 academic year.

General Information
The International Business Major is an interdisciplinary curriculum that provides students with the tools and knowledge of many fields to exploit opportunities and solve problems that arise from an increasingly global environment. Courses in international economics, political science, and history provide a background into institutions that differ from those in the U.S. Business courses that focus on the international aspects of finance, management, marketing, and quality control are designed to assure that students are prepared to manage every facet of a multinational business. Students master the basics of a language other than English and are encouraged to spend at least one semester studying abroad.

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 marketing, human resources management, strategic planning, systems analysis, and finance.

Career Opportunities
International Business majors find positions in exporting, importing, banking and finance, corporate finance, systems analysis, logistics, and human resources management.
Facult
Professor: Claire Bronson
Associate Professors: William Bosworth, R. Loring Carlson, Sharon Lee

Program Objectives
1. Understand the causes and effects of the international flow of goods, capital, and resources.
2. Analyze both the political and economic climate of any country in terms of opportunities and threats it presents to a business organization.
3. Understand the basics of a language other than one’s own.
4. Understand the implications of cultural diversity in forming and executing business strategy.
5. Extend the principles of business management including accounting, finance, marketing, quality control, human resources, and strategic planning to businesses that operate in more than one country.

Course of Study
1. Core Requirements for All Business Majors (80 credit hours) See page 39.
   — plus —
2. Required business courses (9 credit hours)
   FIN 322  International Financial Management
   MAN 311  Management of International Operations
   MK 411  Multinational Marketing
   — plus —
3. Required non-business courses (9 credit hours)
   GO 101  Introduction to Contemporary Global Issues
   GO 102  American Government
   EC 311  Money and Banking
   EC 372  International Trade
4. Electives (24 credit hours)
   MAN 480  Management Internship (3 cr)
   — or —
   Business Elective (3 cr)
   Business Elective (12 cr)
   Non-Business Electives (9 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:
FIN 322, MAN 311, MK 411, QM 310 and BUS 450.

Suggested Sequence of Courses
Notes:
*  Has 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)  3
   — or —
MATH 123*  Calculus I for Management, Life and Social Sciences (GCR/BUSR)  3
History  History Requirement (GCR)  3
MAN 101  Principles of Management (BUSR)  3
   — or —
CIS 102*  Computer Tools for Business (BUSR)  3
PEHR 151*  Personal Health and Wellness (GCR)  1

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Demonstrated proficiency in Excel required for 2nd semester registration.

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)  3
Non-Business Elective (BUSR)  3
MAN 101*  Principles of Management (BUSR)  3
   — or —
CIS 102*  Computer Tools for Business (BUSR)  3
PSY 101  Introduction to Psychology (BUSR)  3
   — or —
SO 101  Introduction to Sociology (BUSR)  3
PEHR 153-159**  Lifetime Activity Series (GCR)  1

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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 205*  Principles of Economics I (BUSR)  3
   Non-business Elective (BUSR)  3

15
Undergraduate Academic Programs

Spring Semester
AC 202** Managerial Accounting (BUSR) 3
QM 201** Introduction to Statistics (BUSR) 3
FIN 214** Corporation Finance (BUSR) 3
EC 206** Principles of Economics II (BUSR) 3
ENGL 201** Principles of Communication (BUSR) 3

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

Junior Year

Fall Semester
BUS 301 Integrated Business Operations (BUSR) 3
PH 310 Ethics in the Professions (BUSR) 3
GO 101 Introduction to Contemporary Global Issues (MR) — or —
GO 102 American Government (MR) 3
FIN 322 International Financial Management (MR) 3
Lab Science Laboratory Science Requirement (GCR) 3

Spring Semester
LS 301 Legal Aspects of Business (BUSR) 3
QM 310 Quality and Operations Management (BUSR) 3
HUM xxx Elements of Culture Requirement (GCR) 3
MAN 311 Management of International Operations (MR) 3
Lab Science Laboratory Science Requirement (GCR) 3

Senior Year

Fall Semester
EC 311 Money and Banking (MR) 3
MK 411 International Marketing (MR) 3
Business Elective (MR) 3
Business Elective (MR) 3
Non-business Elective (MR) 3

Spring Semester
BUS 450 Business Strategy (BUSR) 3
Business Elective (MR) 3
MAN 480 Management Internship (MR) — or —
Business Elective (MR) 3
EC 372 International Trade (MR) 3
Business Elective (MR) 3

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 transnational corporate enterprise, employment and career opportunities are more likely than ever to be international in scope and character requiring employees who have acquired a familiarity with other cultures as well as their own. Employers actively seek individuals who can demonstrate a breadth of preparation that suggests flexibility and adaptability to a rapidly changing global marketplace.

Faculty
Professors: Emmett C. Barcalow, Nancy J. Hoar, K. Edward Jansen, Vladimir Wozniuk
Associate Professors: Marc Dawson, Glen Ebisch, Martha Garabedian, Shelly Regenbaum, Richard Skillman, Donald Williams
Assistant Professors: John Seung-Ho Baick, Schiller Casimir
Instructor: Frances Abrams

Program Objectives
1. To provide students with analytical tools necessary to understand and explain the increasingly complex inter-relationships that characterize 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 and School of Arts and Sciences Requirements, pp. 36-38.
Course of Study

1. Seven core courses (21 credit hours):
   - INST 101/GO 101 Introduction to Contemporary Global Issues
   - GEOG 101 Introduction to Geography
   - HIST 106 World Civilization II
   - GO 203 International Relations
   - SO 205 Introduction to Cultural Anthropology
   - ENGL 205 Mass Communication
   - ENGL 215 World Literature II

2. An additional eighteen credit hours drawn from the international studies curriculum list in economics, English, finance, government, 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 Area Concentration, or the European Area Concentration. The precise program is designed in close consultation with the advisor.

3. The capstone senior seminar in international studies three credit hours.

4. Eighteen additional credit hours in Area II.

5. 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

<table>
<thead>
<tr>
<th>Fall Semester</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>INST 101*</td>
<td>3</td>
</tr>
<tr>
<td>MATH 1xx*</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 132*</td>
<td>3</td>
</tr>
<tr>
<td>LANG xxx</td>
<td>3</td>
</tr>
<tr>
<td>LA 100</td>
<td>2</td>
</tr>
<tr>
<td>PEHR 151*</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>15</td>
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</table>

<table>
<thead>
<tr>
<th>Spring Semester</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIST 106</td>
<td>3</td>
</tr>
<tr>
<td>SO 205</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 133**</td>
<td>3</td>
</tr>
<tr>
<td>MATH 1xx**</td>
<td>3</td>
</tr>
<tr>
<td>PEHR 153-199</td>
<td>1</td>
</tr>
<tr>
<td>LANG xxx</td>
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</table>

Sophomore Year

<table>
<thead>
<tr>
<th>Fall Semester</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 215**</td>
<td>3</td>
</tr>
<tr>
<td>EC 205*</td>
<td>3</td>
</tr>
<tr>
<td>LANG xxx</td>
<td>3</td>
</tr>
<tr>
<td>LAB xxx</td>
<td>3</td>
</tr>
<tr>
<td>GEOG 101</td>
<td>3</td>
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<table>
<thead>
<tr>
<th>Spring Semester</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>PH 110*</td>
<td>3</td>
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<tr>
<td>LANG xxx</td>
<td>3</td>
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<tr>
<td>LAB xxx</td>
<td>3</td>
</tr>
<tr>
<td>EC 206**</td>
<td>3</td>
</tr>
<tr>
<td>GO 203**</td>
<td>3</td>
</tr>
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</table>

Junior Year

<table>
<thead>
<tr>
<th>European Area Concentration</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>ENGL 310**</td>
<td>3</td>
</tr>
<tr>
<td>EC 315**</td>
<td>3</td>
</tr>
<tr>
<td>LANG xxx</td>
<td>3</td>
</tr>
<tr>
<td>HUM 2xx</td>
<td>3</td>
</tr>
<tr>
<td>CS 131</td>
<td>3</td>
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</table>

<table>
<thead>
<tr>
<th>Developing Societies Concentration</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>ENGL 253</td>
<td>3</td>
</tr>
<tr>
<td>EC 321</td>
<td>3</td>
</tr>
<tr>
<td>LANG xxx</td>
<td>3</td>
</tr>
<tr>
<td>HUM 2xx</td>
<td>3</td>
</tr>
<tr>
<td>CS 131</td>
<td>3</td>
</tr>
</tbody>
</table>
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
HUM 2xx Elements of Culture Requirement (GCR) 3

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

Senior Year
Fall Semester
European Area Concentration
INST 480 Internship (MR) 3
HIST 320 The Twentieth Century World (MR) 3
GEN xxx General Elective 3
PH 320 Western Religions 3

Developing Societies Concentration
INST 480 Internship (MR) 3
HIST 361 Africa in the Twentieth Century 3
HIST 371 History of Latin America (MR) 3
GO 310 Politics of Developing Societies (MR) 3
PH 320/321 Western or Eastern Religions 3
GEN xxx General Elective 3

Economics and Commerce Concentration
INST 480 Internship in International Studies (MR) 3
HIST 341 History of Modern Germany: 1848 to Present (MR) 3
GO 340 International Law and Organization (MR) 3
EC 321 Economic Development (MR) 3
PH 308 Environmental Ethics 3

Spring Semester
INST 490 Seminar In International Studies (MR) 3
HIST 3xx History Elective 3
GO 3xx Government Elective 3
ARTS xxx Elements of Culture – Arts Requirement 3
GEN xxx General Elective 3

(LAW ENFORCEMENT MAJOR School of Arts and Sciences)

(Please note: This program is only offered at Western New England College’s off-campus locations. For further information please call 800-446-9632 or 781-933-1595 or, in the Springfield area 413-782-1249)

General Information
The Bachelor of Science in Law Enforcement degree program is intended to broaden the academic training of students who have already completed the associate’s degree or its equivalent in criminal justice, law enforcement, or corrections at an accredited college or university. Degree candidates must meet all general requirements of the College and all area requirements of the School of Arts and Sciences.

The first 60 credit hours of a candidate for the degree of Bachelor of Science in Law Enforcement (BSLE) will normally have been earned in the pursuit of an associate’s degree in law enforcement at a community college.

In other instances, an equivalent number of credits earned in a four-year curriculum at another institution may be accepted in lieu of an associate’s degree. Western New England College provides the remaining 62 credit hours needed to qualify for a bachelor’s degree.

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

Faculty
Associate Professor: Larry Field
Professional Educators: Alfred Ingham,
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.
5. Professional preparation in the specific field of juvenile justice: to understand its history, development, and operation.

**General and School Requirements**

See General College Requirements and School of Arts and Sciences Requirements p. 36-38.

**Course of Study**

1. Major Area: 36 credit hours, 18 of that must be upper level (courses numbered 300 and above). Of these courses, 18 credit hours will ordinarily be transferred from a two-year law enforcement curriculum.

2. Upper-level social/behavioral sciences (courses numbered 300 and above): six credit hours.

3. Electives: 24 credit hours, six of which must be at the upper level.

Note: Up to nine credit hours of lower division transfer credit may be allowed for police academy training.

**Suggested Sequence of Courses**

For the BSLE major it is assumed that the student will transfer to Western New England College with an associate’s degree or 60 credits. Some students will need to complete specific lower level requirements of the School of Arts and Sciences. Usually courses previously taken which do not qualify either as a humanities or a social science requirement will qualify as general electives.

The following projected BSLE sequence of courses assumes that a student has completed 18 credit hours of lower level courses in criminal justice, six credit hours in English composition, six credit hours in mathematics, 15 credit hours in the social sciences (sociology, psychology, history, government, or economics), 12 credit hours of other courses that will count as general electives, and the three-credit computer requirement.

Notes:

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

If a student takes a full time schedule, the following sequence is recommended.

**Junior Year**

<table>
<thead>
<tr>
<th>Fall Semester</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CJ 312**</td>
<td>3</td>
</tr>
<tr>
<td>HUM xxx</td>
<td>3</td>
</tr>
<tr>
<td>SO/PSY 3xx</td>
<td>3</td>
</tr>
<tr>
<td>ARI xxx</td>
<td>3</td>
</tr>
<tr>
<td>LAB xxx</td>
<td>3</td>
</tr>
</tbody>
</table>

**Spring Semester**

<table>
<thead>
<tr>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
</tr>
</tbody>
</table>

**Senior Year**

<table>
<thead>
<tr>
<th>Fall Semester</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CJ 3xx</td>
<td>3</td>
</tr>
<tr>
<td>CJ 3xx</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 3xx</td>
<td>3</td>
</tr>
<tr>
<td>ARI xxx</td>
<td>3</td>
</tr>
<tr>
<td>GO 325**</td>
<td>3</td>
</tr>
<tr>
<td>GEN 3xx</td>
<td>3</td>
</tr>
</tbody>
</table>

**Spring Semester**

<table>
<thead>
<tr>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>15</td>
</tr>
</tbody>
</table>

Note:

Because of the prerequisite structure of certain courses at Western New England College, the transfer student in the BSLE curriculum will have to take, or receive credit for having taken, the equivalent of the following courses prior to taking certain upper level courses:

<table>
<thead>
<tr>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
</tr>
</tbody>
</table>

---

ENGL 132 English Composition I 3
ENGL 133 English Composition II 3
CJ 101 Introduction to Criminal Justice 3
CJ 210 Criminology 3
SO 101 Introduction to Sociology 3
PSY 101 Introduction to Psychology 3
GO 102 American Government 3
CJ 211 Corrections 3
CJ 218 Introduction to Law Enforcement 3
CJ 220 Evidence 3
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) or adults (persons older than the usual college age). An exception is made for students in the Western New England College program at Dean College, where students of any age may enroll for this degree. Those admitted as degree candidates in the liberal studies programs must have graduated from an approved secondary school or have equivalent training as determined by the Admissions Office.

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 and School of Arts and Sciences Requirements p. 36-38.

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)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Freshman English</td>
<td>6</td>
</tr>
<tr>
<td>Humanities (Area I)</td>
<td>12</td>
</tr>
<tr>
<td>Laboratory Science</td>
<td>3</td>
</tr>
<tr>
<td>Mathematics</td>
<td>3</td>
</tr>
<tr>
<td>Mathematics or Computer</td>
<td>3</td>
</tr>
<tr>
<td>Social Sciences (Area II)</td>
<td>12</td>
</tr>
<tr>
<td>General Electives</td>
<td>21</td>
</tr>
</tbody>
</table>

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)

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Computer</td>
<td>3</td>
</tr>
<tr>
<td>Freshman English</td>
<td>6</td>
</tr>
<tr>
<td>Humanities (Area I)</td>
<td>30 (9 at 300-400 level)</td>
</tr>
<tr>
<td>Laboratory Science</td>
<td>6</td>
</tr>
<tr>
<td>Mathematics</td>
<td>6</td>
</tr>
<tr>
<td>Social Sciences (Area II)</td>
<td>30 (9 at 300-400 level)</td>
</tr>
<tr>
<td>General Electives</td>
<td>39 (12 at 300-400 level)</td>
</tr>
</tbody>
</table>

Total credit hours required for graduation - 120

MANAGEMENT MAJOR
School of Business

General Information
A student majoring in management should be prepared to assume a position of responsibility within an organization. Working along with others, the management major should be able to mobilize all of the resources available to that organization in order to meet the mission, goals, and objectives of both the organization and its stakeholders. To succeed in this rapidly changing environment, a manager needs special confidence in dealing with law and conflict resolution, entrepreneurship, human resources, leadership, production, or the many other skills used by an effective manager.

Career Opportunities
Management majors are prepared to assume positions of responsibility in organizations in the private and public sectors. Graduates work in manufacturing, corporate business, banks, small businesses, hotels, restaurants, accounting brokerage firms, government, public administration, and in the whole range of businesses in the global economy. Many graduates of management programs enroll in graduate or law school. Typically graduates enter businesses in entry-level professional positions.

Faculty
Professors: Anthony F. Chelte, Russell A. Fanelli, William P. Ferris, Peter W. Hess, Ned S. Schwartz
Associate Professors: Harvey M. Shrage, Julie Siciliano
Assistant Professor: Daniel Covell, Sharianne Walker

Program Objectives
1. Understand the key elements in the process of strategic, business, and project planning.
2. Understand the strengths and limitations of the full range of organizational designs as well as the key elements of effective work design.
3. Apply theories and concepts of motivation, leadership, and change to develop strategies for improving work performance.

4. Understand the key elements in the design and implementation of quality control systems and continuous improvement processes.

5. Develop and implement systems of effective decision-making and problem solving.

6. Competency in communication, specifically in the areas of setting goals, providing direction and feedback, and facilitating group input and conflict management.

7. Demonstrate the full range of management competencies in team-based performance situations.

**Course of Study**

1. **Core Requirements for All Business Majors (80 credit hours)**
   - See page 39.

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 423 Human Resources Management
   - MAN 433 Performance Team Leadership

3. **Electives (24 credit hours)**
   - MAN 480 Management Internship (3 cr)
     - or —
   - CIS 102 * Computer Tools for Business (BUSR) 3

   Non-Business Electives (18 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

**Fall Semester**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS 101</td>
<td>First Year Seminar (GCR/BUSR)</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 132*</td>
<td>English Composition I (GCR)</td>
<td>3</td>
</tr>
<tr>
<td>MATH 111*</td>
<td>Analysis for Business and Economics I (GCR/BUSR)</td>
<td>3</td>
</tr>
<tr>
<td>MATH 123*</td>
<td>Calculus I for Management, Life and Social Sciences (GCR/BUSR)</td>
<td>3</td>
</tr>
<tr>
<td>History</td>
<td>History Requirement (GCR)</td>
<td>3</td>
</tr>
<tr>
<td>MAN 101*</td>
<td>Principles of Management (BUSR)</td>
<td>3</td>
</tr>
<tr>
<td>CIS 102 *</td>
<td>Computer Tools for Business (BUSR)</td>
<td>3</td>
</tr>
<tr>
<td>PEHR 151*</td>
<td>Personal Health and Wellness (GCR)</td>
<td>1</td>
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</tbody>
</table>

Demonstrated proficiency in Excel required for 2nd semester registration.

**Spring Semester**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 133**</td>
<td>English Composition II (GCR)</td>
<td>3</td>
</tr>
<tr>
<td>MATH 112**</td>
<td>Analysis for Business and Economics II (GCR/BUSR)</td>
<td>3</td>
</tr>
<tr>
<td>MATH 124**</td>
<td>Calculus I for Management, Life and Social Sciences (GCR/BUSR)</td>
<td>3</td>
</tr>
<tr>
<td>MAN 101*</td>
<td>Principles of Management (BUSR)</td>
<td>3</td>
</tr>
<tr>
<td>CIS 102 *</td>
<td>Computer Tools for Business (BUSR)</td>
<td>3</td>
</tr>
<tr>
<td>PSY 101</td>
<td>Introduction to Psychology (BUSR)</td>
<td>3</td>
</tr>
<tr>
<td>SO 101</td>
<td>Introduction to Sociology (BUSR)</td>
<td>3</td>
</tr>
<tr>
<td>PEHR 153-159**</td>
<td>Lifetime Activity Series (GCR)</td>
<td>1</td>
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</table>

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

**Sophomore Year**

**Fall Semester**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC 201*</td>
<td>Financial Reporting (BUSR)</td>
<td>3</td>
</tr>
<tr>
<td>MK 200*</td>
<td>Principles of Marketing (BUSR)</td>
<td>3</td>
</tr>
<tr>
<td>CIS 202*</td>
<td>Introduction to Information Systems (BUSR)</td>
<td>3</td>
</tr>
<tr>
<td>EC 205*</td>
<td>Principles of Economics I (BUSR)</td>
<td>3</td>
</tr>
</tbody>
</table>

**Spring Semester**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC 202**</td>
<td>Managerial Accounting (BUSR)</td>
<td>3</td>
</tr>
<tr>
<td>QM 201**</td>
<td>Introduction to Statistics (BUSR)</td>
<td>3</td>
</tr>
<tr>
<td>FIN 214**</td>
<td>Corporation Finance (BUSR)</td>
<td>3</td>
</tr>
<tr>
<td>EC 206**</td>
<td>Principles of Economics II (BUSR)</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 201**</td>
<td>Principles of Communication (BUSR)</td>
<td>3</td>
</tr>
</tbody>
</table>

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

**Fall Semester**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS 301</td>
<td>Integrated Business Operations (BUSR) 3</td>
<td></td>
</tr>
<tr>
<td>PH 310</td>
<td>Ethics in the Professions (BUSR) 3</td>
<td></td>
</tr>
<tr>
<td>MAN 204</td>
<td>Organization Behavior (BUSR) 3</td>
<td></td>
</tr>
<tr>
<td>Lab Science</td>
<td>Laboratory Science Requirement (GCR) 3</td>
<td></td>
</tr>
</tbody>
</table>

**Spring Semester**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>LS 301</td>
<td>Legal Aspects of Business (BUSR) 3</td>
<td></td>
</tr>
<tr>
<td>QM 310</td>
<td>Quality and Operations Management (BUSR) 3</td>
<td></td>
</tr>
<tr>
<td>HUM xxx</td>
<td>Elements of Culture Requirement (GCR) 3</td>
<td></td>
</tr>
<tr>
<td>MAN 308</td>
<td>Employee Relations 3</td>
<td></td>
</tr>
<tr>
<td>Lab Science</td>
<td>Laboratory Science Requirement (GCR) 3</td>
<td></td>
</tr>
</tbody>
</table>

Senior Year

**Fall Semester**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>LS 424</td>
<td>Legal Aspects of Human Resource Management (MR) 3</td>
<td></td>
</tr>
<tr>
<td>MAN 315</td>
<td>Organizational Theory (MR) 3</td>
<td></td>
</tr>
<tr>
<td>MAN 316</td>
<td>Non-business Elective (BUSR) 3</td>
<td></td>
</tr>
<tr>
<td>MAN 317</td>
<td>Non-business Elective (BUSR) 3</td>
<td></td>
</tr>
</tbody>
</table>

**Spring Semester**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS 450</td>
<td>Business Strategy (BUSR) 3</td>
<td></td>
</tr>
<tr>
<td>MAN 423</td>
<td>Human Resources Management (MR) 3</td>
<td></td>
</tr>
<tr>
<td>MAN 433</td>
<td>Performance Team Leadership (MR) 3</td>
<td></td>
</tr>
<tr>
<td>MAN 480</td>
<td>Management Internship (MR) 3 or</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Business Elective (MR) 3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Non-business Elective (BUSR) 3</td>
<td></td>
</tr>
</tbody>
</table>

**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, Harlan Spotts
Assistant Professors: Elizabeth Elam, Janelle Goodnight
Executive In Residence: James McKeon
Instructor: Gail Olmsted

**Program Objectives**

1. Understand the interactions required for the effective design and execution of marketing plans.
2. Demonstrate skills in quantitative and qualitative research techniques as they apply to marketing problems.
3. Produce effectively written marketing plans, research reports, and sales correspondence.
4. Apply marketing theories and concepts to the analysis and design of solutions for marketing-related business challenges.
Course of Study

1. Core Requirements for All Business Majors (80 credit hours) See page 39.
   — plus —

2. Required Marketing courses (18 credit hours)
   MK 301 Buyer Behavior
   MK 318 Marketing Research
   Any two of the following three courses:
   MK 317 Promotional Strategy
   MK 320 Price and Product Strategy
   MK 323 Distribution Strategy
   MK 421 Marketing Management
   MK 440 Marketing Seminar
   — plus —

3. Other required courses (3 credit hours)
   ENGL 340 Business Communication
   — plus —

4. Electives (21 credit hours)
   MK 3xx-4xx (3cr)
   MK 480 Marketing Internship (3cr)
   — 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 as follows: All MK courses and BUS 450.

Suggested Sequence of Courses

Notes:
* Is a prerequisite
** Has a prerequisite
GCR General College Requirement
BUSR School of Business Requirement

Freshman Year

Fall Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS 101</td>
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</tr>
<tr>
<td>ENGL 132*</td>
<td>3</td>
</tr>
<tr>
<td>MATH 111*</td>
<td>3</td>
</tr>
<tr>
<td>MATH 123*</td>
<td>3</td>
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Sophomore Year

Fall Semester

<table>
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<td>MK 200*</td>
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<td>CIS 202**</td>
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</tr>
<tr>
<td>EC 205*</td>
<td>3</td>
</tr>
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<td>ENGL 201**</td>
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Spring Semester

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<tr>
<td>AC 202**</td>
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<tr>
<td>PH 310**</td>
<td>3</td>
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<td>ENGL 340**</td>
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<tr>
<td>MK 301**</td>
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Junior Year

Fall Semester

<table>
<thead>
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<th>Course</th>
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<tbody>
<tr>
<td>BUS 301**</td>
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<tr>
<td>PH 310**</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 340**</td>
<td>3</td>
</tr>
<tr>
<td>MK 301**</td>
<td>3</td>
</tr>
<tr>
<td>Lab Science</td>
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<tr>
<td>Total</td>
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Spring Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credit</th>
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<tbody>
<tr>
<td>LS 301*</td>
<td>Legal Aspects of Business (BUSR)</td>
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<td>QM 310**</td>
<td>Quality and Operations Management (BUSR)</td>
<td>3</td>
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<tr>
<td>HUM xxx</td>
<td>Elements of Culture Requirement (GCR)</td>
<td>3</td>
</tr>
<tr>
<td>MK 318**</td>
<td>Marketing Research (MR)</td>
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<td>Lab Science</td>
<td>Laboratory Science Requirement (GCR)</td>
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Senior Year

Fall Semester

<table>
<thead>
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<th>Course</th>
<th>Title</th>
<th>Credit</th>
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<tbody>
<tr>
<td>MK 317**</td>
<td>Promotional Strategy (MR)</td>
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<tr>
<td>or</td>
<td>MK 320** Price and Product Strategy (MR)</td>
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<tr>
<td>or</td>
<td>MK 323** Distribution Strategy (MR)</td>
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<tr>
<td>MK 421**</td>
<td>Marketing Management (MR)</td>
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<tr>
<td>MK 480**</td>
<td>Marketing Internship (MR)</td>
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<tr>
<td>or</td>
<td>Business Elective (MR)</td>
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<td>or</td>
<td>Non-business Elective (BUSR)</td>
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Spring Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS 450**</td>
<td>Business Strategy (BUSR)</td>
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<tr>
<td>MK 317**</td>
<td>Promotional Strategy (MR)</td>
<td>3</td>
</tr>
<tr>
<td>or</td>
<td>MK 320** Price and Product Strategy (MR)</td>
<td>3</td>
</tr>
<tr>
<td>or</td>
<td>MK 323** Distribution Strategy (MR)</td>
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</tr>
<tr>
<td>MK 440**</td>
<td>Marketing Seminar (MR)</td>
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</tr>
<tr>
<td>MK 3xx-4xx</td>
<td>Marketing Elective (MR)</td>
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<td>or</td>
<td>Non-business Elective (BUSR)</td>
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</table>

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 the like. 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, Harlan Spotts
Assistant Professors: Elizabeth Elam, Janelle Goodnight
Executive In Residence: James McKeon
Instructor: Gail Olmsted
Program Objectives

1. Demonstrate creativity in producing advertising and promotional outputs.
2. Understand the impact of communication as it relates to marketing programs.
3. Develop and produce promotional materials using desktop publishing.
4. Demonstrate skills in one-to-one negotiations.

Course of Study

1. Core Requirements for All Business Majors (80 credit hours) See page 39.
   — plus —

2. Required Marketing courses (18 credit hours)
   MK 301  Buyer Behavior
   MK 317  Promotional Strategy
   MK 340  Desktop Applications for Marketing
   MK 344  Campaign Planning and Management
   MK 440  Marketing Seminar
   MK 480  Marketing Internship
   — plus —

3. Other required courses (9 credit hours)
   ENGL 340  Business Communication
   ENGL 348  Intercultural Communication
   ENGL 394  Media Planning and Public Relations
   — plus —

4. Electives (15 credit hours)
   MK 3xx-4xx  (3cr)
   Business Elective (3 cr)
   Non-Business Electives (9 cr)

Note: ENGL205 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 and BUS450.

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

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit Hours</th>
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</thead>
<tbody>
<tr>
<td>BUS 101 First Year Seminar</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 132* English Composition I</td>
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</table>

Spring Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 132** English Composition II</td>
<td>3</td>
</tr>
<tr>
<td>MATH 112** Analysis for Business and Economics II</td>
<td>3</td>
</tr>
<tr>
<td>MATH 124** Calculus I for Management, Life and Social Sciences</td>
<td>3</td>
</tr>
<tr>
<td>MAN 101* Principles of Management</td>
<td>3</td>
</tr>
<tr>
<td>CIS 102* Computer Tools for Business</td>
<td>3</td>
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<tr>
<td>PEHR 151* Personal Health and Wellness</td>
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</table>

Sophomore Year

Fall Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC 201* ** Financial Reporting</td>
<td>3</td>
</tr>
<tr>
<td>MK 200** Principles of Marketing</td>
<td>3</td>
</tr>
<tr>
<td>CIS 202** Introduction to Information Systems</td>
<td>3</td>
</tr>
<tr>
<td>EC 205* Principles of Economics I</td>
<td>3</td>
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<tr>
<td>Non-business Elective</td>
<td>3</td>
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</tbody>
</table>

Spring Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC 202** Managerial Accounting</td>
<td>3</td>
</tr>
<tr>
<td>QM 201** Introduction to Statistics</td>
<td>3</td>
</tr>
<tr>
<td>FIN 214** Corporation Finance</td>
<td>3</td>
</tr>
<tr>
<td>EC 206** Principles of Economics II</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 201** Principles of Communication</td>
<td>3</td>
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</tbody>
</table>

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

Fall Semester

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS 301**</td>
<td>Integrated Business Operations (BUSR)</td>
<td>3</td>
</tr>
<tr>
<td>PH 310**</td>
<td>Ethics in the Professions (BUSR)</td>
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<tr>
<td>ENGL 340**</td>
<td>Business Communication (MR)</td>
<td>3</td>
</tr>
<tr>
<td>MK 301**</td>
<td>Buyer Behavior (MR)</td>
<td>3</td>
</tr>
<tr>
<td>Lab Science</td>
<td>Laboratory Science Requirement (GCR)</td>
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Spring Semester

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>LS 301*</td>
<td>Legal Aspects of Business (BUSR)</td>
<td>3</td>
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<tr>
<td>QM 310**</td>
<td>Quality and Operations Management (BUSR)</td>
<td>3</td>
</tr>
<tr>
<td>HUM xxx</td>
<td>Elements of Culture Requirement (GCR)</td>
<td>3</td>
</tr>
<tr>
<td>MK 317**</td>
<td>Promotional Strategy (MR)</td>
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<tr>
<td>Lab Science</td>
<td>Laboratory Science Requirement (GCR)</td>
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Senior Year

Fall Semester

<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
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<tbody>
<tr>
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<td>MK 344**</td>
<td>Campaign Planning and Management (MR)</td>
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<td>ENGL 348**</td>
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<td>Non-business Elective (BUSR)</td>
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Spring Semester

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>BUS 450**</td>
<td>Business Strategy (BUSR)</td>
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<tr>
<td>MK 3xx-MK4xx</td>
<td>Marketing Elective</td>
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</tr>
<tr>
<td>MK 440**</td>
<td>Marketing Seminar (MR)</td>
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<tr>
<td>MK 480**</td>
<td>Marketing Internship (MR)</td>
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</tr>
<tr>
<td>ENGL 394**</td>
<td>Media Planning and Public Relations (MR)</td>
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MATHEMATICAL SCIENCES

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: Dennis Luciano, Richard Pelosi, Leb-Sheng Tang
Associate Professors: Alan Gorfin, Lorna Hanes, Jay Jackson, Ann Kizanis
Assistant Professors: Lisa Hansen, David Mazur
Professional Educator: John Willemain
Director of Freshman Mathematics: Teresa Barton
Director of the Math Center: Jane Wyman

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 and School of Arts and Sciences Requirements, pp. 36-38.

**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 104 Elementary 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**

<table>
<thead>
<tr>
<th>Fall Semester</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>CS 181*</td>
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</tr>
<tr>
<td>ENGL 132*</td>
<td>3</td>
</tr>
<tr>
<td>MATH 133*</td>
<td>4</td>
</tr>
<tr>
<td>LA 100</td>
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</table>
HIST 1xx  History Requirement (GCR) 3
PEHR 151  Personal Health and Wellness (GCR) 1

Spring Semester
CS 182**  Computer Science II (MR) 4
ENGL 133**  Composition II (GCR) 3
MATH 134**  Calculus II (GCR/MR) 4
PH 104*  Logic (A&SR/MR) 3
ARII xxx  Area II Requirement (A&SR) 3
EC xxx or GO xxx

Sophomore Year

Fall Semester  Credit Hours
MATH 235*  Calculus III (MR) 3
MATH 261*  Discrete Structures I (MR) 3
PHYS 133*  Mechanics (GCR/MR) 4
ARI xxx  Area I Requirement – Literature 3
ARII xxx  Area II Requirement 3
PSY xxx or SO xxx

Spring Semester
MATH 262**  Discrete Structures II (MR) 3
MATH 272**  Probability (MR) 3
PHYS 134**  Electricity and Magnetism (GCR/MR) 4
PEHR 153-199 Lifetime Activities Series (GCR) 1
ARI xxx  Area I Elective 3
ARII xxx  Area II Elective 3

Junior Year

Fall Semester  Credit Hours
MATH 236*  Differential Equations (MR) 3
MATH xxx  Mathematics Elective (MR) 3
ARTS xxx  Elements of Culture –
GEN xxx  General Electives 6
HUM 2xx  Humanities Requirement (GCR) (Upper Level) 3

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

Senior Year

Fall Semester  Credit Hours
GEN xxx  General Elective 9
MATH xxx  Mathematics Electives (MR) (Upper Level) 6

Spring Semester
MATH 418**  Modern Algebra (MR)
MATH 421**  Real Analysis (MR) 3
MATH 420**  Mathematical Modeling (MR) 3
GEN xxx  General Electives 4

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 examinations 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 306  Linear Algebra
MATH 272  Probability
MATH 373  Mathematical Statistics
IE 420  Operations Research
MATH 311  Numerical Analysis

MECHANICAL ENGINEERING
MAJOR
School of Engineering

General Information
Mechanical engineers are primarily problem solvers who are involved with most of the technical facets of society such as product design, testing, manufacturing, program management, field service product support, and technical sales. Mechanical engineers work in the acoustics, aerospace, automotive, biomedical, computer, energy conversion, energy storage, environmental, materials, power, transportation, and safety sectors.

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 option 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 the Accreditation Board for Engineering and Technology (ABET).

**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 Hamilton Sundstrand, Pratt and Whitney, United Technologies Research Center, Boeing, Lockheed-Martin, Otis, Carrier, Milton Bradley, General Motors, Electric Boat, Andersen Consulting, General Electric, Smith and Wesson, American Saw, Northeast Utilities, Gerber Scientific Research, Spalding Sports Worldwide, Sikorsky, and ABB Combustion Engineering. Mechanical engineering graduates have also become physicians and patent attorneys. Additionally, mechanical engineers occupy executive positions in many large corporations.

**Manufacturing Option**

Manufacturing is the creation of useful products by various processes following a well-organized plan. In industrialized countries, manufacturing accounts for two-thirds of the wealth-producing activities. Recent dramatic developments in computer hardware and software and the strong economic challenge from foreign companies have focused increased attention on manufacturing and transformed it into an exciting multidisciplinary field.

The option is designed to satisfy a growing demand for engineers with knowledge of robotics, interactive computer graphics, and computer-aided design and manufacturing. This option 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 in both the First Year Engineering Seminar and Introduction to Engineering courses.

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. Humanities/social science electives are selected from the list of humanities and social science courses listed in each semester’s course schedule. To ensure that some depth of knowledge is acquired, a two-semester sequence of courses in one area is required. Technical, design, and free 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. Undergraduate engineering students may take 500-level engineering courses for which they have satisfied the prerequisite requirements.

**Program Objectives**

Each graduate will have the ability to mathematically model, analyze and design thermal, fluid, mechanical or manufacturing systems; use computer tools to aid in analysis, simulation and design of these systems; use laboratory equipment and instrumentation to obtain measurements, to conduct standardized and compliance tests, and to assess performance; and, apply the knowledge and skills acquired to a variety of professional mechanical engineering positions in both the private and public sectors in product design, development, manufacturing, sales, research and consulting.

**Faculty**

Professors: Said Dini, Alan Karplus, Mohammad Khosrowjerdi, Walter Presz, Richard Veronesi

**Common Core Freshman Year**

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

<table>
<thead>
<tr>
<th>Semester</th>
<th>ENGL 132* English Composition I (GCR/ER/MR)</th>
<th>ENGR 102* First Year Engineering Seminar (GCR/ER/MR)</th>
<th>ENGR 103* Introduction to Engineering (ER/MR)</th>
<th>MATH 133* Calculus I (GCR/ER/MR)</th>
<th>PHYS 133* Mechanics (GCR/ER/MR)</th>
<th>PEHR 151 Personal Health and Wellness (GCR)</th>
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<tr>
<td>Fall Semester</td>
<td>3</td>
<td>1</td>
<td>4</td>
<td>4</td>
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<tr>
<td>Spring Semester</td>
<td>ENGL 133** English Composition II (GCR/ER/MR)</td>
<td>ENGR 110* Computer Applications in Engineering (GCR/ER/MR)</td>
<td>MATH 134* ** Calculus II (GCR/ER/MR)</td>
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</table>
Undergraduate Academic Programs

| ME 106** | Statics (ER/MR) | 3 |
| PHYS 134** | Electricity and Magnetism (GCR/ER/MR) | 4 |
| PEHR 153-199 | Lifetime Activities Series (GCR) | 1 |

Sophomore Year

<table>
<thead>
<tr>
<th>Fall Semester</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>CHEM 105*</td>
<td>General Chemistry I (ER/MR)</td>
</tr>
<tr>
<td>EC 205</td>
<td>Principles of Economics I (ER/MR)</td>
</tr>
<tr>
<td>EE 205**</td>
<td>Introduction to Electrical Engineering I (ER/MR)</td>
</tr>
<tr>
<td>MATH 235**</td>
<td>Calculus III (ER/MR)</td>
</tr>
<tr>
<td>ME 203**</td>
<td>Dynamics (ER/MR)</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Spring Semester</th>
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</tr>
</thead>
<tbody>
<tr>
<td>CPE 240**</td>
<td>Computer Instrumentation and Measurements (MR)</td>
</tr>
<tr>
<td>ENGR 205**</td>
<td>Applied Visual BASIC (MR)</td>
</tr>
<tr>
<td>ENGR 212**</td>
<td>Probability and Statistics (ER/MR)</td>
</tr>
<tr>
<td>MATH 236**</td>
<td>Differential Equations (ER/MR)</td>
</tr>
<tr>
<td>ME 208**</td>
<td>Mechanics of Materials (MR)</td>
</tr>
<tr>
<td>Humanities/Social Science Elective (ER/MR)</td>
<td>3</td>
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</table>

Junior Year

<table>
<thead>
<tr>
<th>Fall Semester</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 350**</td>
<td>Engineering Analysis I (MR)</td>
</tr>
<tr>
<td>ME 303**</td>
<td>Thermodynamics I (MR)</td>
</tr>
<tr>
<td>ME 309**</td>
<td>Materials Science (MR)</td>
</tr>
<tr>
<td>ME 312**</td>
<td>Kinematics and Dynamics of Machinery (MR)</td>
</tr>
<tr>
<td>ME 313**</td>
<td>ME Laboratory I (MR)</td>
</tr>
<tr>
<td>HUM 2xx</td>
<td>Elements of Culture Requirement (GCR/ER/MR)</td>
</tr>
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<table>
<thead>
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<tbody>
<tr>
<td>ME 304**</td>
<td>Thermodynamics II (MR)</td>
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<tr>
<td>ME 314**</td>
<td>ME Laboratory II (MR)</td>
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<tr>
<td>ME 316**</td>
<td>Fluid Mechanics (MR)</td>
</tr>
<tr>
<td>ME 320**</td>
<td>Mechanical Vibrations (MR)</td>
</tr>
<tr>
<td>HIST xxx</td>
<td>History Requirement (GCR/ER/MR)</td>
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<tr>
<td>Engineering/Science Elective (MR)</td>
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Senior Year

<table>
<thead>
<tr>
<th>Fall Semester</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>ME 417**</td>
<td>Heat Transfer (MR)</td>
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<tr>
<td>ME 425**</td>
<td>Design of Machine Elements (MR)</td>
</tr>
<tr>
<td>ME 435**</td>
<td>ME Laboratory III (MR)</td>
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</table>

<table>
<thead>
<tr>
<th>Spring Semester</th>
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</tr>
</thead>
<tbody>
<tr>
<td>ME 439**</td>
<td>Professional Awareness (MR)</td>
</tr>
</tbody>
</table>

1 A humanities course with a “CA” description satisfies this GCR requirement. Students may also satisfy this GCR by taking two courses. A humanities course designated with a “C” and another course designated with an “A.” Upon approval of the academic advisor, the second course may be used to satisfy a humanities/social science requirement.

2 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.

3 Design electives are selected from a list published in each semester’s course schedule.

4 An engineering course numbered 300 or above approved by the faculty 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 Option

Course of Study

<table>
<thead>
<tr>
<th>Fall Semester</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>HUM 2xx</td>
<td>Elements of Culture Requirement (GCR/ER/MR)</td>
</tr>
<tr>
<td>MATH 350**</td>
<td>Engineering Analysis I (MR)</td>
</tr>
<tr>
<td>ME 303**</td>
<td>Thermodynamics I (MR)</td>
</tr>
<tr>
<td>ME 309**</td>
<td>Materials Science (MR)</td>
</tr>
<tr>
<td>ME 312**</td>
<td>Kinematics and Dynamics of Machinery (MR)</td>
</tr>
<tr>
<td>ME 313**</td>
<td>ME Laboratory I (MR)</td>
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</table>

<table>
<thead>
<tr>
<th>Spring Semester</th>
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<tbody>
<tr>
<td>IE 312**</td>
<td>Engineering Economic Analysis (MR)</td>
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<tr>
<td>IE 314**</td>
<td>Manufacturing Processes (MR)</td>
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### Undergraduate Undergraduate Academic Programs

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<tr>
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<th>Course Title</th>
<th>Credits</th>
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<tr>
<td>IE 315**</td>
<td>Quality Control and Engineering</td>
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<tr>
<td>ME 314**</td>
<td>ME Laboratory II (MR)</td>
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<tr>
<td>ME 316**</td>
<td>Fluid Mechanics (MR)</td>
<td>3</td>
</tr>
<tr>
<td>HIST xxx</td>
<td>History Requirement (GCR/ER/MR)</td>
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**Senior Year**

#### Fall Semester

<table>
<thead>
<tr>
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<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>IE 410**</td>
<td>Engineering Project Management (MR)</td>
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<tr>
<td>ME 417**</td>
<td>Heat Transfer (MR)</td>
<td>3</td>
</tr>
<tr>
<td>ME 425**</td>
<td>Design of Machine Elements (MR)</td>
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</tr>
<tr>
<td>ME 435**</td>
<td>ME Laboratory III (MR)</td>
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<tr>
<td>ME 439**</td>
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#### Spring Semester

<table>
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<tr>
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<th>Course Title</th>
<th>Credits</th>
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<tr>
<td>ME 440**</td>
<td>Senior Design Projects (MR)</td>
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<tr>
<td></td>
<td>Manufacturing Design Elective (MR)</td>
<td>3</td>
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<tr>
<td></td>
<td>General Elective (MR)</td>
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<td></td>
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<tr>
<td></td>
<td>Humanities/Social Science Elective</td>
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</tr>
</tbody>
</table>

**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.

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### PRE-PHARMACY

**Western New England College School of Arts and Sciences**

The Pre-pharmacy program offered by the School of Arts and Sciences provides guaranteed transfer to the Massachusetts College of Pharmacy and Health Sciences (MCPHS) for qualified students. Successful completion of the five- or six-year program results in the degree of Doctor of Pharmacy conferred by the Massachusetts College of Pharmacy and Health Sciences, which is accredited by the New England Association of Schools and Colleges and the American Council on Pharmaceutical Education.

The first two years, the Pre-pharmacy Program, are provided by Western New England College. The Professional years are offered by the Massachusetts College of Pharmacy and Health Sciences at campuses in Boston and Worcester. No transfer students will be admitted to the Pre-pharmacy Program at Western New England College.

If students complete the Pre-pharmacy Program at Western New England College with a cumulative grade point average of 2.8 or higher, they will automatically be admitted to the MCPHS Pharmacy Program. Transfer to a specific campus will depend on space availability in either Boston or Worcester and will be determined by the MCPHS Admissions Committee. Grades below C are not transferable. The academic policies of Western New England College apply to the Pre-pharmacy Program; the Pharmacy Program is subject to the academic policies of MCPHS. Students admitted in majors other than Pre-pharmacy should be advised that it might not be possible to transfer into this program after enrolling at the College because the number of places available is strictly limited. Pre-pharmacy students enrolling in more than 17 credit hours of Western New England College courses pay the Western New England College per-semester-hour rate for every hour beyond 17. Pre-pharmacy students on academic probation may not enroll in more than 17 credit hours of course work per semester.

### Program Summary

#### First Year

<table>
<thead>
<tr>
<th>Course ID</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>BIO 107</td>
<td>General Biology I</td>
<td>3</td>
</tr>
<tr>
<td>BIO 117</td>
<td>General Biology I Laboratory</td>
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</tr>
<tr>
<td>CHEM 105</td>
<td>General Chemistry I</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 132</td>
<td>English Composition I</td>
<td>3</td>
</tr>
<tr>
<td>MATH 123</td>
<td>Calculus for Management, Life, and Social Sciences</td>
<td>3</td>
</tr>
<tr>
<td>PSY 101</td>
<td>Introduction to Psychology</td>
<td>3</td>
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</table>

**Total credit hours required for graduation = 132.**
Second Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIO 108</td>
<td>General Biology II</td>
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<td>BIO 118</td>
<td>General Biology II Laboratory</td>
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<tr>
<td>CHEM 106</td>
<td>General Chemistry II</td>
<td>4</td>
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<tr>
<td>ENGL 133</td>
<td>Freshman English</td>
<td>3</td>
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<tr>
<td>MATH 124</td>
<td>Calculus for Management, Life,</td>
<td></td>
</tr>
<tr>
<td></td>
<td>and Social Sciences II</td>
<td>3</td>
</tr>
<tr>
<td>HIST 102</td>
<td>Western Civilization II — or —</td>
<td></td>
</tr>
<tr>
<td></td>
<td>HIST 112 U.S. History 1877-Present</td>
<td></td>
</tr>
<tr>
<td></td>
<td>GO 102 American Government</td>
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Second Year

First Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>CHEM 209</td>
<td>Organic Chemistry I</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 219</td>
<td>Organic Chemistry Laboratory I</td>
<td>1</td>
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<tr>
<td>PHYS 123</td>
<td>Physics for Pharmacy</td>
<td>4</td>
</tr>
<tr>
<td>EC 101</td>
<td>Introduction to Economics — or —</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Humanities Elective*</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Social Science Elective*</td>
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Second Semester

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<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
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<td>Organic Chemistry II</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 220</td>
<td>Organic Chemistry Laboratory II</td>
<td>1</td>
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<tr>
<td>MATH 207</td>
<td>Statistics for Arts &amp; Sciences</td>
<td>3</td>
</tr>
<tr>
<td>BIO 303</td>
<td>Microbiology</td>
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<td>BIO 313</td>
<td>Microbiology Laboratory</td>
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<tr>
<td></td>
<td>Behavioral Science Elective*</td>
<td>3</td>
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<tr>
<td></td>
<td>Liberal Arts Elective*</td>
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</table>

Commencing academic year 2001-2002, the Professional years (3 through 6) of the Pharmacy Curriculum will be offered only on the Boston and Worcester campus of MCPHS. This change is in effect for all students entering Fall ’99 or thereafter.

Writing Proficiency Requirement

As a requirement for graduation from MCPHS, students must demonstrate their writing proficiency by passing an examination designed and evaluated by the faculty. The examination is normally taken in the fall semester of the third year. Those students who do not pass the exam are required to take LIB 113, Expository Writing III, or an equivalent course.

Oral Proficiency Examination

All students entering MCPHS must demonstrate oral proficiency by passing an examination designed and evaluated by the faculty. Students who show high levels of communication apprehension will be required to take LIB 252 (Introduction to Speech), or the equivalent, if their main language is English; otherwise they will take LIB 251 (Advanced ESL), or the equivalent, if they are in the second year or beyond. Students whose poor listening comprehension and/or poor mastery of oral American English demonstrates that they have major difficulties communicating clearly will take LIB 251, or the equivalent, if they are in the second year or beyond. These courses carry liberal arts or general elective credit, but not humanities credit.

Medical Terminology Requirement

Medical terminology proficiency is required of students entering the Pharmacy Program in Boston. Students meet this competency by the following steps. Students take the competency examination prepared by the College. Information concerning this may be obtained from the Office of the Dean, School of Pharmacy - Boston. If the competency examination is unsatisfactory, the student is required to enroll in the self-study course designed for this competency. The final examination for the self-study course will be administered and if the student has not satisfactorily completed the exam at conclusion of the self-study course, then the student will be required to take the one credit course given each year. Satisfactory completion of the one credit course after the first two steps have been attempted will result in satisfaction of the competency. Medical terminology courses taken off campus will NOT be awarded general elective credit for any programs.

Elective Distribution Requirements

A minimum of four electives (12 credit hours) must be taken in the liberal arts during the Pre-pharmacy years as follows:

Distribution (12 cr.):

- HUM (one humanities course)
- SSC (one social science course)
- BEH (one behavioral science course)
- LIB ARTS (one additional liberal arts course)

General Electives (12 cr.) MCPHS Elective Courses

Behavioral Sciences: One course (three credit hours) beyond the introductory level must be taken in psychology or sociology. Generally, courses in these areas numbered 200 or higher in the Western New England College Catalog.

Humanities: One course (three credit hours) beyond the introductory level must be taken in at least one of the following subjects: art history or appreciation, classics, humanities, linguistics, literature (American, British, or comparative), music history or appreciation, philosophy, or religion. In addition, foreign language courses beyond the intermediate level fulfill this requirement.

Social Sciences: One course (three credit hours) beyond the introductory level must be taken in one of the following subjects: American studies, anthropology, history, or political science.
Liberal Arts: One additional course (three credit hours) beyond the introductory level must be taken in the behavioral sciences, humanities, or the social sciences listed above. In addition, courses in foreign languages (introductory and intermediate levels), speech communication, journalism, and writing fulfill this requirement.

Pre-Physician Assistant
Western New England College

Physician Assistant
Massachusetts College of Pharmacy

The Program
Western New England College and the Massachusetts College of Pharmacy and Health Sciences (MCPHS) have joined together to offer the Physician Assistant Studies Program. Successful completion of the six-year program results in the Master's Degree in Physician Assistant Studies conferred by the Massachusetts College of Pharmacy and Health Sciences which is accredited by the New England Association of Colleges and Schools. This program has been fully accredited by the Committee on Accreditation of Allied Health Education Programs.

The first three years of the program (pre-physician assistant phase) are offered on the Western New England campus in Springfield, MA. Eight of the courses offered during this pre-professional phase at Western New England College are taught by MCPHS faculty. The final three years (physician assistant phase) are conducted on the MCPHS campus in Boston. During the sixth and final year of the program students complete nine clinical clerkships at off-campus sites in either Boston or other settings in Massachusetts.

If students complete the pre-professional phase of the Physician Assistant Studies Program with a minimum of 30 hours in residence and a cumulative grade point average of 2.80 or higher, they are automatically admitted to the professional phase of the program offered on the MCPHS campus in Boston. Grades below C are not transferable. The academic policies of Western New England College apply to the pre-professional phase of the program. The professional phase of the program is subject to the academic policies of MCPHS.

At the end of the fourth year of study, having successfully completed the first three years at Western New England College and all requirements of the first year at MCPHS, the student receives a Bachelor of Science in Health Sciences from Western New England College.

Staff
Program Director Carl Fasser, PA-C

Physician Assistant Profession
Physician Assistants (PAs) are skilled members of the health care team qualified by academic and clinical experience to provide a broad range of health care services in practice with a licensed physician. The clinical services provided by PAs include performing interviews and physical examinations, identifying problems in need of evaluation and management, screening results of laboratory diagnostic studies, selecting and implementing treatment plans, counseling patients regarding illness and health risk behaviors, monitoring responses to physician-directed programs of therapy, and facilitating access to appropriate health care resources. These services may be provided to individuals of any age in those various settings considered part of the physician’s practice.

Curriculum
Pre-Professional Phase at Western New England College

First Year

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIO 107 General Biology</td>
<td>3</td>
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<tr>
<td>BIO 117 General Biology I Laboratory</td>
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<tr>
<td>CHEM 105 Concepts of Chemistry</td>
<td>4</td>
</tr>
<tr>
<td>ENGL 132 English Composition I</td>
<td>3</td>
</tr>
<tr>
<td>MATH 123 Calculus I for Management, Life, and Social Sciences</td>
<td>3</td>
</tr>
<tr>
<td>PSY 101 Introduction Psychology</td>
<td>3</td>
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Second Semester

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIO 108 General Biology II</td>
<td>3</td>
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<tr>
<td>BIO 118 General Biology II Laboratory</td>
<td>1</td>
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<tr>
<td>CHEM 106 Concepts of Chemistry II</td>
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<tr>
<td>ENGL 133 English Composition II</td>
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<tr>
<td>MATH 124 Calculus II for Management, Life, and Social Sciences</td>
<td>3</td>
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<tr>
<td>GO 102 American Government</td>
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Second Year

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>CHEM 209 Organic Chemistry I</td>
<td>3</td>
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<td>CHEM 219 Organic Chemistry Laboratory I</td>
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<tr>
<td>PSY 306 Abnormal Psychology</td>
<td>3</td>
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<td>MATH 207 Statistics for Arts and Sciences</td>
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<tr>
<td>CS 131 Computers for Arts and Sciences</td>
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At the end of the fourth year of study, having successfully completed the first three years at Western New England College and all requirements of the first year at MCPHS, the student receives a Bachelor of Science in Health Sciences from Western New England College.
### Second Semester

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
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<td>CHEM 220</td>
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<tr>
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<td>PH 208</td>
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### Third Year

#### First Semester

<table>
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</thead>
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<td>PHL 341</td>
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<tr>
<td>SO 205</td>
<td>3</td>
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<tr>
<td>BIO 531</td>
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#### Second Semester

<table>
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<td>CHE 332</td>
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<td>PHL 342</td>
<td>3</td>
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<tr>
<td>BIO 303</td>
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<td>BIO 313</td>
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<td>SSC 495</td>
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<td>Behavioral Science Elective</td>
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<td></td>
<td>16</td>
</tr>
</tbody>
</table>

*MCPHS courses at Western New England College.

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### 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, organizational, and educational settings. Within the major there is flexibility to select courses to meet individual career objectives.

**Career Opportunities**

Students are prepared to enter the world of work in counseling, personnel administration, human service agencies, and 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
Assistant Professors: Sheralee Tershner, Carolyn West

**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:
- develop a base of knowledge in psychology that includes terminology, concepts and facts linked by conceptual frameworks
- 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 design an original psychological research proposal
– learn how psychologists use the scientific method to generate psychology’s knowledge base
– know how to gather information in psychology using a variety of relevant resources including Psych Abstracts, Psych Info database, Medline, etc.
– be able to understand and use the APA writing style format
– become sensitive to issues of human diversity as they apply to psychological research and practice
– understand how contemporary psychology evolved from its historical roots
– know what ethical principles apply to psychologists in testing, counseling and research.

**Student Assessment**

Students’ progress in psychology is assessed in a variety of ways depending on the course content and the professor’s prerogative 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
- 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 and School of Arts and Sciences Requirements, pp. 36-38.

**Course of Study**

1. Required courses (27 credit hours):
   - PSY 101  Introduction to Psychology
   - PSY 207  Introduction to Statistics for the Social Sciences
   - PSY 211  Developmental Psychology
   - PSY 306  Abnormal Psychology
   - PSY 309  Methods and Techniques of Experimentation
   - PSY 310  Experimental Psychology
   - PSY 312  Physiological Psychology
   - PSY 313  Learning
   - PSY 420  History of Psychology

2. Six additional credit hours required in upper-level psychology (PSY 300-400) courses

3. Twelve additional credit hours in Area II including three credit hours each of history, economics, government, and SO 314.

   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&S  School of Arts and Sciences Requirement

**Freshman Year**

### Fall Semester

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>PSY 101* Introduction to Psychology (MR)</td>
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<tr>
<td>ENGL 132 Composition I (GCR)</td>
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<tr>
<td>LA 100 First Year Seminar (GCR)</td>
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<td>HIST 111/112 U.S. History Requirement (GCR)</td>
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<td>MATH xxx Mathematics Requirement (GCR)</td>
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<td>PEHR 151 Personal Health and Wellness</td>
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### Spring Semester

<table>
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<th>Course</th>
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<tbody>
<tr>
<td>PSY 211** Developmental Psychology (MR)</td>
<td>3</td>
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<td>ENGL 133** Composition II (GCR)</td>
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<td>CS 131 Computing for the Arts and Sciences (GCR/MR)</td>
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<td>GO 102 American Government Area II Requirement (A&amp;S/MR)</td>
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<td>PEHR 153-199 Lifetime Activities Series</td>
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<td>MATH xxx Mathematics Requirement (GCR)</td>
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**Sophomore Year**

### Fall Semester

<table>
<thead>
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<th>Course</th>
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</tr>
</thead>
<tbody>
<tr>
<td>PSY 207* Statistics for the Social Sciences (MR)</td>
<td>3</td>
</tr>
<tr>
<td>PSY 313** Learning (MR)</td>
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</tr>
<tr>
<td>PH xxx Area I Requirement – Philosophy (A&amp;S)</td>
<td>3</td>
</tr>
<tr>
<td>EC xxx Area II Requirement (A&amp;S/MR)</td>
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<tr>
<td>BIO 101 Basic Biology: Organisms — or —</td>
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<tr>
<td>BIO 103 Life Sciences I (required of candidates for elementary education certification)</td>
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<td>**Laboratory Science Requirement (GCR)</td>
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Undergraduate Academic Programs

Spring Semester

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<td>PSY 3xx/4xx</td>
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<td>ENGL xxx</td>
<td>3</td>
</tr>
<tr>
<td>GEN xxx</td>
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<tr>
<td>LAB xxx</td>
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Junior Year

Fall Semester

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<td>PSY 312</td>
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<tr>
<td>ARTS xxx</td>
<td>3</td>
</tr>
<tr>
<td>SO 314</td>
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<td>GEN xxx</td>
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Spring Semester

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<td>PSY 310**</td>
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<td>HUM 2xx</td>
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Senior Year

Fall Semester

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Spring Semester

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<thead>
<tr>
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<tr>
<td>GEN xxx</td>
<td>3</td>
</tr>
<tr>
<td>GEN xxx</td>
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</tbody>
</table>

Notes:
1. Note that BIO is a prerequisite for PSY 312 Physiological Psychology.
2. Students intending to become certified as teachers of behavioral science at the secondary level, or students intending to become certified in elementary education, would need to take PSY 420-421 in their junior year so that the fall of their senior year would be free to take the Ed Block. They must also take PSY 304 and Ed 301 prior to the spring of their senior year. In addition these students should refer to the elementary and secondary program requirements that list the necessary prerequisites for the Ed Block including the specific math, history, government and other requirements necessary for teaching certification in Massachusetts.

SCHOOL OF ARTS AND SCIENCES

SOCIAL WORK MAJOR

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 be 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 entry 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 for 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 value and dignity of all people regardless of race, gender, age, creed, ethnic or national origin, disability, 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 Department 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, adults, and families at the individual, group, and community levels in agencies that provide health care and protective services, substance abuse rehabilitation, family services, 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 physical health and safety is 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: George Caulton  
Associate Professor: Sara Weinberger  
Assistant Professor: Jeff Schrenzel

**Program Objectives**
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 enhances 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 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 and School of Arts and Sciences Requirements, pp. 36-38.

**Requirements for Acceptance into the BSW Program**
1. Apply during the 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. Possess a minimum grade point average of 2.0 and a grade of “C” or better in any social work course taken. (Except for transfer students who have not taken these courses.)
3. 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.

**Required Courses**
- SW 100 Introduction to Social Work  
- SW 216 Human Behavior and the Social Environment  
- SW 301 Social Work Interventive Methods I (The Problem Solving 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 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  
- GO 102 American Government  
- SO 101 Introduction to Sociology  
- SO 205 Cultural Anthropology  
- SO 311 Sociology of Minority Groups  
- PSY 101 Introduction to Psychology  
- PSY 211 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 lab science requirement)  
- BIO 102 Basic Biology: Populations (counts as college lab science requirement)  
- MATH 207 Math Statistics (counts as one of two required math courses)  
- PH 2xx Ethics for Social Work (counts as college philosophy requirement)  
- ENGL 336 Ethnic American Literature (counts as college literature requirement)  
- SPAN xxx Spanish for Social Services

Note: Requirements for the major satisfy the student’s Area II requirements (84 credit hours).
Total credit hours required for graduation – 122

The 2.0 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**

<table>
<thead>
<tr>
<th># Must be taken in sequence</th>
<th>* Is a prerequisite</th>
<th>** Has a prerequisite</th>
</tr>
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<tbody>
<tr>
<td>MR Major Requirement</td>
<td>GCR General College Requirement</td>
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<tr>
<td>A&amp;SR School of Arts and Sciences Requirement</td>
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### Freshman Year

#### Fall Semester

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<th>Credit Hours</th>
<th>Course</th>
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<tbody>
<tr>
<td>LA 100</td>
<td>First Year Seminar (GCR)</td>
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<tr>
<td>MATH 105*</td>
<td>Contemporary Mathematics I (GCR)</td>
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<tr>
<td>ENGL 132*</td>
<td>English Composition I (GCR)</td>
</tr>
<tr>
<td>SW 100*</td>
<td>Introduction to Social Work (MR)</td>
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<tr>
<td>PSY 101</td>
<td>Introduction to Psychology (A&amp;SR/MR)</td>
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<tr>
<td>BIO 101</td>
<td>Introduction to Biology (GCR/MR)</td>
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#### Spring Semester

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<tr>
<td>ENGL133**</td>
<td>English Composition II (GCR)</td>
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<tr>
<td>GO 102*</td>
<td>American Government (A&amp;SR/MR)</td>
</tr>
<tr>
<td>CS 131</td>
<td>Computing for the Arts and Sciences (GCR)</td>
</tr>
<tr>
<td>SO 101</td>
<td>Introduction to Sociology (A&amp;SR/MR)</td>
</tr>
<tr>
<td>PEHR 151*</td>
<td>Personal Health and Wellness (GCR)</td>
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<td>BIO 102</td>
<td>Basic Biology (GCR/MR)</td>
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### Sophomore Year

#### Fall Semester

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<tbody>
<tr>
<td>PH 208#</td>
<td>Ethics (A&amp;SR/MR)</td>
</tr>
<tr>
<td>SW 216**</td>
<td>Human Behavior and the Social Environment (MR)</td>
</tr>
<tr>
<td>EC 106*</td>
<td>The Economic of Poverty and Discrimination (MR)</td>
</tr>
<tr>
<td>MATH 207**</td>
<td>Introductory Statistics for the Arts and Sciences (GCR/MR)</td>
</tr>
<tr>
<td>PEHR 153-199**</td>
<td>Lifetime Activities Series (GCR)</td>
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<td>HIST xxx</td>
<td>History Requirement (GCR)</td>
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#### Spring Semester

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<tr>
<td>SO 205</td>
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<td>HUM 2xx</td>
<td>Elements of Culture – Humanities Requirement (GCR)</td>
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<tr>
<td>PSY 211</td>
<td>Developmental Psychology (MR)</td>
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<td>ARI xxx</td>
<td>Area I Elective (A&amp;SR)</td>
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<td>SPAN xxx</td>
<td>Spanish for Social Services</td>
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### Junior Year

#### Fall Semester

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<tr>
<td>SW 301***</td>
<td>Social Work Interventive Methods I (MR)</td>
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<td>SW 319**</td>
<td>Social Work Research (MR)</td>
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<td>SO 311***</td>
<td>Sociology of Minority Groups (MR)</td>
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<td>GEN xxx</td>
<td>General Elective</td>
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<td>ARTS xxx</td>
<td>Elements of Culture – Arts Requirement</td>
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#### Spring Semester

<table>
<thead>
<tr>
<th>Credit Hours</th>
<th>Course</th>
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<tbody>
<tr>
<td>SW 302***</td>
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<tr>
<td>SW 313***</td>
<td>Social Welfare and Social Policy (MR)</td>
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<td>SW 320***</td>
<td>Dynamics of Oppression and Empowerment (MR)</td>
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<tr>
<td>SW 303***</td>
<td>Social Work Interventive Methods III (MR)</td>
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<td>SW 314***</td>
<td>Field Instruction in Macro Practice</td>
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### Senior Year

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<td>SW 304***</td>
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<td>SW 409***</td>
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<td>SW 410***</td>
<td>Field Instruction in Social Work IB (MR)</td>
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<td>SW 414***</td>
<td>Seminar in Field Instruction I (MR)</td>
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<td>GEN xxx</td>
<td>General Elective</td>
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#### Spring Semester

<table>
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<td>General Electives (MR)</td>
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<td>SW 411***</td>
<td>Field Instruction in Social Work IIA (MR)</td>
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<td>SW 412***</td>
<td>Field Instruction in Social Work IIB (MR)</td>
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<tr>
<td>SW 415***</td>
<td>Seminar in Field Instruction II (MR)</td>
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<tr>
<td>ENGL 336</td>
<td>Ethnic American Literature (A&amp;SR/MR)</td>
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<td>GEN xxx</td>
<td>General Electives (MR)</td>
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<tr>
<td>SW 411***</td>
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<td>SW 412***</td>
<td>Field Instruction in Social Work IIB (MR)</td>
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<td>SW 415***</td>
<td>Seminar in Field Instruction II (MR)</td>
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<tr>
<td>ENGL 336</td>
<td>Ethnic American Literature (A&amp;SR/MR)</td>
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<th>Credit Hours</th>
<th>Course</th>
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<tbody>
<tr>
<td>GEN xxx</td>
<td>General Electives (MR)</td>
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<tr>
<td>SW 411***</td>
<td>Field Instruction in Social Work IIA (MR)</td>
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<td>SW 412***</td>
<td>Field Instruction in Social Work IIB (MR)</td>
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<td>SW 415***</td>
<td>Seminar in Field Instruction II (MR)</td>
</tr>
<tr>
<td>ENGL 336</td>
<td>Ethnic American Literature (A&amp;SR/MR)</td>
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</table>
SOCIETY 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
Associate Professor: Richard Luxton
Assistant Professor: Raymond Kerns-Zucco
Professional Educators: Denise Kindschi Gosselin, Alfred Ingham

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 and School of Arts and Sciences Requirements, pp. 36-38.

Course of Study
1. Required sociology and psychology (21 credit hours)
   SO 101 Introduction to Sociology
   SO 205 Introduction to Cultural Anthropology
   PSY 207 Introduction to Statistics for the Social Sciences

   SO 314 American Culture and the Black Experience
   SO 322 Sociological Theory and Methods
   SO 323 Seminar in Theory and Methods
   SO 324 Comparative and Historical Sociology

2. Eighteen additional credit hours selected from upper-level courses in criminal justice, social work, and sociology (CJ, SW, or SO 300-400).
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 is based upon all SO and CJ courses pursued as a part of the student’s degree program.

Suggested Sequence of Courses
Notes:
* Is a prerequisite
** Has a prerequisite

Freshman Year
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 105* Contemporary Mathematics I (GCR) 3

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Spring Semester
SO 205 Cultural Anthropology (MR) 3
SO 2xx/3xx — or —
CJ 2xx/SW 3xx 3
ENGL 133** English Composition II (GCR) 3
HUM 2xx Elements of Culture – Humanities Requirements (GCR) 3
MATH 106** Contemporary Mathematics II (GCR) 3
PEHR 151 Personal Health and Wellness (GCR) 1

Sophomore Year
Fall Semester
PSY 207* Statistics for the Social Sciences** (MR) 3
SO 203 Social Problems — or —
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**Spring Semester**

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| Credits  | 16 |

**Junior Year**

**Fall Semester**

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<td>CJ 3xx</td>
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<td>Elements of Culture – Arts Requirement (A&amp;SR)</td>
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| Gen. Elective | 2-3 |

| Credits  | 14-15 |

**Spring Semester**

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| Gen. Elective | 2-3 |

| Credits  | 14-15 |

**Senior Year**

**Fall Semester**

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| Credits  | 15   |

**Spring Semester**

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</tr>
<tr>
<td>GEN xxx</td>
<td>General Elective</td>
<td>3</td>
</tr>
</tbody>
</table>

| Credits  | 15   |

**Note:**

1. Students must take PSY 207 prior to their senior year and must take SO 322 Sociological Theory and Methods in the fall of their senior year.

**SPORT MANAGEMENT MAJOR**

**School of Business**

**General Information**

A student majoring in sport management should be prepared to assume a position of responsibility within a sports-oriented organization. The sport management major should be able to mobilize the resources available to that organization in order to meet the mission, goals, and objectives of both the organization and its stakeholders.

Successful graduates in sport management should be prepared to begin their careers in sport promotion, health and fitness center management, sporting goods management and sales, and other sport-related businesses. The Management Department emphasizes innovation, creativity, leadership, customer focus, and the importance of quality in providing goods and services to customers. The sport management major engages in a course of academic study that introduces and reinforces these critical success factors to adequately prepare them for a rewarding career in sport-related organizations.
Career Opportunities
The sport management major is prepared to assume positions of responsibility 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, entrepreneurship, and the sporting goods industry.

Faculty
Professors: Anthony Chelte, Russell Fanelli, William Ferris, Peter Hess, Ned Schwartz
Associate Professors: Harvey Shrage, Julie Siciliano
Assistant Professors: Daniel Covell, Sharianne 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 a supervised field experience.

General and School Requirements
See General College Requirements and School of Business Requirements, pp. 36-37, 38-40.

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.

Electives
Electives supplement the sport management student’s business program. Humanities, social science, communication, and statistics for sport management may be selected from the list of courses approved by the School of Business. Special care is given to ensure that the elective sections complement the sport management student’s course of study leading to a successful career in sport-related industries.

Course of Study
1. Core Requirements for All Business Majors (80 credit hours) See page 39.
2. Required Management, Marketing and Legal Studies Courses (21 credit hours)

3. Other required courses (6 credit hours)
EC 340 The Economics of Sports
CL 390 Sports in Society

All sport management majors are required to complete a three-credit Practicum in Sport Management which provides students with the opportunity to plan, organize, and lead various elements of the athletic and recreational programming offered through the Alumni Healthful Living Center, the College’s state-of-the-art health and fitness center.

Sport management majors who meet the College’s academic requirements for internships (grade point average of 2.0 or above overall and 2.2 or above in the major) are eligible for the three-credit Internship in Sport Management which places students in regional sport-related organizations.

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 general electives and the six credit hours of management electives, students in this program earn 12 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. Students are not concurrently enrolled in courses during the Advanced Field Experience program.
4. Electives (18 credit hours)

MAN480 Management Internship (3cr)
— or —
Business Elective (3 cr)
Business Elective (3 cr)
Non-Business Electives (12 cr)

Total credit hours required for graduation = 125

This major offers the option of 12 credits of advanced field experience (using the two business electives above, plus an additional six credits) for a total of 131 credits.

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 and BUS450.

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

<table>
<thead>
<tr>
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<tr>
<td>ENGL 132*</td>
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<td>MATH 111*</td>
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<table>
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<tbody>
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<td>MATH 112**</td>
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<table>
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<td>CIS 102*</td>
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<tr>
<td>CIS 102*</td>
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Sophomore Year

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Demonstrated proficiency in Excel required for 2nd semester registration.

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

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Sophomore Year

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Demonstrated proficiency in Excel required for 2nd semester registration.
Undergraduate Academic Programs

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**Senior Year**

**Fall Semester**

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<td>MAN 455</td>
<td>Sport Facility Planning and Management</td>
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**Spring Semester**

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</table>
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, international business, management studies, and quantitative analysis 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.

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 Accounting
- AC 202 Managerial Accounting
- CIS 202 Introduction to Information Systems
- FIN 214 Corporation 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
- CHEM 219-220 Organic Chemistry Laboratory I-II
- CHEM 317-318 Physical Chemistry I-II
- CHEM 327-328 Physical Chemistry Laboratory I-II

The chemistry minor is open only to students who have completed one semester of college-level physics (PHYS 103 or PHYS 133) and one of the following mathematics courses: MATH 106, MATH 109, MATH 112, MATH 123, or MATH 133.

*These courses have prerequisites.

Computer Science Minor
The minor requirement is 20 credit hours as follows:
- CS 181 Computer Science I
- CS 182 Computer Science II
- CS 202 Managerial Accounting
- CS 283 Data Structures
- MATH 261 Discrete Structures I
- CPE 271 Digital Design
- CPE 310 Machine and Assembly Language

Plus one 300 to 400 level CS course or CPE 450.

Criminal Justice Minor
The minor requirement is 18 credit hours comprised of the following courses:
- CJ 101 Introduction to Criminal Justice
- CJ 218 Introduction to Law Enforcement
- CJ 210 Criminology
- CJ 211 Corrections
- CJ 310 Criminal Law
- CJ 312 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 of economics courses, including:
- EC 205 Principles of Economics I
- EC 101 Introduction to Economic Issues
- EC 206 Principles of Economics II
- EC 305 Macroeconomics
- EC 306 Microeconomics

Plus six credit hours of other economics courses.

Note: FIN 311 and MAN 301, upper-level requirements in the major, are not acceptable in fulfilling the minor requirement if required for the student’s major.
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 302 History of American 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, Communication Track
The minor requirement is 18 credit hours, as follows:

ENGL 201 Principles of Communication
ENGL 301 Oral Communication
ENGL 311 The English Language
ENGL 320 Professional Communication
ENGL 340 Business Communication
  — or —
ENGL 344 Expository Writing

Plus any one of the following:
ENGL 218 Introduction to Journalism
ENGL 342 Theatre Practicum
ENGL 348 Intercultural Communication

English Minor, Literature Track
The minor requirement is 18 credit hours, as follows:

ENGL 212 Introduction to Literary Studies
  — or —
ENGL 311 The English Language
ENGL 214 World Literature I
  — or —
ENGL 215 World Literature II
ENGL 250 Masterpieces of American Literature
  — or —
ENGL 231 Masterpieces of British Literature I
  — or —
ENGL 232 Masterpieces of British Literature II
ENGL 315 Shakespeare: The Tragedies
  — or —
ENGL 316 Shakespeare: The Comedies and Histories

Plus six additional credit hours at the 300 or 400 level.

Environmental Science Minor
The minor in environmental science includes courses that broaden understanding of environmental issues. Because several courses in this minor have laboratory science courses as prerequisites, the minor is intended primarily for students majoring in one of the sciences.

The minor requirement is 18 credit hours, as follows:

The following course is required:
ENVS 200 Introduction to Environmental Science

15 additional credit hours selected from the following list must be completed:
BIO 213 Ecology
GO 336 Public Policy
EC 374 Environmental Economics
ENVS 300 Legal Aspects of the Environment
ENVS 301 Waste Management
ENVS 302 Toxicology
ENVS 344 Environmental Microbiology
ENVS 390 Special Topics (may be taken twice)

Government Minor
The minor requirement is 18 credit hours as follows:
GO 102 American Government

Plus 15 credit hours of 200, 300, or 400 level government courses.
Within these course requirements, a student must take at least three credit hours in American politics, international relations, comparative government, and political thought.

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 Studies Minor
The minor requirement consists of seven courses (21 credit hours), as follows:

- INST 101/GO 101  Introduction to Contemporary Global Issues
- GO 203  International Relations

plus either:

- HIST 106  World Civilization II
- SO 205  Introduction to Cultural Anthropology

plus one of the following:

- ENGL 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 requires 18 credit hours as follows:

- SPAN 101 and SPAN 102
- or —
- SPAN 203 and SPAN 204
- HUM 250  Latin American Civilization
- ENGL 253  Love, Death, and Power in Twentieth Century Spanish American Literature
- HIST 371  History of Latin America
- or —
- HIST 326  Sugar, Slaves, and Cloth
- SO 311  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 Studies Minor
The minor requires the following:

1. Required courses (12 credit hours):

- MAN 101  Principles of Management
- MAN 204  Organizational Behavior
- MAN 315  Organizational Theory
- BUS 450  Business Strategy

2. Elective Courses (six credit hours):

- MAN 3xx-4xx  Management Elective
- MAN 3xx-4xx  Management Elective

The management studies minor is not open to management and sport management majors.

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

Philosophy Minor
The minor requirement is 18 credit hours consisting of any six philosophy courses.

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):

- GO 102  Introduction to American Government
- GO 205  Public Administration
- GO 338  Public Management in Local Government

Plus any three of the following (nine hours):

- GO 210  State and Local Government
- GO 320  The U.S. Congress & Presidency
- GO 325  Constitutional Law
- GO 336  Public Policy in America
- GO 340  International Law and Organizations
- GO 350  American Foreign Policy
Undergraduate Academic Programs

EC 351 Economics and Government
EC 355 Public Finance
EC 361 Urban Economics
SO 302 Complex Organizations
SO 305 Sociology of Urban Life

Quantitative Analysis Minor
The minor is 24 credit hours in the following courses:

- MATH 123-124 Calculus for Management, Life, and Social Sciences I & II
- QM 201 Introduction to Business Statistics
- MK 318 Marketing Research
- QM 310 Quality and Operations Management
- CIS 321 Database Management Systems
- QM 3xx
- QM 3xx

Social Work Minor
The minor requirement is 18 credit hours, as follows:

- SW 100 Introduction to Social Work
- SW 216 Human Behavior and the Social Environment
- SW 301 Social Work Methods I
- SW 320 The Dynamics of Oppression and Empowerment

plus six additional credit hours in social work.

Sociology Minor
The minor requirement is 21 credit hours, as follows:

- SO 101 Introduction to Sociology
- SO 203 Social Problems
- SO 305 The Sociology of Urban Life
- SO 308 Sociology of the Family
- SO 311 Sociology of Minority Groups
- SO 341 Occupational Sociology

Plus any three-credit sociology course at the 300-level or above.

Spanish Minor
The minor requires the following courses:

- SPAN 101 Elementary Spanish I
- — or —
- SPAN 130 Spanish for Criminal Justice
- SPAN 140 Spanish for Social Services
- SPAN 102 Elementary Spanish II
- SPAN 203 Intermediate Spanish I
- SPAN 204 Intermediate Spanish II
- SPAN 305 Advanced Conversational Spanish
- ENGL 253 Love, Death, and Power in Twentieth Century Spanish American Literature
- — or —
- HUM 250 Latin America
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).

ENGL 201 Principles of Communication
ENGL 301 Oral Communication
ENGL 320 Professional Communication
ENGL 340 Business Communication

plus two of the following courses:

ENGL 348 Intercultural Communication
ENGL 39x Media Planning and Public Relations
MK 317 Introduction to Marketing Communication/Advertising
MK 340 Desktop Applications for Marketing

Certificate Program in Computer Studies
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 206 Object-Oriented Language I
CIS 321 Data Management Systems
CIS 413 Data Communications Systems and Networks
CIS 417 System 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.
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AC ACCOUNTING
(School of Business)

AC 201 FINANCIAL REPORTING
Prerequisite: MATH 105, 111, or 123. This course provides an introduction to financial accounting, which involves the measurement of economic information about a company and its communication to external parties such as owners and creditors. Emphasis is placed on the theoretical principles underlying the classification, summarization, and analysis of financial data in the balance sheet, income statement, and 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. Specific topics examined include cost behavior, product costing, cost-volume-profit analysis, budgeting, and identification of relevant costs for decision making.
3 cr.

AC 203 GOVERNMENTAL ACCOUNTING
Prerequisite: AC 202. This course examines state and local governmental budgeting, reporting, and auditing principles. Financial reports of each level of government are analyzed, as are the financial and compliance issues associated with federally funded programs. The thirteen basic accounting and reporting principles applicable to state and local government are covered, including terminology, fund accounts, and budgetary control techniques. This course is normally offered only in the Off-Campus Program.
3 cr.

AC 305 FINANCIAL REPORTING II
Prerequisite: Math 106, 112, or 124, AC 201. 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. Areas covered include the flow of information through the accounting cycle, cash, receivables, inventories, plant and equipment, intangible assets, and current liabilities.
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. Areas covered include long-term liabilities, owners’ equity, reporting errors, the statement of cash flows, earnings per share, and financial statement analysis.
3 cr.

AC 309 COST ACCOUNTING
Prerequisite: MATH 106, 112, or 124, AC 202. This course offers an in-depth examination of the basic principles of cost accounting. Areas covered include budgeting, cost-volume-profit analysis, product and service costing, and the use of standard cost systems. Emphasis is placed on the impact of these topics in profit determination, managerial control, and decision making.
3 cr.

AC 311 MUNICIPAL AND FUND ACCOUNTING
Prerequisite: AC 202. The course is a study of the types of accounting systems used in government and institutions, including municipalities, colleges and hospitals. Attention is given to procedural similarities with commercial accounting, as well as to functional differences.
3 cr.

AC 333 INDEPENDENT STUDY IN ACCOUNTING
See “Independent Study” on p. 30. 1-3 cr.

AC 390 SPECIAL TOPICS IN ACCOUNTING
Prerequisite: AC 306. 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 392 ADVANCED TOPICS IN TAXATION
Prerequisite: AC 413. This course offers detailed coverage of taxation topics such as partnerships, corporate tax planning, combinations, reorganizations, liquidations, trusts, estates, and gifts.
3 cr.

AC 410 COST-BASED DECISION MAKING
Prerequisite: AC 309. This is an advanced managerial accounting course that emphasizes the use of quantitative methods in the planning, control, and use of costing information in accounting applications. Areas examined include cost allocation, models for planning and control, and capital budgeting.
3 cr.

AC 413 FUNDAMENTAL CONCEPTS OF TAXATION
Prerequisite: AC 202. This course reviews the legislative origins and underlying philosophy of the development of taxing structures. Specific applications of these concepts to individuals, partnerships, and corporations are made. Emphasis is also placed on researching answers to tax questions.
3 cr.

AC 414 ADVANCED TOPICS IN TAXATION
Prerequisite: AC 413. This course offers detailed coverage of taxation topics such as partnerships, corporate tax planning, combinations, reorganizations, liquidations, trusts, estates, and gifts.
3 cr.

AC 419 AUDITING AND ASSURANCE SERVICES
Prerequisite: AC 305. This course introduces students to the role of financial statement audits and other assurance services in enhancing the relevance and reliability of information. Specific topics include consideration of risk analysis, internal controls, information technology, sampling, legal liability, and professional conduct.
3 cr.

AC 420 ADVANCED TOPICS IN AUDITING AND ASSURANCE SERVICES
Prerequisite: AC 419. This course examines in-depth the nature of financial statement audits and assurance services. A variety of factors affecting these activities are examined, including the role of professional judgment, ethics, and confidentiality. Students also complete a comprehensive risk analysis project as part of course requirements.
3 cr.
**Undergraduate Courses**

**AC 480-481 INTERNSHIP IN ACCOUNTING**
See “internships” on p. 31.
3 cr.

**AMST AMERICAN STUDIES (School of Arts and Sciences)**

**AMST 190 SPECIAL TOPICS IN AMERICAN STUDIES**
This course covers topics in American studies that are not offered on a regular basis. The course may be repeated for credit if the topic varies.
1-3 cr.

**AMST 290 SPECIAL TOPICS IN AMERICAN STUDIES**
This course covers topics in American studies that are not offered on a regular basis. The course may be repeated for credit if the topic varies.
1-3 cr.

**AMST 480-481 INTERNSHIP IN AMERICAN STUDIES**
See “internships” on page 31.

**AMST 490 AMERICAN STUDIES SEMINAR**
Prerequisite: Senior standing and fifteen credit hours of American studies or permission of instructor. An exploration of selected topics in American studies 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 American studies majors are required to enroll in this course.
3 cr.

**ART ART (School of Arts and Sciences)**

**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.
3 cr.

**ART 110 FIGURE DRAWING AND PORTRAITURE**
Concentrating on the human form, this course includes techniques and exercises designed to impart and improve drawing skills.
3 cr.

**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.
3 cr.

**ART 190 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 201 ANCIENT AND MEDIEVAL ART (formerly Origins of 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.
3 cr.

**ART 202 FROM THE RENAISSANCE TO IMPRESSIONISM (formerly Art Masterpieces and Master Artists)**
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 203 THE ART OF FILM**
Prerequisite: Sophomore standing, two courses in English writing with grades of “C” or better. Cinematography as a worldwide cultural movement of the twentieth century is studied. Works from different countries are studied to illustrate the historical development of the art of film.
3 cr.

**ART 204 FROM PYRAMIDS AND CASTLES TO CATHEDRALS AND SKYSCRAPERS (formerly Pyramids, Castles and Cathedrals)**
This course uses a slide presentation introducing students to significant buildings of Europe and America from ancient times to the present.
3 cr.

**ART 210 20TH CENTURY ART**
This course is a survey of important European and American art movements, exploring the individual achievements of major artists such as Picasso, Dali, O’Keeffe, and Moore.
3 cr.

**ART 290 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.

**AS AEROSPACE STUDIES (Air Force ROTC/ School of Business)**

**AS 111 THE AIR FORCE TODAY I**
Informal lectures examine the structure of the Air Force and military establishment as a whole. Classroom discussions focus on military customs, courtesies, and professionalism. Course requirements: two one-hour exams, an oral presentation, and a short written assignment. No credit two-hour weekly leadership laboratory, graded on a pass/fail basis, applies leadership principles encountered in a military environment and is optional for non-cadets. Textbooks are provided. The academic portion of the course is open to all students.
1 cr.

**AS 112 U. S. AIR FORCE TODAY II**
Informal lectures examine the structure of the Air Force and military establishment as a whole. Discussions focus on military customs, courtesies, and professionalism. Course requirements: two one-hour exams, an oral presentation, and a short written assignment. No credit two-hour weekly leadership laboratory, graded on a pass/fail basis, applies leadership principles encountered in a military environment and is optional for non-cadets. Textbooks are provided. The academic portion of the course is open to all students.
1 cr.

**AS 191 ADVANCED PHYSICAL FITNESS**
This course is designed to encourage physical fitness and improve self-confidence. It covers warm-up exercises, calisthenics, running, and various team sports. All exercises are accomplished as a group.
1 cr.

**AS 223 THE AIR FORCE WAY I**
Informal lectures and student discussions center on the growth of air power as a primary component of our national security, the role of air power in our military today, and leadership skills. The course covers the period from early balloons to World War II. Course requirements: two one-hour
exams, oral presentation, and a short written assignment. No credit two-hour weekly leadership laboratory, graded on a pass/fail basis, applies leadership principles encountered in a military environment and is optional for non-cadets. Textbooks are provided. The academic portion of the course is open to all students.

1 cr.

AS 224 THE AIR FORCE WAY II
Informal lectures and student discussions center on the growth of air power as a primary component of our national security, the role of air power in our military today, and leadership skills. The course covers the period from early balloons to World War II. Course requirements: two one-hour exams, oral presentation, and a short written assignment. No credit two-hour weekly leadership laboratory, graded on a pass/fail basis, applies leadership principles encountered in a military environment and is optional for non-cadets. Textbooks provided. The academic portion of the course is open to all students.

1 cr.

AS 335 USAF PROFESSIONAL OFFICER: LEADERSHIP AND MANAGEMENT
Concepts of management and leadership are studied in relation to the role of the U.S. Air Force officer. Includes systems theory, management of change, decision making, goal setting, planning, policy making, coordinating, staffing, personnel appraisal and evaluation, controlling, management politics and tactics, organizational and personal value conflicts. Course requirements: two exams, oral presentations, and writing assignments. No credit two-hour weekly leadership laboratory, graded on a pass/fail basis, applies leadership principles encountered in a military environment and is optional for non-cadets. Textbooks are provided. The academic portion of the course is open to all students.

3 cr.

AS 336 USAF PROFESSIONAL OFFICER: LEADERSHIP AND MANAGEMENT II
Informal lectures focus on Air Force writing and speaking skills and formats. Student discussions include case studies that provide insight into managerial, leadership, and decision-making responsibilities of military officers. Course requirements: two exams, oral presentations, and writing assignments. No credit two-hour weekly leadership laboratory, graded on a pass/fail basis, applies leadership principles encountered in a military environment and is optional for non-cadets. Textbooks are provided. The academic portion of the course is open to all students.

3 cr.

AS 441 NATIONAL SECURITY POLICY/PREPARATION FOR ACTIVE DUTY
Formulation and implementation of national security policy. Issues of national strategy, and international and regional security issues are studied. The focus is on role of the armed forces in the national security process. Course requirements: two one-hour exams, an oral presentation, and writing assignments. No credit two-hour weekly leadership laboratory for cadets pursuing a commission graded on pass/fail basis is also required. Textbooks are provided. The academic portion of the course is open to all students.

3 cr.

AS 442 NATIONAL SECURITY POLICY/PREPARATION FOR ACTIVE DUTY II
Informal lectures and student discussions focus on military officer issues. Air Force roles and missions, military law, military-civilian relations, and other pre-commisioning topics useful in preparing for active duty. Course requirements: two one-hour exams, an oral presentation, and writing assignments. No credit two-hour weekly leadership laboratory (pass/fail) for cadets pursuing a commission is also required. Textbooks are provided. The academic portion of the course is open to all students.

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. Emphasis is on the structure and function of human cells and organs. Two class hours, three-hour lab. 3 cr. Laboratory fee $30.

BIO 102 BASIC BIOLOGY: POPULATIONS
Prerequisite: BIO 101. This is an introduction to the interactions of organisms. Emphasis is on inheritance, evolution, and ecology. Two class hours, three-hour lab. 3 cr. Laboratory fee $30.

BIO 103 LIFE SCIENCES I
This course is an introduction to cells, plant biology and human anatomy and physiology. It is intended to meet lab science requirement for elementary education majors. 3 cr. Laboratory fee $30.

BIO 104 LIFE SCIENCES II
This course is an introduction to human reproduction development and inheritance, evolution behavior and ecology. This course is intended for elementary education majors. (Satisfies lab science requirement). 3 cr. Laboratory fee $30.

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 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 $40.

BIO 118 GENERAL BIOLOGY LABORATORY II
Corequisite: 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 $40.

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 $40.
BIO 210 VERTEBRATE PHYSIOLOGY
Prerequisite: BIO 108. This course is a study of the structural and functional mechanisms that underlie the life processes and organ systems in vertebrates. 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. 1 cr. Laboratory fee $40.

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 303 MICROBIOLOGY
Prerequisite: BIO 108; corequisite: BIO 313. This is an introduction to bacteria and viruses. 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. Offered in alternate years. Three class hours, three-hour lab. 4 cr. Laboratory fee $40.

BIO 306 GENETICS
Prerequisite: BIO 108; CHEM 209 or concurrently. This is a study of classical organismal heredity and its molecular basis. Topics 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 $40.

BIO 308 COMPARATIVE VERTEBRATE ANATOMY
Prerequisite: BIO 210, 220. This course is an evolutionary approach to the study of vertebrate structure. Offered in alternate years. Three class hours, three-hour lab. 4 cr. Laboratory fee $40.

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. 4 cr. Laboratory fee $40.

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. 4 cr. Laboratory fee $40.

BIO 313 MICROBIOLOGY LABORATORY
Prerequisite: BIO 108, BIO 303, or concurrently. This is an introduction to techniques for working with bacteria and viruses including isolation, identification, and enumeration of bacteria. Three-hour lab. 1 cr. Laboratory fee $40.

BIO 333-334 INDEPENDENT STUDY IN BIOLOGY
See “Independent Study” on page 30. 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 410 SPECIAL TOPICS IN BIOMEDICAL ENGINEERING
Prerequisite: BIO 108 and permission of the instructor. 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 introduction to cell physiology, metabolism, the nervous system, the senses, skeletal muscles, and mass balances. Course objectives are assessed with homework, quizzes, laboratory experiments, and exams. 4 cr.

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 page 31. 3 cr.
BME 350 BIO THERMODYNAMICS
Prerequisite: CHEM 105 and MATH 235. This is a study of the physical and mathematical concepts of thermodynamics with an emphasis on physiological and biological examples. Students apply the first and second law of thermodynamics to biomedically involving gas mixtures, phase and chemical equilibrium, and material balances. Course objectives are assessed with homework, quizzes, and exams.
3 cr.

BME 380 BIOENGINEERING 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 437 DESIGN PROJECTS
Corequisites: Approval of the bioengineering faculty advisor. Selected students work on an independent design project in the semester prior to enrolling in BME 440. This course is intended to provide students with the opportunity for a two-semester project sequence culminating with BME 440.
3 cr.

BME 440 SENIOR PROJECTS
Prerequisite: IE 410 or BME 437. Working under the supervision of project advisors, students complete the work on a capstone project that was proposed in IE 410, Engineering Project Management. Students are encouraged to work in multidisciplinary teams on clinically and industrially relevant projects. They organize formal design reviews with faculty, other students, and industrial sponsors. Course objectives are assessed with weekly progress reports, a midterm oral report, a final written report, and an oral defense of the project.
3 cr.

BME 451 BIOMECHANICS
Prerequisite: ME 203. 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. Course objectives are assessed with homework, quizzes, and exams.
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 101 FIRST YEAR BUSINESS SEMINAR
This is a course designed specifically for new college students in the School of Business. The emphasis is on personal development: an understanding of self and the habits necessary for personal effectiveness and for effective relationships with others. Topics include taking responsibility as well as developing personal mission statements, time management skills, and listening skills. The course includes a term project and an exposure to the range of career options available to college graduates. There is a high level of interaction with the faculty and peers both inside and outside the classroom. An introduction to critical thinking skills is also covered.
3 cr.

BUS 301 INTEGRATED BUSINESS OPERATIONS
Prerequisites: AC 202, CIS 202, FIN 214, QM 201, MAN 101, MK 200. This course is case-and/or simulation-based, emphasizing the interrelationships among the various operations systems of business (accounting, finance, MIS, marketing, management) and the various dimensions of the business environment (economic, political, technological, etc.) in business decision making and problem solving. Students are required to apply the discipline-specific learning from their introductory-level business courses to operational-level business decisions and problems. Instructors in this course serve primarily as course facilitators, with several options available to provide students with access to “consultants” in each discipline area.
3 cr.

BUS 302 PRESENTATION TECHNOLOGIES FOR BUSINESS
Prerequisite: CIS 101; Freshman English. This is an introduction to the basic skills needed in desktop publishing and other presentation technologies commonly used in modern business. Emphasis is on design, typography, and production. Text is supplemented with several lab exercises to enhance specific skills in the creation of finished documents. Students are required to create a portfolio of several documents for a specific company and are also required to make a formal presentation using the technologies they have studied.
3 cr. Laboratory fee $30.

BUS 303 WINDOWS DEVELOPMENT
Prerequisite: CIS 200; QM 201. This course explores the Microsoft Windows operating system, focusing on the development of business applications using a variety of Windows-compatible application software packages. Issues explored include common graphical user interface, development of windows and other software techniques, and interactions between programs.
3 cr. Laboratory fee $30.

BUS 450 BUSINESS STRATEGY
Prerequisite: Senior standing. This is an integrative examination of the strategic planning process and its relationship with the various functions within the business environment. Competencies in effective managerial decision-making are explored from case studies and experiences of actual businesses from a variety of industries, both domestic and global.
3 cr.

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 the various 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 $30.

CHEM 102 MODERN CHEMISTRY II
Prerequisite: CHEM 101 or one year of secondary school chemistry. A study of basic chemical principles 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 $30.

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.
3 cr. Laboratory fee $40.

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 $40.

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 $40.

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 $40.

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 $40.

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 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.
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.
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.
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.
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 spectrophotometry; nuclear magnetic resonance spectroscopy; and potentiometry. Four-hour lab.
1 cr. Laboratory fee $40.

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.
1 cr. Laboratory fee $40.

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.
1 cr. Laboratory fee $40.

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.
1 cr. Laboratory fee $40.

CHEM 333-334 INDEPENDENT STUDY IN CHEMISTRY
See "Independent Study" on page 30. 1-3 cr. Laboratory fee may be required.

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 421 INORGANIC CHEMISTRY
Prerequisite: CHEM 312, CHEM 317, CHEM 322. 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.
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. Em-
phasis is on methods of preparation, kinet-
ics and mechanisms, techniques of charac-
terization, and the details of conformations
and chain dimensions. Other topics include
structure-property relationships, mechanica-
10 and rheological properties, and the
thermodynamics of polymers.
3 cr.
CHEM 430 ADVANCED TOPICS
Prerequisite: CHEM 317; CHEM 421 or con-
currently. Members of the chemistry fac-
culty offer selected topics in their areas of
specialty with emphasis on advanced con-
cepts. Topics to be covered are available
from the department chair. Offered in alter-
nate years.
3 cr. Laboratory fee may be required.
CHEM 440 UNDERGRADUATE
RESEARCH
Prerequisite: Senior standing. See “Under-
graduate Research,” page 35.
1-3 cr. Laboratory fee may be required.
CHEM 480 INTERNSHIP IN
CHEMISTRY
See “Internships” on page 31.
3 cr.
CIS COMPUTER
INFORMATION
SYSTEMS
(School of Business)
CIS 102 COMPUTER TOOLS FOR
BUSINESS
This course has two components: The first
is a hands-on introduction to database
management systems with an emphasis on
using and developing database applications
in a business context. The second, which
accounts for approximately one third of the
course, focuses on the practical implementa-
tion of spreadsheet models to address
business problems.
3 cr. Laboratory fee $30.
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 organi-
2zation, 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-ori-
teered introduction to Internet and World
Wide Web concepts and technologies.
3 cr. Laboratory fee $30.
CIS 206 OBJECT-ORIENTED
LANGUAGE I
Pre or co-requisite: CIS 202. This course is an
introduction to computer programming for
information systems with emphasis on pro-
gramming logic and algorithms. Students
are taught computer programming, utilizing
object-oriented language and rapid
application development environment. It is
gear ed toward solving business data pro-
cessing problems. Topics include data
types (variables, arrays, records, and
classes), control structures, procedures,
functions, and modules. The students are
required to develop several programming
projects that include program design, soft-
ware development, and user/maintenance
documentation. A common object-oriented
programming language is utilized.
4 cr. Laboratory fee $30.
CIS 210 TECHNOLOGICAL
FOUNDATIONS OF INFORMATION
SYSTEMS: HARDWARE AND
SOFTWARE
Pre or co-requisite: CIS 206. This course is a
hands-on introduction to the hardware
software, and networking technologies
underlying contemporary business informa-
tion systems. Topics include computer ar-
rchitecture and organization; peripheral and
communications devices and technologies;
the nature and function of computer soft-
ware; operating system functions and orga-
nization; representative operating systems
and associated hardware architectures;
and basic communications concepts and
 technologies.
3 cr. Laboratory fee $30.
CIS 305 OBJECT-ORIENTED
LANGUAGE II
Prerequisite: CIS 206 or equivalent. An ad-
vanced computer-programming course for
information systems with emphasis on the
object-oriented methodology, this course
focuses on the concepts of object-oriented
programming (encapsulation, inheritance,
and polymorphism). Topics include dy-
namic data structures (linked lists, stacks,
and trees), advanced file processing, and
event-driven programming techniques. Vi-

sual programming tools are explored. A
common object-oriented programming lan-
guage implemented in a GUI environment is
utilized.
3 cr. Laboratory fee $30.
CIS 315 COBOL
Prerequisite: CIS 205. This course examines
structured programming techniques in the
COBOL programming language. Topics in-
clude data manipulation, report generation,
simple and advanced file handling, table
handling, subprogramming, file mainte-
nance, and interactive programming.
3 cr. Laboratory fee $30.
CIS 321 DATABASE MANAGEMENT
SYSTEMS
Prerequisite: CIS 206. This is a study of con-
cepts, theory, design techniques, and re-
trieval methods particularly using the in-
dustry-standard SQL data language. Topics
include physical data organization, data-
base architecture, data models with empha-
sis on the relational model, logical database
design, normalization, and relational query
languages. A design and an implementation
project are required. This course is equiva-
lent to CS 364.
3 cr. Laboratory fee $30.
CIS 333-334 INDEPENDENT STUDY
IN COMPUTER INFORMATION
SYSTEMS
See “Independent Study” on page 30.
1-3 cr. Laboratory fee may be required.
CIS 361 MANAGEMENT OF
INFORMATION SYSTEMS
Prerequisite: CIS 200; senior 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 op-
portunities for organizations to exploit the
power of information systems while recog-
nizing the limitations of both technology
and employees. The strategic use of infor-
mation 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 inter-
ests 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 or equivalent. 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 communica-
tions software and hardware, and the im-
pact of communications technology on in-
formation systems. This course is equiva-
lent to CS 360.
3 cr. Laboratory fee $30.
CIS 417 SYSTEMS ANALYSIS AND
DESIGN
Prerequisite: CIS 321. This is an introduc-
tion to the systems development life cycle
with emphasis on the analysis and design
phases. Structured methodologies utilizing
CASE tools, as well as prototyping tech-
niques, are covered. A substantial analysis
and design project is required.
3 cr. Laboratory fee $30.
CIS 419 DECISION SUPPORT AND
EXPERT SYSTEMS
Prerequisite: CIS 200; senior standing. This
course covers decision support systems
and expert systems in roughly equal mea-
sure. 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. Laborator fee $30.

CIS 422 ADVANCED DATABASE MANAGEMENT SYSTEMS
Prerequisite: CIS 321. This course is a practicum in data modeling and system development. The emphasis is on host language interface in a database environment. Topics include investigation and applications of advanced database concepts such as integrity, security, concurrency, and recovery; object-oriented database design; and current developments and trends in DBMS. Completion of two major projects is required.
3 cr. Laborator fee $30.

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. Laborator fee $30.

CIS 430 ENTERPRISE COMPUTING
Pre- or co-requisite: CIS 413, 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-tiered 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. Laborator fee $30.

CIS 480-481 INTERNSHIP IN COMPUTER INFORMATION SYSTEMS
See “Internships” on page 31.
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; 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 understandings of correctional behavior and sociological implications of criminal and delinquent behavior, are included.
3 cr.

CJ 211 CORRECTIONS
Prerequisite: CJ 101; 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 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 INTRODUCTION TO LAW ENFORCEMENT
Prerequisite: CJ 101; 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.
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 pitfalls of obtaining evidence of little or no value in the courtroom.
3 cr.

CJ 221 CRIMINAL LAW FOR NON-CJ MAJORS
This course is a study of the major felonies (murder, rape, robbery, assault, larceny, burglary, and arson), their definitions, and methods of proof.
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 310 CRIMINAL LAW
Prerequisite: CJ 101; 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.
3 cr.

CJ 311 CRIMINAL INVESTIGATION
Prerequisite: CJ 101; 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 312 CRIMINAL PROCEDURE
Prerequisite: CJ 101; 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.
3 cr.

CJ 313 CRIMINAL JUSTICE INTERVIEWING AND INTERROGATION
Prerequisite: PSY 101, SO 101, 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 314 THE JUDICIAL PROCESS**
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. 3 cr.

**CJ 320 PROBATION AND PAROLE**
Prerequisite: CJ 101; 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 present-day 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 311 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. 3 cr.

**CJ 333-334 INDEPENDENT STUDY IN CRIMINAL JUSTICE**
See “Independent Study” on page 30. 1-3 cr.

**CJ 340 ETHICAL DECISION-MAKING**
Prerequisite: CJ 101; 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 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 343 DOMESTIC VIOLENCE**
Prerequisite: PSY 101, SOC 101, 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 343. 3 cr.

**CJ 344 POLICE FUNCTIONS AND COMMUNITY POLICING**
Prerequisite: CJ 101, any 200 level course, 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. This course is normally offered only in the Off-campus program. 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 exam-
inves 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. This course is normally offered only in the Off-campus program.

3 cr.

CJ 350 INTRODUCTION TO SECURITY
Prerequisite: CJ 101, any 200 level course, 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 351 GOVERNMENT INDUSTRIAL SECURITY
Prerequisite: CJ 101, any 200 level course, junior standing. This course examines the Government Industrial Security Program that is administered by the Department of Defense for the protection of classified information and materials. An in-depth study of the program’s various subsystems is undertaken with special emphasis placed upon Automated Information System Computer Security and Special Program Operations. This course is tailored for students whose career path is in the federal government and who perceive the need to be familiar with federal security requirements, security clearances, classified material, and working knowledge of the national industrial security program. This course is normally offered only in the Off-campus program.

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 CURRENT ISSUES IN CORRECTIONS
Prerequisite: Junior or senior standing. 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 410 RESEARCH SEMINAR IN CRIMINAL JUSTICE
Prerequisite: Junior standing and PSY 207. The aim of this course is to provide students with the research methods necessary to conduct an in-depth study of one special aspect of the criminal justice system. Under supervision of a faculty member, each student selects a subject area and appropriate methods of research. An extensive research paper, properly documented and suitable for publication, is required.

3 cr.

CJ 480-481 INTERNSHIP IN CRIMINAL JUSTICE
See “Internships” on page 31.

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.

CPE computer engineering

(School of Engineering)

CPE 205 INTRODUCTION TO COMPUTER PROGRAMMING
Prerequisite: ENGR 110 or equivalent. This is an introductory course in the design of software solutions to engineering and scientific problems. Students learn procedural approaches to designing small to medium scale systems. After successfully completing this course, students understand the issues involved in moving from a general problem statement to a software solution in the C 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. Students develop these skills through individual effort and lab exercises. They apply these skills to a variety of engineering, mathematical, and numerical method problem areas. The methods of assessing student learning in this course are homework assignments, weekly quizzes, short and long term programming assignments, and exams. One class hour, two-hour lab.

2 cr.

CPE 240 COMPUTER INSTRUMENTATION AND MEASUREMENTS
Prerequisite: EE 205 and MATH 134 (MATH 134 may be taken concurrently.) This is an introductory course designed for non-electrical engineering majors to prepare them for using computerized data acquisition systems in laboratory and project work. Students analyze and design simple circuits that provide the interfaces between various types of transducers and a digital computer. These circuits include bridge circuits, analog conditioning circuits, and digital circuits. Students learn how sampling circuits, analog-to-digital converters, and digital-to-analog converters work. In the laboratory, students design and build some of the circuit types listed above, and test their operation. The methods of assessing student learning in this course are homework assignments, quizzes, tests, laboratory experiments, and short reports on experiments. Two class hours, two-hour lab.

3 cr.

CPE 271 DIGITAL DESIGN
This is an introductory level course that gives its participants ability to analyze and design digital circuits. Students learn procedural approaches to designing digital circuits starting from specification of the problem. Students become familiar with the number systems that are used in computers and other digital circuits. They learn to use Boolean algebra and logic gates. Methods of manipulating and simplifying Boolean expressions are learned. Basic combinational-logic function models are designed. Students become familiar with arithmetic functional blocks, latches, flip-flops, counters and registers. Sequential circuits are also designed and students are introduced to PLD programming. In addition to the classroom portion of the course, there are several laboratory sessions where students build and test their logic designs.
Students use the CUPL compiler to program and test a programmable logic circuit. 3 cr.

**CPE 310 MACHINE AND ASSEMBLY LANGUAGE**
Prerequisite: ENGR 110. 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 350 ADVANCED PROGRAMMING LANGUAGES**
Prerequisite: CPE 205, CPE 310 or equivalent. This is an introductory 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, 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. In this course, students become aware of basic principles and practice of microprocessor based system design covering hardware and software design and system integration. Intel 8088/86 processor and support chips are used for hands on experience. They design memory systems with static and dynamic RAM and EPROM chips and learn design consideration for basic input/output systems, memory mapped and isolated input/output, and direct memory access. Students also learn how standard input/output interfaces such as Centronic and RS232 work. The methods of assessment in this course are homework assignments, quizzes, tests, laboratory projects. 3 cr.

**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 architecture. 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 427 COMPUTER ENGINEERING LABORATORY**
Prerequisites: EE 322, CPE 360. Corequisites: CPE 420. This course provides hands on experience in support of CPE 360, Microprocessor System Design and CPE 420, Computer Architecture. Students work on mini-projects designed to interface peripherals like keypad and displays. They learn to work at the PC bus level and use peripheral support chips such as Intel 8255 and Intel 8254. The experience combines hardware and software design, system integration, and debugging. Assembly and C programming languages are used for software development. Students design digital systems using programmable logic and a suitable compiler language for that and design part of processor arithmetic unit and associated control unit to reinforce ideas learned in computer architecture course. Three lab hours. 2 cr.

**CPE 450 DESIGN AND ANALYSIS OF ALGORITHMS**
Prerequisite: CPE 205 or equivalent computer programming course. The goal of this course is to substantially increase the students' ability to design and correct efficient algorithms and to analyze their performance. This is achieved by making students analyze standard algorithms and applying some metrics such as step counting and time complexity as an integral part of the problem solving process. Students apply analysis techniques to sorting and searching algorithms, graph algorithms, number theoretic algorithms, and encryption algorithms. They learn techniques for designing algorithms including divide and conquer, greedy method, backtracking, branch and bound, dynamic programming, and hashing. The methods of assessing student learning in the course are homework assignments, quizzes, exams, and a project. 3 cr.

**CPE 460 OBJECT ORIENTED DESIGN**
Prerequisite: CPE 205. This is an introductory course in object oriented design using the C++ programming language. After completing this course, students understand the fundamentals of object-oriented programming (OOP) in C++. They 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 of assessing student learning in the course are homework assignments, quizzes, a final exam, and a final design project 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 computer engineering majors, but not offered on a regular basis. The course may be repeated for credit if the topic varies. 3 cr.

**CPE 525 SOFTWARE ENGINEERING**
Prerequisite: CPE 350. 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 which culminates in a formal presentation. 3 cr.

**CPE 545 COMPUTER GRAPHICS SOFTWARE**
Prerequisite: CPE 310 and CPE 205. 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 anima-
CPE 550 TOPICS IN COMPILER DESIGN THEORY
Prerequisite: CPE 205, 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 understanding in the course are homework assignments, quizzes, an exam, a research paper, and a semester long design project which culminates in a formal presentation.
3 cr.

CPE 580 COMPUTER NETWORKS
Prerequisite: ENGR 212. This is a first year graduate course on communication networks. After completing this course, students understand the structure and issues of network design using various 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 a research paper with a formal presentation.
3 cr.

CPE 590 SPECIAL TOPICS IN COMPUTER ENGINEERING
This is a study of advanced topics in computer engineering, but not offered on a regular basis. The course may be repeated for credit if the topic varies.
3 cr.

CS 181 COMPUTER SCIENCE I
This course begins the systematic 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, GUI's, and threads. Four class hours. Offered in the spring semester.
4 cr.

CS 182 COMPUTER SCIENCE II
Prerequisite: CS 181 or comparable computing experience and permission of the instructor. This course continues the systematic 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, GUI's, and threads. Four class hours. Offered in the fall semester.
4 cr.

CS 283 DATA STRUCTURES
Prerequisite: CS 182. This course is a study of data structures and the implementation of abstract data types. Topics include lists, strings, and arrays; graphs and trees; stacks and queues; hashing and symbol tables; and sorting and searching techniques. Students apply analysis and design techniques to algorithms that act on data structures and use algorithmic analysis and design criteria. Offered in the fall semester.
3 cr.

CS 290 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 333-334 INDEPENDENT STUDY IN COMPUTER SCIENCE
See Independent Study” on page 30.
1-3 cr.
CS 351 ORGANIZATION OF PROGRAMMING LANGUAGES  
Prerequisite: CS 283 or CS 305 or permission of the instructor. This is an examination of the development of programming languages. The emphasis is on the interaction between classes of languages and their associated programming paradigms. Topics include imperative, functional logic, and object-oriented languages. Offered in alternate fall semesters.  
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 years.  
3 cr.

CS 364 DATABASE MANAGEMENT SYSTEMS  
Prerequisite CS 182 or CIS 200. 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.  
3 cr.

CS 370 ARTIFICIAL INTELLIGENCE AND EXPERT SYSTEMS  
Prerequisite: Junior standing, and CS 182 or CIS 205 or CPE 205, 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 182 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; CS 283 or CIS 305 or CPE 350, or permission of the instructor. This course is an examination of the organization and architecture of computer operating systems including the major concepts and the major systems programs associated with operating systems. Offered in alternate spring semesters.  
3 cr.

CS 480 INTERNSHIP IN COMPUTER SCIENCE  
1-3 cr.

CS 490 SOFTWARE ENGINEERING  
Prerequisite: CS 283 or CIS 305 or CPE 350 or equivalent, and junior or 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 alternate spring semesters.  
3 cr.

EC 101 INTRODUCTION TO ECONOMIC ISSUES  
Not open to students who have completed EC 205. Does not satisfy 205 and 206 requirements in Schools 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 of the very basic introductory level
rigorous introduction to many of the basic principles of microeconomics. The course focuses on those topics of greatest interest and importance to managers. These topics include demand, production, cost, pricing, market structure, and government regulation. Some of the topics included in the course are not found in a more traditional, theory based introductory course. These topics include revenue maximization, break-even analysis, and constrained profit maximization.

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 206 or EC 208. This is a theoretical and applicational view of aggregate 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 macrodynamics of inflation, growth, investment, and consumption. 3 cr.

**EC 306 MICROECONOMICS**
Prerequisite: EC 206 or EC 208 or EC 290. 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 206 or EC 208. This is a study of the role of money, credit, and financial institutions in the U.S. economy. Topics include issues concerning the Federal Reserve System, and monetary theory. 3 cr.

**EC 315 COMPARATIVE ECONOMIC SYSTEMS**
Prerequisite: EC 205 or EC 101. This is a study of capitalism and socialism including theoretical interpretations of these systems. Case studies include descriptions of the mixed capitalist economies of the United States and Western Europe and the transitional economies of the former Soviet Union, China, and Eastern Europe. Offered in alternate years. 3 cr.

**EC 316 AMERICAN ECONOMIC HISTORY**
Prerequisite: EC 205 or EC 101 or EC 106. 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. Offered in alternate years. 3 cr.

**EC 321 ECONOMIC DEVELOPMENT**
Prerequisite: EC 205 or EC 101. This is an analysis of the characteristics and causes of underdevelopment in poor nations and of programs to stimulate economic growth. Offered in alternate years. 3 cr.

**EC 333-334 INDEPENDENT STUDY IN ECONOMICS**
See “Independent Study” on page 30. 1-3 cr.

**EC 340 THE ECONOMICS OF SPORTS**
Prerequisite: EC 206 or EC 101 or EC 105 or EC 208. 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 206 or EC 208. This course is a critical examination of the role of government 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 206 or EC 208 or EC 290. 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. 3 cr.

**EC 361 URBAN ECONOMICS**
Prerequisite: EC 206 or EC 208. This course is a study of the economic aspects of the social and political problems of the modern American city. Offered in alternate years. 3 cr.

**EC 371 INTERNATIONAL MONETARY ECONOMICS**
Prerequisite: EC 206 or EC 205. This is an analysis of the balance of payments and the foreign exchange market including the theory of payments adjustment and policies to attain domestic international balance. The course examines the roles of the dollar, other currencies, and the International Monetary Fund in the process of international monetary reform. 3 cr.

**EC 372 INTERNATIONAL TRADE**
Prerequisite: EC 206 or EC 208. This course studies the theory and practice of international trade and investment. Topics include comparative advantage, determination of the pattern of trade, current problems of commercial policy and trade negotiations, the role of the multinational corporation, and the theory of economic integration with special reference to the European Union. Offered in alternate years. 3 cr.

**EC 374 ENVIRONMENTAL ECONOMICS**
Prerequisite: EC 205 or EC 101. 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. 3 cr.

**EC 386 ECONOMETRICS**
Prerequisite: EC 206; MATH 112; QM 201 or MATH 207, or PSY 207. This course covers methods of detecting and means of remedy ing violations of the assumptions of classical regression analysis. While only economic models are discussed, the methodology is multidisciplinary in nature. 3 cr. Laboratory fee $10.

**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 New England Economy;” “The Economics of Election Issues;” “The Economics of the GOP ‘Contract with America,’” and “Economic Controversies.” May be repeated for credit if the topic differs. 1-3 cr.

**EC 480-481 INTERNSHIP IN ECONOMICS**
See “Internships” page 31. 1-3 cr.
EC 490 SEMINAR: ISSUES IN CONTEMPORARY ECONOMICS
Prerequisite: EC 206 or EC 208 and six additional credit hours of economics. This course involves discussions of various topics of interest in economics. Each student prepares a research paper on a topic of choice.
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 is an exploration of the issues confronting education at all levels. Topics include the goals of educational systems, school organization and control, moral education, students’ and teachers’ rights, finances, mainstreaming, drugs and substance abuse, education, and problems and opportunities associated with diversity. Other topics may include collective bargaining, censorship, cooperative education, equity, sex education, and at-risk youth. Students intending to enter the Secondary Teacher Education Program are required to do appropriate field study.
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, and audiotapes. 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.
3 cr.

ED 333-334 INDEPENDENT STUDY IN EDUCATION
See “Independent Study” on page 30.
1-3 cr.

ED 350 TEACHING OF ELEMENTARY READING AND LANGUAGE ARTS
Prerequisite: Junior standing; ED 301, PSY 211, or permission of instructor. This is an introductory methods course in the teaching of children’s reading, writing, and spelling skills in grades 1-6. As a result of taking this course, students learn to guide the development of children’s skills in a number of areas: emergent literacy, word identification, vocabulary acquisition, comprehension, writing processes, and spelling. Students understand and apply teaching and learning philosophies related to reading and language arts strategies, reading materials, and classroom organization. A significant component of this course is a pre-practicum fieldwork experience completed in a local elementary school. Student performance is assessed by exams, written assignments, lesson plan designs, microteaching, and a fieldwork journal. Includes 25 hours of pre-practicum fieldwork at a local elementary school.
3 cr.

ED 375 ELEMENTARY CURRICULUM AND METHODS
Prerequisite: Junior standing; ED 301, PSY 211, ED 350, 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 Mass. Curriculum Framework 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. Students complete a pre-practicum fieldwork experience in a local elementary school. Student performance is assessed by exams, written assignments, lesson plan designs, microteaching, and a fieldwork journal. Includes 25 hours of pre-practicum fieldwork at a local elementary school.
3 cr.

ED 380 SECONDARY EDUCATION TOPICS
Prerequisite: PSY 304, ED 301; and senior standing. This course involves discussions of various topics of interest in secondary education. Topics include teaching special education students, the use of computers in the classroom, the use of multimedia 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. Only offered in the first part of the fall semester, the course is graded on a pass/fail basis.
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 Teacher Education Program. This course is a study of the process of teaching. 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 instruments; 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. The course is offered only in the first part of the fall semester.
3 cr.

ED 409 PRACTICUM IN SECONDARY TEACHING
Prerequisite: ED 301; PSY 304; ED 403. This is a practicum in teaching under the supervision of experienced teachers. The student teacher is observed, guided, and evaluated by the cooperating teacher and by the person directing student teaching. Open only to those students in the Teacher Education Program. 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, and classroom management and assessment. Stu-
students demonstrate skills as reflective practitioners of the teaching process. They are assessed by weekly classroom participation and a teaching journal that is handed in at the end of the semester. 3 cr.

**ED 425 ELEMENTARY EDUCATION TOPICS**
Prerequisite: Senior standing, acceptance in the Elementary Education Program, ED 301, PSY 211, PSY 304, ED 350, ED 375. This is an investigation of instructional strategies for teaching the arts, health, physical education, and technologies for grades 1-6. As a result of taking this course, students are able to identify curriculum models and instructional materials for these content areas, and 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 exams, written assignments, lesson plan designs, microteaching, 25 hours of pre-practicum fieldwork at a local elementary school, and a fieldwork journal. 3 cr.

**ED 479 ELEMENTARY TEACHING PRACTICUM**
Prerequisite: ED 301, PSY 211, 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, respond to the range of students’ 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 as well as by regular observation and evaluation by the cooperating teacher and the college supervisor, who will follow Mass. common Teaching Competencies’ standards. Open only to those students in the Elementary Education Program, this course and SW 412 may not include them in steady state analysis of AC circuits. Students learn to analyze circuits in steady state with alternating voltages and currents including determining frequency responses of circuits and analyzing resonant circuits. They also learn to analyze circuits in steady state of two courses designed to give students hands-on experience in electronic engineering. Students analyze circuits containing resistors, op amps, and DC sources using Ohm’s law, Kirchoff’s laws, and several network theorems including Thévenin’s theorem, Norton’s theorem, and superposition. Students analyze simple circuits and use computer simulation to analyze more complex circuits. They also learn to perform transient analysis of simple RL and RC 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. 3 cr.

**EE ELECTRICAL ENGINEERING**

**(School of Engineering)**

**EE 205 INTRODUCTION TO ELECTRICAL ENGINEERING I**
Prerequisite: PHYS 134; MATH 134. 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 Thévenin’s theorem, Norton’s theorem, and superposition. Students analyze simple circuits and use computer simulation to analyze more complex circuits. They also learn to perform transient analysis of simple RL and RC 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. 3 cr.

**EE 206 INTRODUCTION TO ELECTRICAL ENGINEERING II**
Prerequisite: EE 205; corequisite: MATH 256. This course builds on the knowledge gained and analytical skills developed in EE 205. Students learn to perform transient analysis on simple second order circuits. They also 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. Two class hours, three lab/tutorial hours. 3 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 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 ELECTRONIC CIRCUITS I**
Prerequisite: EE 206 or concurrently. This is the first course in modeling of electronic devices and analysis and design of electronic circuits. After successfully completing this course the students are familiar with the electrical characteristics of semiconductor material, know the electrical characteristics of the PN junction diode, know how to analyze single-diode circuits using graphical, numerical, and piecewise linear approximation methods, have an understanding of some of the techniques
used in nonlinear analysis, know how to analyze multiple-diode circuits using piecewise linear diode models, know what a Zener diode is, are familiar with the Zener diode regulator circuit, are familiar with AC to DC converter and waveshaping circuits, know what a FET is and what its major electrical characteristics are, know how to design and analyze DC circuits containing FETs, know how to simulate circuits using FETs, know what a BJT is and what its major electrical characteristics are, know how to design and analyze DC circuits containing BJTs, know how to simulate circuits using BJTs, are familiar with MOS logic design of basic gates, and are familiar with CMOS logic design of basic gates. The methods of assessing student learning in this course are homework assignments, quizzes, design projects, classroom discussions, and a final exam.

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 ELECTRONIC CIRCUITS II**
Prerequisite: EE 303 and EE 301. This is a second course in modeling of electronic devices and analysis and design of electronic circuits. After successfully completing this course, students are familiar with the terminology, performance measures, and modeling schemes of amplifiers; are familiar with the terminology, performance measures and modeling schemes of the practical operational amplifier; know how to design multistage transistor amplifiers (with emphasis on interstage coupling and loading problems); know what the hybrid-pi model of a transistor is and how to use it; know how to analyze amplifiers in the frequency domain; are familiar with the analysis and design of amplifiers with feedback; are familiar with oscillator performance criteria and circuit applications; and have an increased ability to analyze linear and nonlinear circuits. The methods of assessing student learning in this course are homework assignments, quizzes, design projects, classroom discussions, and a final exam.

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.

**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, steadystate 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 this course are quizzes, exams, homework assignments, and a 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 a basic fiber optic communication system; design, simulate, and test digital circuits using programmable logic devices; design and test a basic control system; and build and test an amplitude modulator. 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 report. Three laboratory hours.

2 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 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 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 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**
Prerequisites: EE 439 and graduating senior status. 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 490 SPECIAL TOPICS IN ELECTRICAL ENGINEERING**
This is a study of an advanced topic in engineering majors, but not offered on a regular basis.

3 cr.

**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 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, and a final exam.

3 cr.

**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 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 backpropagation, learning techniques with ample practical applications. Students 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.
also learn to use MATLAB computational software to understand new concepts and
to perform and implement neural network
rules and paradigms. The methods of as-
sessing student learning in this course are
homework assignments, quizzes, classroom
discussions, design projects, and a final
ex. 3 cr.

EE 548 INTRODUCTION TO ELECTRO-
OPTICS
Prerequisite: MATH 359; EE 314 or equiva-
Ient. Electro-optics is the study of the ef-
fects of electric fields on optical phenom-
ena. A study of light and basic geometrical
and physical optics theory prepares stu-
dents for investigation of the electronic and
optical properties of light sources and de-
tectors including LEDs, lasers, display de-
vices, photodetectors, detector arrays, and
charge transfer devices. After an investiga-
tion of electro-optics system design and
analysis techniques, students develop an
understanding of such applications as opti-
cal signal processing, electro-optics sen-
sors, optical communications, optical com-
puting, holography, integrated optics, dis-
play technologies, and fiber-optics. A de-
sign 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 applica-
tions. The methods of assessing student
learning in this course are homework as-
signments, quizzes, classroom discussions,
design projects, and a final exam. 3 cr.

EE 550 POWER TRANSMISSION
Prerequisite: EE 434 or concurrently. Stu-
dents learn theoretical foundation for
power transmission. They also learn electro-
characteristics and analysis of aerial tran-
smission lines, current and voltage
relationships, generalized circuit constants,
circle diagrams, load flow analysis and fault
analysis in symmetrical and unsymmetrical
conditions, system stability, and economic
operation of systems. They also learn the
basis of fault detection mechanism. The
methods of assessing student learning in
this course is homework assignments, quiz-
zes, classroom discussions and a final
exam. 3 cr.

EE 557 SOLID-STATE ELECTRONIC
DEVICES
Prerequisite: EE 312. The electrical
behavior of solids, or the transport of
charge through a metal or semiconductor,
is determined by the properties of the
electrons and the arrangement of atoms in
the solid. Through a study of the crystal
structure of electronic materials and the
fundamentals of quantum electronics,
students understand the band theory of
solids, particle statistics, transport
phenomena, and conductivity. Further
study of equilibrium distributions in
semiconductor carriers and p-n junctions
leads to an understanding of solid state
device operation. The investigation of
practical devices such as diodes, IMPATT
diodes, bipolar and junction field-effect
transistors, and MOS devices enhance
students’ knowledge of the design and
analysis techniques used in real-world
applications. A design project is required.
Upon completion of this course students
should be proficient in the use of solid-
state component and system design
techniques and are familiar with a wide
variety of semiconductor device
applications. The methods of assessing
student learning in this course are
homework assignments, quizzes, classroom
discussions, design projects, and a final
exam. 3 cr.

EE 570 COMPUTER-CONTROLLED
SYSTEMS
Prerequisite: EE 302 and MATH 350. Stu-
dents learn the fundamentals of the state
space approach to discrete systems model-
ing, analysis, and design. They also learn to
find the discrete state space model of me-
chanical, 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 com-
puter controlled feedback systems to im-
prove performance of state discrete time sys-
tems as well as learning to design observ-
ers. Students also learn to use MATLAB
computational software to understand new
concepts and to perform and implement
discrete system analysis and design tech-
niques. 3 cr.

EE 580 SIGNAL PROCESSING
Prerequisites: EE 302 and MATH 350 or
equivalent. This is an introductory course in
digital signal processing. It provides the
necessary background for an entry-level
position in signal processing or for ad-
vanced study. After successfully complet-
ing this course, students are familiar with
the basic theory and practice of digital sig-
nal processing. They are able to under-
stand the concepts of sampling and recon-
struction of analog signals, calculate corre-
lation of discrete time signals, use discrete
time Fourier and Z transforms, simulate
and design FIR and IIR digital filters, imple-
ment FIR and IIR filters in real time on a
signal processing microcomputer, use the
DFT and FFT to calculate the spectra of
discrete time signals, and have some famili-
arity with adaptive filters and wavelets.
Methods of assessment include homework,
tests, and a short paper on a topic related
to signal processing. 3 cr.

EE 590 SPECIAL TOPICS IN
ELECTRICAL ENGINEERING
This is a study of an advanced topic in engi-
neering of special interest to electrical engi-
neering 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. A $20 labora-
tory fee is charged for 100-level English
courses.

Most entering freshmen take ENGL 132 En-

glish 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 the
Writing and Reading Program, take ENGL
14x Tutorial in English Composition concur-
rently with enrollment in a Cultures Past
and Present course. Entering freshmen that
demonstrate deficiency in basic writing
skills are recommended for ENGL 130-131
or ENGL132 with a concurrent lab in writing
skills are required of each student depends
on the student’s preparation at entrance
and subsequent progress in achieving a
level of competence adequate for the
student’s success in college writing assign-
ments. Entering transfer students who have credit in fresh-
man English, but who do not demonstrate
writing competence may be required to
take further courses in English writing.

The number of semesters of 100-level En-

glish 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 assign-
ments. Entering transfer students who have credit in fresh-
man English, but who do not demonstrate
writing competence may be required to
take further courses in English writing.

Following successful completion of the in-
trductory course, most students take
ENGL 133 English Composition II: Intro-
duction to Literature, a humanities English course that includes a significant
writing component. Students demonstrat-
ing exceptional ability in ENGL 132 may,
with the permission of the Director of the Writing and Reading Program 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. Students who do not receive a "C" in each of the introductory courses will be required to take further courses in English writing.

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 may be placed in ENGL 132 or ENGL 133 with an accompanying support lab, LA 250 or LA 251. Students with exceptional skill may be placed in a standard section of ENGL 132 or ENGL 133. Credit for ENGL 100 may not be counted toward fulfillment of the freshman English requirement.

ENGL 100-101 ENGLISH AS A SECOND LANGUAGE I and II
This is 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.
3 cr. Laboratory fee $20.

ENGL 130 ENGLISH COMPOSITION I: College Reading and Writing A
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 researching and 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 $20.

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, research paper construction, and critical reading. Traditional modes of expository discourse are taught. Taught concurrently with LA 176.
3 cr. Laboratory fee $20.

ENGL 132 ENGLISH COMPOSITION I: College Reading and Writing
This is a standard course in essay reading and techniques of 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, and to develop critical judgment of a writer’s own writing and that of others. Particular attention is given to the importance of thesis, audience, and thoughtful revision. Students who are discovered to have marked deficiency in grammar, mechanics, and usage take a concurrent lab in writing fundamentals, LA 150, 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 $20.

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 literature including fiction, drama, and poetry with a strong emphasis on writing. Not open to students who have completed an ENGL 150-level course. Some sections are taught concurrently with LA 151.
3 cr. Laboratory fee $20.

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 emphasis of the standard ENGL 132 course.
3 cr. Laboratory fee $20.

ENGL 150-159 READINGS IN THE HUMANITIES
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 emphases of the standard ENGL 133 course are covered.
3 cr. Laboratory fee $20.

ENGL 190 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.
1-3 cr.

ENGL 201 PRINCIPLES OF COMMUNICATION
Prerequisite: Sophomore standing, two courses in English writing with grades of "C" or better. 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.
3 cr.

ENGL 205 MASS COMMUNICATION
Prerequisite: Sophomore standing, two courses in English writing with grades of "C" or better. This is an introduction to the structure and function of mass communications including print, film, and telecommunications. The course addresses the history, purpose, problems, and power of the mass media.
3 cr.

ENGL 212 INTRODUCTION TO LITERARY STUDIES
Prerequisite: Two courses in English writing with grades of "C" or better
This is an introduction to literature, its resources and research methods. Emphasis is on textual analysis and learning the language and major approaches to literary criticism. It may be taken concurrently with freshman English by especially well qualified English majors.
3 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 approximately 1800. This course satisfies the Area I 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 Area I literature requirement for Arts and Sciences students.
3 cr.

ENGL 218 INTRODUCTION TO JOURNALISM
Prerequisite: Sophomore standing, two courses in English writing with grades of "C" or better. 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.
3 cr.
ENGL 231 MASTERPIECES OF 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 1789. Emphasis is on major traditions and on major writers such as Chaucer, Marlowe, Donne, Jonson, Milton, Dryden, Swift, and Johnson. This course satisfies the Area I literature requirement for Arts and Sciences students.  
3 cr.

ENGL 232 MASTERPIECES OF 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 Area I literature requirement for Arts and Sciences students.  
3 cr.

ENGL 250 MASTERPIECES OF AMERICAN LITERATURE  
Prerequisite: Sophomore standing, two courses in English writing with grades of “C” or better. This is a study of major American works by authors such as Poe, Melville, Hawthorne, Emerson, Thoreau, Whitman, James, Crane, Faulkner, Hemingway, and others. This course satisfies the Area I 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 Area I literature requirement for Arts and Sciences students.  
3 cr.

ENGL 292 PRACTICUM: WRITING FOR THE COLLEGE NEWSPAPER  
Prerequisite: Two courses in English writing with grades of “C” or better. This is an introduction to basic journalistic style as defined by the Associated Press Stylebook. The course covers basic article formats for news and sports articles, editorials, and reviews. Most of the articles written for the class are published in the College’s newspaper.  
1 cr.

ENGL 301 ORAL COMMUNICATION  
Prerequisite: ENGL 201 or permission of the instructor, two courses in English writing with grades of “C” or better. An advanced public speaking course, ENGL 301 presents a study of the major types of public communication. 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.  
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 Area I 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.  
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 Area I 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 Area I 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 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 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 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.  
3 cr.

ENGL 320 PROFESSIONAL COMMUNICATION  
Prerequisite: ENGL 201, 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.  
3 cr.

ENGL 321 NONVERBAL COMMUNICATION  
Prerequisite: ENGL 201, two courses in English writing with grades of “C” or better. The course explores all of the elements of nonverbal communication, examining individual, cultural, and contextual variables that affect it.  
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 Area I literature requirement for Arts and Sciences students.  
3 cr.

ENGL 327 READINGS IN 19TH CENTURY ENGLISH LITERATURE I  
Prerequisite: Sophomore standing, two courses in English writing with grades of “C” or better. This is a study of the signifi-
cant attitudes and problems of the early nineteenth century as expressed in poetry and prose. Readings are drawn from authors such as Wordsworth, Coleridge, Keats, Shelley, Austen, Eliot, and others. This course satisfies the Area I literature requirement for Arts and Sciences students.

ENGL 328 READINGS IN 19th CENTURY ENGLISH LITERATURE II
Prerequisite: Sophomore standing, two courses in English writing with grades of "C" or better. This is 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 Area I literature requirement for Arts and Sciences students.

ENGL 329 READINGS IN 20th CENTURY BRITISH LITERATURE
Prerequisite: Sophomore standing, two courses in English writing with grades of "C" or better. This is a study of selected British novelists such as Joyce, Woolf, Forster, Amis, Lawrence, Waugh, Fowles, and Conrad. Attention is given to social and philosophical backgrounds. This course satisfies the Area I literature requirement for Arts and Sciences students.

ENGL 333-334 INDEPENDENT STUDY IN ENGLISH
Prerequisite: Two courses in English writing with grades of "C" or better. See "Independent Study" on page 30. 1-3 cr.

ENGL 335 IMAGES OF BUSINESS IN LITERATURE
Prerequisite: Sophomore standing, two courses in English writing with grades of "C" or better. This is a study of selections from British and American literature (principally short stories and plays) to understand the views that literature offers of men and women in the world of work; ways that business influences our lives, liberties, and pursuits of happiness; and the ethical issues of individual, social, and corporate responsibilities. This course satisfies the Area I literature requirement for Arts and Sciences students.

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 minority writers: Black, Native, Hispanic, Asian, and Jewish American. This course satisfies the Area I literature requirement for Arts and Sciences students.

ENGL 337 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 literature requirement for Arts and Sciences students.

ENGL 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.

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 literacy 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 further children's understanding of children and of the important role of home and school in literacy development. This course satisfies the Area I literature requirement for Arts and Sciences students.

ENGL 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).

ENGL 342 THEATRE PRACTICUM
Prerequisite: Sophomore standing, two courses in English writing with grades of "C" or better; satisfies Elements of Culture requirement "A." This is a course in performing drama. Students read and analyze dramatic texts and participate in the various activities of theatre production: designing stage sets and costumes, creating sound effects and lighting, and acting and directing. This course satisfies the literature requirement for Arts and Sciences students.

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.

ENGL 348 INTERCULTURAL COMMUNICATION
Prerequisite: ENGL 201, 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.

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 Area I literature requirement for Arts and Sciences students.

ENGL 355 THE DEVELOPMENT OF THE NOVEL
Prerequisite: Sophomore standing, two courses in English writing with grades of "C" or better. 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, Brontë, Dickens, Eliot, Hawthorne, Flaubert, Dostoevsky, Tolstoy, Melville, Hardy, James, Conrad, Forster, Hemingway, and Faulkner. This course satisfies the Area I literature requirement for Arts and Sciences students.

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, Updike, Williams, and Miller. This course satisfies the Area I literature requirement for Arts and Sciences students.
ENGL 390, 392, 394, 395, 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.
1-3 cr.

ENGL 401 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 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 deepen the students’ understanding of literary form and to enlarge their understanding of the human concerns that literature may treat.
3 cr.

ENGL 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.
3 cr.

ENGL 480-481 INTERNSHIP IN ENGLISH
Prerequisite: Two courses in English writing with grades of “C” or better. See “Internships,” on page 31.
1-3 cr.

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. 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 110 COMPUTER APPLICATIONS IN ENGINEERING
This is an introduction to the application of micro-computers to engineering problem solving. Study includes operating systems and applications software such as spreadsheets, graphics packages, and mathematical packages. Half of the course involves programming in Visual BASIC.
2 cr.

ENGR 205 APPLIED VISUAL BASIC
Prerequisite: ENGR 110 or equivalent. This introductory and hands-on experience course is offered to students who have knowledge or experience in programming. Concept of event driven programming is introduced during class lectures while its applications are demonstrated during laboratory sessions. Students learn to use the object oriented programming approach to develop true 32-bit applications that can run under a Microsoft Windows 32-bit platform. Practical application exercises related to data acquisition and control, database management and animation will be selected from the fields of engineering, mathematics, science and business. The development of the programming skills required to analyze practical problems is emphasized. An in-class laboratory exercise is conducted each week during which students practice designing user interfaces, debugging codes and running programs. A minimum of eight computer projects will be assigned. The method of assessing students includes computer assignments, in-class quizzes, and performance during laboratory sessions. Meeting hours: one class hour, one two-hour lab.
2 cr.

ENGR 212 PROBABILITY AND STATISTICS
Prerequisite: MATH 134; ENGR 110. 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 page 30.
1-3 cr. per semester

ENGR 480-481 INTERNSHIP IN ENGINEERING
See “Internships” on page 31.
3 cr.

ENVS ENVIRONMENTAL SCIENCE
(School of Arts and Science)

ENVS 200 INTRODUCTION TO ENVIRONMENTAL SCIENCE
Prerequisite: Sophomore standing and six credits of lab science. The goals of this course are to engender understanding of numerous areas of environmental concern and to show how these problems can be effectively addressed. The topics include human population growth and urbanization; health risks; air and water pollution; nuclear and other waste disposal; soil conservation; food production; pesticide hazards; forest, wilderness, and wildlife conservation; energy and mineral resources; and economic and political realities.
3 cr.

ENVS 290 SPECIAL TOPICS IN ENVIRONMENTAL SCIENCE
Topics in environmental 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.

ENVS 300 LEGAL ASPECTS OF THE ENVIRONMENT
Prerequisite: Junior standing and ENVS 200. The purpose of the course is to educate students in the laws for the protection of environmental quality. They learn to under-
stand the role of the Environmental Protection Agency as well as relevant environmental laws including the National Environmental Policy Act, Clean Air Act, Clean Water Act, Resource Conservation and Recovery Act, and Wildlife Law. The difficulties of controlling environmental quality through the legal system are discussed.

3 cr.

**ENVS 301 WASTE MANAGEMENT**
Prerequisite: Junior standing and ENVS 200. 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.

3 cr.

**ENVS 302 TOXICOLOGY**
Prerequisite: Junior standing; ENVS 200; 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.

3 cr.

**ENVS 303 INDEPENDENT STUDY IN ENVIRONMENTAL SCIENCE**
Prerequisite: Junior standing and ENVS 200. See “Independent Study” on page 30. 1-3 cr.

**ENVS 304 ENVIRONMENTAL MICROBIOLOGY**
Prerequisite: CHEM 210, 220; BIO 303, 313; ENVS 200. The goal of this course is to facilitate understanding of the role of microorganisms in the earth’s biogeochemical cycles, as components of water pollution, as participants in waste water treatment, and in bioremediation of chemical pollution.

3 cr.

**ENVS 305 SPECIAL TOPICS IN ENVIRONMENTAL SCIENCE**
Prerequisite: Junior standing and ENVS 200. This is a study of an advanced topic in environmental science.

3 cr.

**ENVS 306 INTERNSHIP IN ENVIRONMENTAL SCIENCE**
See “Internships” on page 31. 3 cr.

**FIN 214 CORPORATION FINANCE**
Prerequisite: MATH 105, 106, or 111, 112 or 123, 124. This is an introductory course that focuses on the concepts and tools used in financial decision-making. It includes topics such as time value of money, risk and return, valuation, working capital management, and financial markets.

3 cr.

**FIN 300 INSURANCE AND RISK**
Prerequisite: Junior standing. This is an analysis of the principles and practices of insurance and risk management. Topics include personal, business, and social aspects of life, health, property, and liability risks.

3 cr.

**FIN 312 FINANCIAL MARKETS AND INSTITUTIONS**
Prerequisite: FIN 214, EC 205 and 206. This course studies the financial markets, institutions and instruments that allocate both funds and risk in modern economies. Topics include intermediaries such as banks, insurance companies, and pension funds, the money market and fixed income instruments, and regulatory environment in which they operate.

3 cr.

**FIN 317 INVESTMENTS**
Prerequisite: FIN 312. This course is a study of the theories of risk and return that underlie decisions about the allocation of wealth among competing investment vehicles. Students will be able to measure and manage risk and return as it applies to equity and long-term fixed income securities. Topics such as portfolio diversification and immunization will be covered.

3 cr.

**FIN 318 SECURITY ANALYSIS**
Prerequisite: FIN 317. 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. Topics include financial statement analysis, industry analysis, and risk assessment.

3 cr.

**FIN 320 INTERMEDIATE CORPORATION FINANCE**
Prerequisite: FIN 214. This course is an in-depth study of the concepts and tools needed to become an effective financial decision-maker. The topics include valuation, cash management, capital budgeting, cost of capital, capital structure inventory control, and financing choices.

3 cr.

**FIN 322 INTERNATIONAL FINANCE**
Prerequisite: FIN 214, EC 205, EC 206. This is a study of the international dimensions of financial management. Topics include the development of the international financial markets; measurement and control of economic, contractual, and translation risk; international working capital management; and securing funds internationally. The emphasis is on application.

3 cr.

**FIN 333 INDEPENDENT STUDY IN FINANCE**
See “Independent Study” on page 30. 3 cr.

**FIN 390 SPECIAL TOPICS IN FINANCE**
Prerequisite: FIN 320. This course allows the student to apply the concepts and tools of financial management. Real-world cases are used to solve financial problems.

1-3 cr.

**FIN 420 ADVANCED CORPORATION FINANCE**
Prerequisite: FIN 320. This course allows the student to apply the concepts and tools of financial management. Real-world cases are used to solve financial problems.

3 cr.

**FIN 430 COMPUTER APPLICATIONS IN FINANCE**
Prerequisite: FIN 420 or permission of the instructor. This is a study of computer-aided decision making in several areas of finance.

3 cr.

**FIN 450 READINGS IN FINANCE**
Prerequisite: FIN 214. This course consists of selected readings including traditional and controversial arguments in financial management. Topics may include cost of capital, valuation theory, capital budgeting, and debt capacity. Open only to finance and accounting majors.

3 cr.

**FIN 480-481 INTERNSHIP IN FINANCE**
See “Internships” on page 31. 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. One hour of lab per week.

3 cr.

**FR 102 ELEMENTARY FRENCH II**
Prerequisite: FR 101 or the equivalent. This is a continuation of French in Action. One hour of lab per week.

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. 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. 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.

FR 333-334 INDEPENDENT STUDY IN FRENCH
See “Independent Study” on page 30. 1-3 cr.

FR 390 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.

GEOG GEOGRAPHY
(School of Arts and Sciences)

GEOG 101 INTRODUCTION TO GEOGRAPHY
The course is a basic introduction to the principles of geography. Basic concepts in physical geography, cultural geography, cartography, and other fields are discussed. 3 cr.

GEOG 190 SPECIAL TOPICS IN GEOGRAPHY
Topics in geography that are not offered on a regular basis are examined. The course may be repeated for credit if the topic varies. 1-3 cr.

GEOG 201 COMPARATIVE POLITICS
Prerequisite: GO 101, GO 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.

GEOG 203 INTERNATIONAL RELATIONS
Prerequisite: GO 101, GO 102, or sophomore standing. This is an introduction to the elements essential for analyzing and understanding international behavior, organization, diplomacy, politics, law, and the interstate system. 3 cr.

GEOG 205 PUBLIC ADMINISTRATION
Prerequisite: GO 101, GO 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.

GEOG 310 POLITICS OF DEVELOPING SOCIETIES
Prerequisite: GO 101 or GO 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.

GEOG 312 POLITICS OF ETHNIC CONFLICT: AFRICA
Prerequisite: GO 101 or GO 102. This is a study of the modern state in Africa, tracing it from colonial origins to the present. The thematic content reflects the comparative influence of authoritarianism, ethnicity, and economic underdevelopment shared by all of these societies. 3 cr.

GO GOVERNMENT AND POLITICS
(School of Arts and Sciences)

GO 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.

GO 102 AMERICAN GOVERNMENT
This is an introduction to the character of American democracy. Topics include the Constitution, federalism, political parties, and pressure groups as well as the role of the executive, legislative, and judicial branches. 3 cr.

GO 103 INTERNATIONAL RELATIONS
Prerequisite: GO 101, GO 102, or sophomore standing. This is an introduction to the elements essential for analyzing and understanding international behavior, organization, diplomacy, politics, law, and the interstate system. 3 cr.

GO 190 SPECIAL TOPICS IN GOVERNMENT/POLITICS
Topics in government that are not offered on a regular basis are examined. The course may be repeated for credit if the topic varies. 1-3 cr.

GO 201 COMPARATIVE POLITICS
Prerequisite: GO 101, GO 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.

GO 203 INTERNATIONAL RELATIONS
Prerequisite: GO 101, GO 102, or sophomore standing. This is an introduction to the elements essential for analyzing and understanding international behavior, organization, diplomacy, politics, law, and the interstate system. 3 cr.

GO 205 PUBLIC ADMINISTRATION
Prerequisite: GO 101, GO 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.

GO 207 WESTERN POLITICAL THOUGHT
Prerequisite: GO 101, GO 102, three credit hours of European history or sophomore standing. This is a survey of the great political philosophers including Plato, Aristotle, Machiavelli, Hobbes, Locke, Rousseau, Hegel, Marx, and modern political writers. 3 cr.

GO 209 AMERICAN POLITICAL THOUGHT
Prerequisite: GO 102. This is a study of American political thinkers from the colonial period to the 20th century. 3 cr.

GO 210 STATE AND LOCAL GOVERNMENT
Prerequisite: GO 101, 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, transportation, and public welfare. 3 cr.

GO 290 SPECIAL TOPICS IN GOVERNMENT
Topics in government that are not offered on a regular basis are examined. The course may be repeated for credit if the topic varies. 1-3 cr.

GO 310 POLITICS OF DEVELOPING SOCIETIES
Prerequisite: GO 101 or GO 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.

GO 312 POLITICS OF ETHNIC CONFLICT: AFRICA
Prerequisite: GO 101 or GO 102. This is a study of the modern state in Africa, tracing it from colonial origins to the present. The thematic content reflects the comparative influence of authoritarianism, ethnicity, and economic underdevelopment shared by all of these societies. 3 cr.
GO 316 POLITICS OF EUROPE
Prerequisite: GO 101 or GO 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.

GO 318 POLITICS OF THE MIDDLE EAST
Prerequisite: GO 101 or GO 102. This is a study of the Middle East and North Africa in terms of its traditions of Arabism and Islamic culture, authoritarianism, and foreign intervention. Specific issues discussed include the Palestinian-Israeli conflict, Islamic fundamentalism, and the impact of oil production.
3 cr.

GO 320 THE U.S. CONGRESS AND PRESIDENCY
Prerequisite: GO 102. This is an examination of Congress's and the president's powers and actions as well as their interactions. Particular emphasis is placed upon the roles of these actors in contemporary domestic and foreign policy making.
3 cr.

GO 324 PARTIES AND ELECTIONS
Prerequisite: GO 102. This is a study of the electoral process including the roles of candidates, parties, and political managers. As part of the course students are required to work for candidates of their own choosing.
3 cr.

GO 325 CONSTITUTIONAL LAW
Prerequisite: GO 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.

GO 326 CIVIL LIBERTIES
Prerequisite: GO 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.

GO 333-334 INDEPENDENT STUDY IN GOVERNMENT
See “Independent Study” on page 30.
1-3 cr.

GO 336 PUBLIC POLICY IN AMERICA
Prerequisite: GO 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.

GO 338 PUBLIC MANAGEMENT: ADMINISTRATION IN LOCAL GOVERNMENT
Prerequisite: GO 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.

GO 340 INTERNATIONAL LAW AND ORGANIZATION
Prerequisite: GO 101 or GO 102. This is an 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.

GO 350 AMERICAN FOREIGN POLICY
Prerequisite: GO 101 or GO 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.

GO 355 COMPARATIVE FOREIGN POLICIES
Prerequisite: GO 101 or GO 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.

GO 390 SPECIAL TOPICS IN GOVERNMENT
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 “Liberation versus Conservatism.” May be repeated for credit if topic differs.
1-3 cr.

GO 490 SEMINAR IN GOVERNMENT
Prerequisite: Senior standing and fifteen credit hours of government or permission of instructor. This is an exploration of selected topics in government 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 government majors are required to enroll in this course.
3 cr.

HIST HISTORY
(School of Arts and Sciences)

HIST 105 WORLD CIVILIZATION I
This is an introductory survey of world history to 1500. The course focuses 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. Credit for HIST 101 and HIST 105 are not permissible.
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. Credit for HIST 102 and HIST 106 are not permissible.
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 120 PREHISTORY: ORIGINS OF HUMANKIND AND SOCIETY
This is an introduction to the biological and cultural origins of the human race and human society. Major topics include physical evolution, hunting and gathering societies, the development of agriculture, and the rise of complex societies.
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 210 MEN'S WORK/WOMEN'S WORK: EVERYDAY LIFE IN PRE-INDUSTRIAL EUROPE
This is a comparative survey of daily life in classical Athens, Augustan Rome, a medi eval village/castle community, and Renais sance Florence. The course focuses on the forces that shaped the daily lives of ordinary men and women including work, family, social life, and religious belief.
3 cr.
HIST 218 U.S. SOCIAL HISTORY, 1607-1877
This is an examination of significant themes in American social history with special emphasis on work, family life, education, culture, religion, social order, social mobility and diverse population groups including Native Americans, African-Americans, and immigrants.
3 cr.

HIST 219 U.S. SOCIAL HISTORY, 1877 TO THE PRESENT
This is a continuing examination of American social history with special emphasis on family, class, ethnicity, immigration, internal migration, urbanization, and the mass media.
3 cr.

HIST 230 MEDIEVAL AND RENAISSANCE ENGLAND, C.400-1588
This is an exploration of the various forces - political, economic, cultural, religious - which acted to change England from a world of knights and kings to one of merchants, landowners, and parliamentary government.
3 cr.

HIST 231 EVOLUTION OF MODERN ENGLAND, 1688 TO THE PRESENT
This course traces England’s rise and fall as the world’s first industrialized nation in order to study the origins, patterns, and possibilities of modern society.
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 307 ROMANS AND BARBARIANS: 31 BC - 800 AD
Prerequisite: Sophomore standing. This is a survey of culture and society from the Golden Age of Rome through the Germanic invasions to the Carolingian Renaissance, with an emphasis on the interpretation of surviving evidence (archeology, literature, laws, etc.)
3 cr.

HIST 309 KNIGHTS, MONKS, AND PEASANTS: AD 800-1350
Prerequisite: Sophomore standing. This is a survey of medieval culture and society in which students examine a wide variety of surviving evidence (poetry, architecture, memoirs, etc.) with the goal of better understanding how medieval people lived, worked, and thought.
3 cr.

HIST 312 RENAISSANCE AND REFORMATION, 1350-1650
Prerequisite: Sophomore standing. This is an examination of the Italian Renaissance and the German Reformation in their broad European context. The focus is on art, literature, and music within the political, social, and religious environment, which laid the foundation for the humanist values, imbedded in Western culture.
3 cr.

HIST 320 THE TWENTIETH CENTURY WORLD
Prerequisite: Sophomore standing. This is an in-depth survey of the forces and conditions that led to two world wars, the devastation of those wars, and the changes they wrought. The course is on issues and problems and their worldwide impact. A consideration of the potential for a third world war and the global peace movement conclude the course.
3 cr.

HIST 326 SUGAR, SLAVES, AND CLOTH: THE RISE OF ATLANTIC SOCIETY: 1500-1800
Prerequisite: Sophomore standing. This is an exploration of 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: Sophomore 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 page 30.
1-3 cr.

HIST 341 HISTORY OF MODERN GERMANY: 1848 TO THE PRESENT
Prerequisite: Sophomore standing. 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: Sophomore 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 354 CIVIL WAR AND RECONSTRUCTION
Prerequisite: Sophomore 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 358 HISTORY OF THE UNITED STATES SINCE 1945
Prerequisite: Sophomore 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: Sophomore 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: Sophomore 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 transatlantic slave trade, and the prelude to colonialism.
3 cr.

HIST 361 AFRICA IN THE TWENTIETH CENTURY
Prerequisite: Sophomore standing. This is an examination of the origins of colonialism and the conquest in Africa. The development of the colonial society and economy is explored on a regional basis. The course ends with the rise of new independent African states.
3 cr.

HIST 371 THE HISTORY OF LATIN AMERICA
Prerequisite: Sophomore standing. This is a brief survey of pre-Columbian American cultures and colonial Latin America, followed by study of the Wars of Independence and the creation of the independent countries of Latin America. The social, economic, and political dynamics of these societies in the 19th and 20th centuries are discussed.
3 cr.
HIST 375 HISTORY OF MODERN ASIA
Prerequisite: Sophomore 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: Sophomore 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: Sophomore 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,” page 31. 1-3 cr.

HIST 490 SEMINAR IN HISTORY
Prerequisite: Nine credit hours of history and junior standing or permission of instructor. A study of past and present methods of historiography and writing combines with an in-depth examination of a particular phase of history in which students undertake research on a topic of their choice. This course may be repeated if topic differs. All junior history majors must register for this class.

3 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

HON 102 CITIES AND CIVILIZATIONS
Prerequisite: Acceptance into the Honors Program. Cities have had a disproportionately 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 is the first in a two-semester Honors gateway sequence and it provides a historical background to some of the material that will be taught in the second course, Ideas and Cultures. This course fulfills the general college history requirement.

3 cr.

HON 103 IDEAS AND CULTURE
Prerequisites: Admission to the Honors Program; a “C” in ENGL 132 or equivalent. Building to some extent on the experience of students in the first-semester Honors course, Cities and Cultures, this course examines selected literary and philosophic texts from various periods of Western history. The emphasis is less on the historical context than on the literary and philosophic dimensions of the works, introducing the students to various views of human nature with their psychological, moral, and political implications. The course also satisfies the requirement of a second semester of college writing, substituting for ENGL 133, English Composition: Introduction to Literature. As such, it includes fiction, drama, and poetry with a strong emphasis on writing.

3 cr.

HON 190-192 SPECIAL TOPICS IN HONORS
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 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 college wide history requirement. (Not open to students who have taken HON 102.)

3 cr.

HON 290 SPECIAL TOPICS IN HONORS
Topics that are not offered on a regular basis are examined. The course may be repeated for credit in the topic varies.

3 cr.

HON 293 HONORS DIFFERENTIAL EQUATIONS
Prerequisite: Math 235 and acceptance into the Honors Program. This is an honors level course in the theory and applications of differential equations. Although the standard techniques for solving first and order equations are presented, they are explored in depth, both quantitatively and qualitatively, and with computer assistance. Some of the methods studied include separation of variables, integrating factors, characteristic equations, series solutions, operators, and Laplace transforms. In addition, several unusual applications are considered such as Lorenz equations, Hamiltonian systems, chaos theory, medicine dosages, and disease dynamics. Some of these applications also serve as an introduction to the theory of linear differential systems. This course satisfies the differential equations requirement for Mathematics and Engineering majors.

3 cr.

HON 389 ART IN NATURE – NATURE IN ART
Prerequisite: Sophomore Standing and acceptance into the Honors Program. 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 390-392 SPECIAL TOPICS IN HONORS
Topics that are not offered on a regular basis are examined. The course may be repeated for credit if the topic varies.

3 cr.

HUM humanities
(School of Arts and Sciences)
(Elements of Culture “C” and “CA” requirements)

HUM 190 SPECIAL TOPICS IN HUMANITIES
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.
HUM 201-390 CULTURES PAST AND PRESENT:
Cultures Past and Present is the generic title for a series of humanities courses dealing with cultural comparison. Prerequisite: Sophomore standing. These courses focus on individuals in relation to all aspects of their total 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.

HUM 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.

HUM 241 CLASSICAL GREECE
Satisfies Elements of Culture requirement “CA.”
3 cr.

HUM 242 MOSLEM SPAIN AND SOUTH AFRICA
Satisfies Elements of Culture requirement “CA.”
3 cr.

HUM 245 KING ARTHUR’S BRITAIN
Satisfies Elements of Culture requirement “C.”
3 cr.

HUM 246 MODERN ISRAEL
Satisfies Elements of Culture requirement “C.”
3 cr.

HUM 247 RENAISSANCE FLORENCE AND RENAISSANCE DUBLIN
Satisfies Elements of Culture requirement “CA.”
3 cr.

HUM 248 RUSSIA THEN AND NOW
Satisfies Elements of Culture requirement “CA.”
3 cr.

HUM 250 LATIN AMERICA
Satisfies Elements of Culture requirement “CA.”
3 cr.

HUM 251 JUSTICE THEN AND NOW: THE INFLUENCE OF ROME ON THE FORM AND REALITY OF THE UNITED STATES SYSTEM OF JUSTICE
Satisfies Elements of Culture requirement “C.”
3 cr.

HUM 261 AUSTRALIA AND NEW ZEALAND
Satisfies Elements of Culture requirement “CA.”
3 cr.

HUM 262 ROME UNDER CAESAR AND AUGUSTUS
Satisfies Elements of Culture requirement “C.”
3 cr.

HUM 263 FRANCE AND FRENCH CARIBBEAN CULTURE
Satisfies Elements of Culture requirement “CA.”
3 cr.

HUM 290 SPECIAL TOPICS IN HUMANITIES
Satisfies Elements of Culture requirement “C.” 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.

HUM 310 COMPARATIVE RACE RELATIONS: U.S. AND SOUTH AFRICA
Prerequisite: Any one of the following: HIST 111, 112, 218, 219, 326, 354, 360, 361; SO 314; HON 392; EC 316; ENGL 336. Satisfies Elements of Culture requirement “C.”
3 cr.

HUM 333-334 INDEPENDENT STUDY IN THE HUMANITIES
See “Independent Study” on page 30.

HUM 390 SPECIAL TOPICS IN HUMANITIES
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.

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 308 concurrently, 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 controlled physical models, production systems, and robotics. 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 increased emphasis on the design process. Experiments build on previous topics with additional experiments in facility layout, manufacturing planning, CAD/CAM, and quality control. One class hour, three-hour lab.
2 cr.

IE 334 COMPUTER SIMULATION AND DESIGN
Prerequisite: A programming course; 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 414 MANUFACTURING ENGINEERING
Prerequisite: IE 314. This is a study of advanced topics in manufacturing including CAD/CAM, flexible and computer-integrated manufacturing, and expert systems. A design project is required.
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 425 QUALITY ENGINEERING
Prerequisite: IE 315. This course studies topics in quality assurance and management such as product quality and care of customers, management leadership, teamwork, continuous improvement and innovation, and the influence of human performance on product quality and inspection. A seminar approach is utilized in the presentation and discussion of these topics. A design project in quality engineering is required.
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 427 FACILITY AND MATERIAL HANDLING DESIGN
Prerequisite: Senior standing. This is a study of design techniques for solving problems in plant layout, materials handling, and facility location.
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 the equipment and topics from previous laboratory courses. Students design and propose their own experiments in addition to performing traditional experiments in human factors, CAD/CAM, production systems, and robotics. One class hour, three-hour lab.
2 cr.

IE 437 DESIGN PROJECTS
Corequisites: IE 439 and approval of the department. Selected students work on an independent design project in the semester prior to enrolling in IE 440. This course is intended to provide students with the opportunity for a two-semester project sequence culminating with IE 440.
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 eventually 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 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.

IE 515 DESIGN FOR MANUFACTURE
Prerequisite: IE 314 or equivalent. This course examines techniques for analyzing product structures for ease of assembly and manufacture. Covers choice of material and processes in early design, geometric dimensioning and tolerancing, and robust design techniques.
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 issues 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 GO 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 page 31.

INST 490 SEMINAR IN INTERNATIONAL STUDIES
Prerequisite: Senior standing and fifteen 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.

LA LIBERAL ARTS
(School of Arts and Sciences)

LA 100 FIRST YEAR SEMINAR
This is a course designed especially for new college students. The emphasis is on learning and adopting the principles and methods that promote academic success and personal development in college. Topics include goal setting and decision making; time management; attention, memory,
questioning, reading, note taking, test taking, and study skills; health maintenance and stress management; campus resources; and personal identity and relationships.  

2 cr.

**LA 150 LABORATORY IN WRITING FUNDAMENTALS I**

This is a one-credit laboratory course designed to supplement the work in ENGL 132 English Composition I: College Reading and Writing with a review of English fundamentals. Topics include sentence structure, mechanics, usage, and paragraph organization and development.  

1 cr.

**LA 151 LABORATORY IN WRITING FUNDAMENTALS II**

This is a one-credit laboratory course that applies the principles taught in LA 150 to assignments in 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 actual college reading assignments.  

1 cr.

**LA 176 ACADEMIC READING STRATEGIES II**

This is a one-credit laboratory course that applies the principles taught in LA 175 to assignments 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 ENGLISH AS A FOREIGN LANGUAGE 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. Usually taken concurrently with a designated section of ENGL 132. May be taken for two credit hours by arrangement.  

1-2 cr.

**LA 251 ENGLISH AS A FOREIGN LANGUAGE LAB II**

This is a one-credit laboratory course that continues the work of LA 250. Usually taken concurrently with a designated section of ENGL 133. Maybe 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.

**LS LEGAL STUDIES**

**(School of Business)**

**LS 301 LEGAL ASPECTS OF BUSINESS**

This is a study of the foundation legal principles underlying modern business transactions. Particular emphasis is given to understanding the legal system and its role in conflict resolution. Specific topics include contracts, agency, torts, negligence, and business crimes.  

3 cr.

**LS 309 LEGAL STUDIES SIMULATION**

Prerequisite: LS 301. This is a simulation focusing upon the legal process and the use of alternative dispute resolution to resolve legal conflicts. Students are expected to engage in role-playing.  

1 cr.

**LS 402 LEGAL STUDIES FOR ACCOUNTANTS AND ENTREPRENEURS**

Prerequisite: LS 301. This is a continuation of LS 301 wherein emphasis is given to the legal responsibilities of accountants and

the role of law in the formation of emerging business organizations. Specific topics include sales, proprietorships, partnerships, corporations, security regulations for public offerings, property transactions, secured transactions, wills, trusts and estates, and applied ethical considerations.  

3 cr.

**LS 403 GOVERNMENT CONTRACT LAW**

This is an overview of federal acquisition law and techniques. It examines the law of contracts, authority to purchase for the government, methods of placing contracts, types of contracts, and the relationship between government and contractor during contract performance. This course is normally offered only in the Off-campus program.  

3 cr.

**LS 413 LEGAL ASPECTS OF MARKETING AND COMPUTER INFORMATION SYSTEMS**

Prerequisite: LS 301. This is a continuation of LS 301 wherein emphasis is given to the legal aspects of marketing and the computer and information processing environment. Specific topics include advertising, computer theft, consumer protection, copyrights, trademarks, licensing, other intellectual property considerations, and applied ethical considerations.  

3 cr.

**LS 424 LEGAL ASPECTS OF HUMAN RESOURCES MANAGEMENT**

Prerequisite: LS 301. This is a continuation of LS 301 wherein emphasis is given to the legal aspects of human resources management. Specific topics include employment discrimination, employment contracts, privacy of records, drug testing, safety and health issues, and applied ethical considerations.  

3 cr.

**LS 460 SPORT LAW**

Prerequisite: LS 301. This is an overview of the increasing effect the law is having on sports. Liability issues, title IX, discrimination issues, anti-trust laws, contracts, and labor law are explored. The course examines the role of legal services within sports organizations.  

3 cr.

**MAN MANAGEMENT**

**(School of Business)**

**MAN 101 PRINCIPLES OF MANAGEMENT**

This is a study of management’s role. Topics include management functions as well as principles of effective coordination and control.  

3 cr.
MAN 190 SPECIAL TOPICS IN MANAGEMENT
This is a study of topics in management of special interest to management majors, but not offered on a regular basis. 1-4 cr.

MAN 202 PRINCIPLES OF ACQUISITION AND CONTRACTING
This course studies the management of the acquisition function in both the private and public sector. It examines organization structure and contracting procedures, marketing techniques employed by vendors in the private sector, types of contracts, proposal preparation, negotiation procedures, and the effect of the political environment on government contracts. This course is normally offered only in the Off-campus program. 3 cr.

MAN 203 PRINCIPLES OF CONTRACT PRICING
Prerequisite: AC 202. This course examines pricing concepts, price analysis, cost estimating, cost-volume profit analysis, projection techniques, factors affecting profit or fee, analysis of pricing arrangement, analysis of the elements of cost direct labor and direct material cost analysis, indirect costs, and the weighted guideline technique of profit analysis. A written price negotiation memorandum is prepared. This course is normally offered only in the Off-campus program. 3 cr.

MAN 204 ORGANIZATIONAL BEHAVIOR
Prerequisite: MAN 101. This is a study of individual, interpersonal, and group behavior in the organizational context. The emphasis is on the application of behavioral science research in such areas as motivation, leadership, and group processes. 3 cr.

MAN 301 STRUCTURE OF AMERICAN INDUSTRY
Prerequisite: EC 206; junior standing. This is an analysis of current industry structures through the use of economic, financial, and accounting tools. Emphasis is on the relation of theory to practice as well as on the integration of material from previous courses. Topics include the use of current business periodicals and research; decision-making within the environment of the firm, industry, and the economy; and the influence of world trade, resources, public policy, and technology. 3 cr.

MAN 308 EMPLOYEE RELATIONS
Prerequisite: MAN 101 or permission of the instructor. This is an introduction to labor-management relations and alternative dispute and conflict resolution. Subjects include union organization, union-management relationships, public regulation of industrial relations, and alternative dispute resolutions. 3 cr.

MAN 311 MANAGEMENT OF INTERNATIONAL OPERATIONS
Prerequisite: MAN 101, MK 200, or permission of instructor. This is an analysis of the complexities of doing business overseas. Emphasis is on marketing, though all major areas of management are considered. Topics include cultural differences, market barriers, business practices, product/market strategies, distribution, and organization for small firms and multinational corporations. 3 cr.

MAN 315 ORGANIZATIONAL THEORY
Prerequisite: MAN 101. This is an examination of organization theory and design. Emphasis is on the relationship of theory and research to practical managerial understanding and knowledge. 3 cr.

MAN 317 OPERATIONS MANAGEMENT
Prerequisite: MAN 101 or equivalent. This is an examination of the role of operations management. Topics include decision-making, process and selection, choice of technology, flow and layout, capacity, demand strategies, and control techniques. Additional topics include the work force, job enrichment, and issues of measurement and productivity. 3 cr.

MAN 330 MANAGERIAL COMMUNICATION
Prerequisite: MAN 101; junior standing. This course is an examination of communication from the perspective of the manager. Subjects include channels and dynamics of communication; the manager-subordinate relationship; controlling and directing; and the development of a personal managerial style of written, oral, and nonverbal communication. 3 cr.

MAN 331 A HUMANISTIC APPROACH TO LEADERSHIP AND MANAGEMENT
Prerequisite: Junior or senior standing. This is a study of fiction, biography, drama, and film as primary sources to arrive at a better understanding of how effective leadership and management occurs. Management theory articles on leadership serve as background in the building of managerial initiative, planning, and risk-taking skills. 3 cr.

MAN 333 INDEPENDENT STUDY IN MANAGEMENT
See “Independent Study” on page 30. 3 cr.

MAN 335 TRANSPORTATION
Prerequisite: MK 101. This is a comprehensive treatment of managerial and operation problems. Transportation is studied from an historical basis with emphasis on the evolving environment of deregulation. This is a strong, practical course that can be used by people already working in transportation or by those who wish to enter the field. This course is normally offered only in the Off-campus program. 3 cr.

MAN 340 WOMEN AND MEN IN ORGANIZATIONS
Prerequisite: MAN 101 and PSY 204 or MAN 204. This is an examination of sex role socialization in women, men, and organizations. 3 cr.

MAN 350 SPORT MANAGEMENT
Prerequisite: MAN 101. This is an introduction to the principles of management in a sport-related business. Course content includes organizing, motivating, planning, staffing, directing, and controlling. Managerial ethics are covered, as are issues of social responsibility. The course provides an investigation of the scope of the sport industry and implications for managing this growing field. 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 401 CONTRACT NEGOTIATIONS
Prerequisite: MAN 202. Both business and interpersonal negotiation techniques are presented in this course. Emphasis is placed on useful and proven tactics and strategies of conferences, discussions, leadership, motivation, and many other aspects of the negotiations. Case discussions are a significant part of this course. This course is normally offered only in the Off-campus program. 3 cr.

MAN 410 ETHICAL ISSUES IN BUSINESS
Prerequisite: Senior standing or permission of the instructor. This is an application of ethical concepts to the organizational decision-making process. Contemporary issues facing business are discussed from an ethical perspective. Students are required to apply critical analysis to business decisions and are expected to become aware of the ethical choices available for their resolution. Credit for both this course and PH 310 is not permissible. 3 cr.
MAN 417 MANAGEMENT FOR MANUFACTURING
Prerequisite: MAN 101 and junior or senior standing. This is a case-based course designed to introduce students to the processes of managing people and resources within manufacturing environments. The focus is on the various functions within manufacturing operations and the exploration of current topics such as Continuous Improvement Strategies, Total Quality Management, and Team-Based Systems.
3 cr.

MAN 422 CONFLICT RESOLUTION
Prerequisite: MAN 308. This is an analysis of methods of conflict resolution including collective bargaining, negotiations, and grievance arbitration.
3 cr.

MAN 423 HUMAN RESOURCE MANAGEMENT
Prerequisite: MAN 101. This is a study of the nature and role of personnel administration. Emphasis is on the core personnel functions of selection, training and development, performance appraisal, compensation, and personnel law.
3 cr.

MAN 424 BEHAVIORAL SCIENCE SEMINAR
Prerequisite: Three credit hours of psychology and six credit hours of management. This is an integration of management and behavioral science with emphasis on current thinking on such topics as motivation, power, and leadership in the workplace.
3 cr.

MAN 425 CONTEMPORARY ISSUES IN HUMAN RESOURCES MANAGEMENT
Prerequisite: MAN 423. This is a study of advanced personnel functions and a survey of current issues in human resources management. Topics include planning; techniques for predicting job success; evaluation of program effectiveness; career management, and team building. Current issues vary, but have included wellness in the workplace, comparable worth, and worker dislocation.
3 cr.

MAN 433 PERFORMANCE TEAM LEADERSHIP
Prerequisite: Senior standing. This course studies leadership and team building, an extended involvement in project work teams. Teams complete a variety of projects requiring the application of the full range of managerial skills and understanding in such areas as HRM, organizational structure and task design, and new business planning, among others. Special emphasis is placed on the development of leadership skills with each team member serving as team leader for one of the projects.
3 cr.

MAN 447 SMALL BUSINESS MANAGEMENT
Prerequisite: Senior standing, or permission of instructor. This is a study of the resources needed for starting, operating, and evaluating a small business. Emphasis is on a full spectrum of business functions as applied to small firms including proprietorships, partnerships, corporations, and franchised outlets.
3 cr.

MAN 450 PRACTICUM IN SPORT MANAGEMENT
This course is conducted in conjunction with the Alumni Healthful Living Center. It is a supervised opportunity to gain practical experience in program areas. The practicum provides a base for decision-making, program development, management, and staffing within a sports-oriented facility.
3 cr.

MAN 455 SPORT FACILITY PLANNING AND MANAGEMENT
This course places an emphasis on the necessity of proper planning and maintenance in the sport management scheme. Topics include the evaluation in planning, construction, and operations of facilities.
3 cr. Slated to become 4 cr in 2001.

MAN 460-461 ADVANCED FIELD EXPERIENCE IN SPORT MANAGEMENT
This course provides 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 the faculty sponsor via faculty-student meetings, on-site visits, written assignments, an oral presentation, and a final project. The Advanced Field Experience (AFE) in sport management is designed to complement the sport practicum and students are encouraged to consider sites that reflect their career interests in the sport industry. Only students who have demonstrated academic excellence, a high degree of commitment to a career in the sport industry, and the necessary motivation and managerial skills to undertake the AFE course are eligible for enrollment. The AFE is a 12-credit course designed to be taken in the senior year.
6 cr. each.

MAN 465 SEMINAR IN SPORT MANAGEMENT
This is an examination of contemporary issues in the field. The seminar format consists of an examination of current literature (both academic and applied) with an emphasis on the analysis of strategies, decisions, and resource utilization.
3 cr. Slated to become 4 cr in 2001.

MAN 480-481 INTERNSHIP IN MANAGEMENT
See “Internships” on page 31.
3 cr.

MATH MATHEMATICS
(School of Arts and Sciences)

MATH 099 INTRODUCTION TO ALGEBRA
This is an analysis of basic algebra topics in preparation for MATH 100. Topics covered at a review pace include basic operations of real numbers, linear equations and inequalities, operations of polynomials, and factoring. This course is designed for non-traditional and transfer students who may be lacking the background necessary to enter MATH 100. May not be counted toward the general college mathematics requirement; may be taken for credit only as a general elective.
3 cr.

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.
3 cr.

MATH 105 CONTEMPORARY MATHEMATICS I
This is a survey of some contemporary applications of mathematics. Hall of the course focuses on the mathematics of social choice. Topics include voting theory, weighted voting systems, fair division problems, and apportionment. The remainder of the course focuses on the study of probability and descriptive statistics. Topics include graphical representations and numerical summaries of data as well as the use of formal probability models to solve a variety of interesting problems. Students who have successfully completed MATH 112 cannot receive credit for this course.
3 cr.

MATH 106 CONTEMPORARY MATHEMATICS II
This is a survey of some contemporary applications of mathematics. Hall of the course focuses on the use of graph theory in the area of management science. Topics include Euler circuits, Hamilton circuits and the Traveling Salesman Problem, minimum network problems, and scheduling. There is an emphasis on using graph theory to model many real world problems and applying mathematical algorithms to solve them. The remainder of the course focuses on growth, symmetry, and the connections between mathematics and nature. Topics include spiral growth, Fibonacci numbers, the golden ratio, symmetry of scale, and fractals.
3 cr.

MATH 111 ANALYSIS FOR BUSINESS AND ECONOMICS I
This course is designed for non-traditional and transfer students who may be lacking the background necessary to enter MATH 100. May not be counted toward the general college mathematics requirement; may be taken for credit only as a general elective.
3 cr.
MATH 107 MATHEMATICS FOR ELEMENTARY EDUCATION I
Prerequisite: MATH 100 or the equivalent within the last four years or 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.
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.
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.
3 cr.

MATH 111 ANALYSIS FOR BUSINESS AND ECONOMICS I
Prerequisites: MATH 110. 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.
3 cr.

MATH 112 ANALYSIS FOR BUSINESS AND ECONOMICS II
Prerequisites: 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.
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 bloodstream. General applications include rates of change, curve sketching, and maximizing and minimizing functions. Credit for both this course and MATH 131 or MATH 133 is not permissible. TI-83 calculator is required.
3 cr.

MATH 124 CALCULUS II FOR MANAGEMENT, LIFE, AND SOCIAL SCIENCES
Prerequisite: MATH 123 or the equivalent. 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.
3 cr.

MATH 131 CALCULUS I (WITH PRE-CALCULUS REVIEW)
Prerequisite: Three years of high school mathematics including two years of algebra. This is an introduction to calculus designed for students needing a review of pre-calculus mathematics. Topics include algebra review, algebraic functions and graphs, limits of functions, the derivative, differentiation of algebraic functions, the chain rule, implicit differentiation, and related rates. Not open to students who have received credit for MATH 123 or MATH 133. TI-86 calculator is required.
4 cr.

MATH 132 CALCULUS IB (WITH TRIGONOMETRY)
Prerequisite: MATH 131 or permission of instructor. This is a continuation of MATH 131. Topics include trigonometry review, derivatives of trigonometric functions, local extrema of functions, derivative tests for extrema, antiderivatives, the definite integral, the fundamental theorem of calculus, and change of variables in indefinite integrals. Credit for both this course and MATH 123 or MATH 133 is not permissible. TI-86 calculator is required.
4 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, or MATH 131, or MATH 132 is not permissible. TI-86 graphing calculator is required.
4 cr.

MATH 134 CALCULUS II
Prerequisite: MATH 132 or 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.
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 207 INTRODUCTORY STATISTICS FOR THE ARTS AND SCIENCES
Prerequisite: MATH 100 or the equivalent within the last four years, or 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. This course is intended for general students, not for those whose major program requires

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<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
<th>Prerequisites/Notes</th>
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<tbody>
<tr>
<td>MATH 235 CALCULUS III</td>
<td>Prerequisite: MATH 124 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. 3 cr.</td>
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<tr>
<td>MATH 236 DIFFERENTIAL EQUATIONS</td>
<td>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. 3 cr.</td>
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<tr>
<td>MATH 261 DISCRETE STRUCTURES I</td>
<td>Prerequisite: PH 104 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. 3 cr.</td>
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<tr>
<td>MATH 262 DISCRETE STRUCTURES II</td>
<td>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. 3 cr.</td>
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<tr>
<td>MATH 272 PROBABILITY</td>
<td>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. 3 cr.</td>
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<tr>
<td>MATH 290 SPECIAL TOPICS IN MATHEMATICS</td>
<td>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.</td>
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<tr>
<td>MATH 306 LINEAR ALGEBRA</td>
<td>Prerequisite: MATH 124 or MATH 134. Topics 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. 3 cr.</td>
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<tr>
<td>MATH 310 TOPICS IN ACTUARIAL SCIENCE</td>
<td>Prerequisite: MATH 235 and permission of the instructor. This is a course specifically designed to provide students with additional preparation for one or both of the first two actuarial examinations. 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.</td>
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<td>MATH 311 NUMERICAL ANALYSIS</td>
<td>Prerequisite: MATH 124 or MATH 134. This is a study of various approximation techniques. Topics include error evaluation, numerical solution of non-linear equations, numerical solution of systems of equations, interpolating polynomials, numerical differentiation, numerical integration, and numerical solution of ordinary differential equations. Students use interactive computer programs throughout the course. Offered on demand. TI-86 calculator is required. Offered on demand. 3 cr.</td>
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<tr>
<td>MATH 333-334 INDEPENDENT STUDY IN MATHEMATICS</td>
<td>Prerequisite: Senior standing. See “Independent Study” on page 30. 1-3 cr.</td>
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<tr>
<td>MATH 350 ENGINEERING ANALYSIS I</td>
<td>Prerequisite: MATH 236. This course studies selected topics from linear algebra, vector calculus, line and surface integrals, Fourier series and integrals, and partial differential equations. The emphasis is on engineering applications and the use of the computer to illustrate techniques. 3 cr.</td>
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<td>MATH 363 MATHEMATICAL FOUNDATIONS AND METHODS FOR COMPUTER SCIENCE</td>
<td>Prerequisite: MATH 262 and CS 283; 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 years. 3 cr.</td>
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<tr>
<td>MATH 371 MODERN ASPECTS OF GEOMETRY</td>
<td>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 years. 3 cr.</td>
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<tr>
<td>MATH 373 MATHEMATICAL STATISTICS</td>
<td>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 in alternate years. 3 cr.</td>
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<tr>
<td>MATH 377 ELEMENTARY NUMBER THEORY</td>
<td>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; gcd’s; 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 years. 3 cr.</td>
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<tr>
<td>MATH 390 SPECIAL TOPICS IN MATHEMATICS</td>
<td>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.</td>
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<tr>
<td>MATH 412 INTRODUCTION TO TOPOLOGY</td>
<td>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.</td>
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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 years.
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 queueing theory.
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 years.
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, infinite series, and series of functions. Offered on demand.
3 cr.

MATH 480-481 INTERNSHIP IN MATHEMATICS
See “Internships” on page 31.
1-3 cr.

MATH 490 SEMINAR
Prerequisite: Permission of the instructor. Topics discussed depend upon the interest of the students. Seniors or unusually well qualified juniors may be admitted to the course only by permission of the Department. Offered on demand.
3 cr.

MATH 501 ENGINEERING ANALYSIS II
Prerequisite: MATH 350. This is a study of selected topics from the theory of partial differential equations. Topics include vector spaces, 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. Offered on demand.
3 cr.

ME MECHANICAL ENGINEERING
(School of Engineering)

ME 106 STATICS
Prerequisite: MATH 134 or concurrently; PHYS 132 or PHYS 133; ENGR 103 or concurrently; ENGR 110 or concurrently. This entry-level course is offered to all engineering students and 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 application 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. An individual written report analyzing an aspect of engineering mechanics and a group analytical project involving computer programming or simulation are required. The methods of assessing students include homework assignments, quizzes, examinations, projects, and a final exam.
3 cr.

ME 203 DYNAMICS
Prerequisite: ME 106. This introductory course is offered to all engineering students and 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 computer simulation package is presented in a problem-solving context and students are encouraged to use the package as a tool for building and analyzing dynamic mechanical systems. An individual 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 208 MECHANICS OF MATERIALS
Prerequisite: MATH 235 or concurrently; ME 106. 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 concepts of the first and second law of thermodynamics. Students will/earn 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. Weekly 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 103; 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 materials. Major topics include: material selection, crystallographic structure, diffusion, solidification, phase diagrams, microstructure and mechanical properties of different classes of materials. The course is 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 312 KINEMATICS AND DYNAMICS OF MACHINERY**
Prerequisite: ME 203. This course requires students to use analytical, graphical and computer methods to determine the performance of mechanisms, machinery and control systems. Students learn displacement, velocity, acceleration and force analysis of linkages, cams, gears, and other machine elements. Additionally, students will be introduced to the study and design of control systems for machinery. The course emphasis is placed on the practical design and operation of mechanical systems and machinery. Several case studies encompassing real design and control problems from industry are used both in the classroom and in the laboratory to enhance the learning process. The method of assessing students includes classroom participation, homework assignments, examinations, case projects, and a final exam. Two class hours, one three-hour lab. 3 cr.

**ME 313 MECHANICAL LABORATORY I**
Prerequisite: ME 203; ME 208; CPE 240 or concurrently; ENGR 103; ENGR 205 or concurrently; ENGR 212 or concurrently. 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 presents 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. 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. 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 314 MECHANICAL LABORATORY II**
Prerequisite: ME 303; ME 309; ME 313; ME 316 or concurrently. 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 students 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 convey the basic principles of heat transfer by incorporating a wide 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. An individual project to design cooling systems for integrated circuits and electronic devices 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 is 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 417 HEAT TRANSFER**
Prerequisites: 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 wide 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. An individual project to design cooling systems for integrated circuits and electronic devices is required. The methods of assessing students include homework assignments, quizzes, examinations, projects, and a final exam. 3 cr.
ME 422 CONTROL SYSTEMS
Prerequisite: MATH 350; ME 230. An introductory course in the analysis and design of controls for mechanical systems. Students learn about 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; ME 312 or concurrently; ME 320 or concurrently. 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 modified Goodman 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 critical speeds of shafts and the characteristics of clutches and brakes to satisfy operating conditions. The specification of extension, compression, torsional and leaf springs subjected to either steady or fluctuating loads to satisfy design specifications; and the specification of threaded fasteners, v-belt drives, and riveted and welded connections to satisfy loading conditions. 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 435 MECHANICAL LABORATORY III
Prerequisite: ME 314; ME 320 or concurrently; ME 417 or concurrently; and senior standing. This is the last course in a three-course laboratory sequence. The experimental methodology and communication skills developed in ME 313 and ME 314 are reinforced and the engineering team approach is also used throughout the course. Each student, as a member of a team, experiences four distinct activities: the first is a full three-factor two-level statistical Design of Experiments for the evaluation of material properties; the second is a vibrations analysis; the third is in energy systems analysis; and, the fourth is a 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 and approval of the Department. 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 intellectual property, copyrights, trademarks, and trade secrets and of not infringing on the similar rights of others; and apprised of issues of safety in the workplace, 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. A capstone design course that prepares students for entry-level positions. In this course, each student works on an independent engineering project under the supervision of a faculty advisor. Students apply the design process and communicate the results of their project work in both an oral and written form. Oral reports are presented before an assembly of faculty and students. Students apply engineering design principles either by working on a product, improving a product, or designing experiments to investigate causes of either an observed phenomenon or a problem in engineering. Students are required to demonstrate their achievements using appropriate laboratory exhibits. Students who select industry-sponsored projects have the opportunity of working with an 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 490 SPECIAL TOPICS IN MECHANICAL ENGINEERING
A study of an advanced topic in engineering of special interest to mechanical engineering majors. 3 cr.

ME 511 ADVANCED MECHANICS OF MATERIALS
Prerequisite: ME 208; MATH 350. 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 problems. Students will locate the shear center of composite sections; determine the stresses and deflection of curved bars and beams, determine the deflection, slope, moment, and shear for beams on elastic foundations; determine the stresses and deformations in thick-walled cylinders; determine the deflection and slope in beams using Castigliano’s theorem; and, determine the stresses in initially curved and eccentrically loaded columns. The method of assessing students will include in class exams and a comprehensive final exam. 3 cr.

ME 519 EXPERIMENTAL STRESS ANALYSIS
Prerequisite: ME208; ME435 or concurrently. This senior/graduate course is offered to mechanical engineering majors and is designed to introduce students to the most common engineering techniques used to evaluate and improve structural designs. Students will learn the basic theory of electrical strain gages, photo-elasticity and brittle coatings and use of these techniques to determine the state of stress in structural members. The use of strain gages for transducer applications and calibration of finite element analyses are also emphasized. During the laboratory sessions, students become proficient in the
mounting of strain gages, the use of strain measuring and photo-elasticity equipment, and the use of data acquisition systems. When possible, modern finite element analysis packages, such as IDEAS Master series, are utilized to analytically determine the strains in a loaded member in order to compare them with those obtained using strain gages and/or photo-elastic methods. The methods of assessing students include homework assignments, laboratory experiments and written reports. Two class hours, one three-hour lab. 3 cr.

**ME 526 GAS DYNAMICS**
Prerequisite: ME 303; ME 316, and senior standing. This course introduces students to the analysis and design procedures currently used for solving engineering problems in compressible fluid flow. Students learn how to combine the concepts of dynamics, thermodynamics, and fluid mechanics to generate useful analyses for the design of fluid machinery. Students use control volume theory and several derived compressible flow analyses to develop design procedures for wind tunnels, exhaust pipe tuning, aircraft inlets and nozzles, shock waves, 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 540 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, examinations, classroom discussions, design projects and a final exam. 3 cr.

**ME 542 COMPUTER-AIDED ENGINEERING**
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 544 COMPUTER APPLICATIONS IN MECHANICAL ENGINEERING**
Prerequisite: ENGR 101; 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/packages for either design or analysis is also emphasized. Students use case studies to investigate problems requiring a multidisciplinary approach. A total of ten 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 551 FLUID MACHINERY DESIGN**
Prerequisite: ME 304; ME 316; and senior standing. This course introduces students to the analysis and design of fluid machinery. Topics include control volume theory, fluid flow, fluid power analyses, boundary layer theory and airfoil theory. Students learn to use these theoretical procedures both in the conceptual design of aircraft components and fluid machinery and to apply specific speed, actuator disk theory, and flow-through analysis to select and design pumps, blowers, and propellers for specific applications. Design analysis procedures for compressors and turbines are presented and utilized. Students are also introduced to similitude and model testing of fluid machinery. Several case studies encompassing actual industrial design problems are used in the classroom to enhance the learning process. An individual fluid machinery design project is required. The method of assessing students includes classroom participation, homework assignments, examinations, projects and a final exam. 3 cr.

**ME 550 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 $30.

**METR 190 SPECIAL TOPICS IN METEOROLOGY**
Topics in meteorology that are not offered on a regular basis are examined. The course may be repeated for credit if the topic varies. 1-3 cr.

**MK MARKETING**
*(School of Business)*

**MK 200 PRINCIPLES OF MARKETING**
(Formerly MK 101) 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 201 PRINCIPLES OF PURCHASING**
This course studies the principles and practices involved in industrial purchasing and materials management. It also examines buying practices, inventory policy, source selection, and professional ethics. This course is normally offered only in the Off-campus program. 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 306 NEW PRODUCT MANAGEMENT
Prerequisite: MK 301. New products are the fuel of future growth for any organization. This course focuses on a creative process that begins with an innovative charter, combines various inputs, and yields three outputs: a product, an evaluation system, and a marketing plan. New products are seen as emanating from three bases: customer need, technology, and form. The creative process taught employs interdisciplinary teams, and is managed from a marketing perspective.

3 cr.

MK 317 PROMOTIONAL STRATEGY
Prerequisite: MK 301. 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
Prerequisites: 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
Prerequisites: EC 206 or 208, MK 200. This course examines factors pertinent to effective pricing and produce-related decisions by marketing managers. Special emphasis is placed on strategic pricing, costs of pricing and financial analysis as well as price segmentation and life cycle pricing. Also emphasized are developing a product strategy and creating a product portfolio, managing growing and mature products, product deletion decisions, and financial analysis for product management.

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 page 30.

1-3 cr.

MK 340 DESKTOP APPLICATIONS FOR MARKETING
Prerequisites: CIS 202 and MK 200. This course is an application course designed to give students experience in developing promotional material such as brochures, flyers, advertising copy, web pages and newsletters using desktop publishing. This course helps students develop a high level of skill in desktop publishing as it relates to marketing.

3 cr.

MK 344 CAMPAIGN PLANNING AND MANAGEMENT
Prerequisite: MK 317. 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 346 RELATIONSHIP MARKETING
Prerequisites: 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 366 SPORT MARKETING
Prerequisite: MK 200. This course is an introduction to sport marketing as a broadly defined profession with particular emphasis on marketing management in sports. In addition to career considerations in the sport industry, sport marketing topics include marketing research, computer applications, and communication.

3 cr. Slated to become 4 cr in 2001.

MK 370 E-COMMERCE
Prerequisites: 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
Prerequisites: 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
Prerequisites: 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 440 MARKETING SEMINAR
Prerequisites: Senior Marketing or Marketing Communications/Advertising standing, 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 page 31.

3 cr.
MS MILITARY SCIENCE
(Army ROTC/School of Business)

MS 115 INTRODUCTION TO THE ARMY AND THE NATIONAL DEFENSE SYSTEM
This is an introduction to the structure of the national defense system. Topics include the organization of the Army, civilian control of the military, the role of the citizen-soldier in national defense, the historical development of military customs and traditions, and civilian and military concerns about the modern volunteer army. Laboratory required.
1 cr.

MS 116 INTRODUCTION TO THE NATIONAL DEFENSE SYSTEM
This is an introduction to the components of the U.S. national defense system. Topics include Congress, National Command Authority, Joint Chiefs of Staff, and the Armed Services; the U.S. Defense establishment during the Vietnam War; and the evolution of national strategy related to the principles of war. Laboratory required.
1 cr.

MS 215 CONTEMPORARY MILITARY THEORY
Prerequisite: Sophomore standing or permission of instructor. This is an introduction to the principles and fundamentals of modern military tactics. Topics include the analysis, interpretation, and use of topographic maps; land navigational techniques; and communication procedures and equipment. Leadership laboratory required.
2 cr.

MS 216 LEADERSHIP DEVELOPMENT
Prerequisite: Sophomore standing or permission of instructor. This course examines development and application of basic management skills. The emphasis is on problem analysis, decision-making, planning, organizing, and delegating authority. Laboratory required.
2 cr.

MS 312 MILITARY LEADERSHIP I
Prerequisite: MS III cadet standing. This is a study of leadership topics including the leader, the group, and the situation and motivation, behavior, and leadership styles within a military setting. Weekly and monthly laboratories required.
3 cr.

MS 313 MILITARY LEADERSHIP II
Prerequisite: MS III cadet standing. This is a study of the individual, tactical, and administrative skills required of a junior officer. Weekly and monthly laboratories required.
3 cr.

MS 313 MILITARY LEADERSHIP II
Prerequisite: MS IV cadet standing. This is a study of the managerial problems inherent in military staff planning and administration. Weekly and monthly laboratory required.
3 cr.

MS 413 MILITARY LAW AND ETHICS
Prerequisite: MS IV cadet standing. This is a study of military ethics and law. Topics include the constitutional basis of powers, the Constitution and the individual, the basic principles of criminal law, rules of evidence, the military judicial system, and the administration of military justice. Weekly and monthly laboratory required.
3 cr.

MUS MUSIC
(School of Arts and Sciences)

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.
3 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 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 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.

PA PHYSICIAN ASSISTANT
(see Massachusetts College of Pharmacy and Health Sciences catalogue)

PEHR PHYSICAL EDUCATION, HEALTH, AND RECREATION
(School of Arts and Sciences)

PEHR 151 PERSONAL HEALTH AND WELLNESS
This is an exploration of current health issues and self-responsibility in achieving optimal health. Personal Health is intended to educate students in health issues pertinent to the college-aged population. Subject matter includes nutrition and weight control, disease prevention, the body’s functions, medical self-care, and the wellness model. In addition, students learn about issues specific to the college-age population including substance abuse, sexually transmittable diseases, and eating disorders. All students are required to take this course in their freshman year.
1 cr.

PEHR 153-199 LIFETIME ACTIVITIES SERIES
Prerequisite: PEHR 151. These courses are to be taken in the semester following the completion of PEHR 151. In keeping with the College philosophy on physical education, the emphasis is on lifetime, carry-over value activities such as racket sports, golf, walking and jogging, aerobic dance, fundamentals of martial arts, personal fitness/strength and endurance training, games children play and rape/aggressive defense training for women.
1 cr.

PEHR 163 GAMES CHILDREN PLAY
Prerequisite: PEHR 151. Instruction is given in age appropriate physical education activities and games for students planning to teach children at the elementary level. The course includes an introduction to the Massachusetts comprehensive health curriculum frameworks, cooperative games, indoor and playground activities, folk dance and multicultural games, special needs and management strategies, and the integration of physical education in the elementary school curriculum. Required for all students pursuing certification in elementary education.
1 cr.
**PH PHILOSOPHY (School of Arts and Sciences)**

**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?”
3 cr.

**PH 104 ELEMENTARY LOGIC**
This is an examination of formal methods for determining the validity of arguments and inferences. Topics include informal fallacies, as well as methods employing truth tables, truth trees, and natural deduction in both sentence logic and predicate logic.
3 cr.

**PH 110 CRITICAL THINKING**
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.
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 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 as well as issues of relativism, egoism, and determinism. Concepts to be discussed may include virtue and vice, moral duty, moral rights, and moral responsibility.
3 cr.

**PH 209 PHILOSOPHY IN LITERATURE**
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.”
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.
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 104 or permission of the instructor. 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 302 THE AMERICAN INTELLECTUAL TRADITION**
Prerequisite: Sophomore standing. This is a critical examination of American thought from the colonial period to the present. The course covers Puritan thought, the Republican and Democratic traditions, romanticism and transcendentalism, pragmatism, and the tradition of social reform. Writers covered may include Winthrop, Edwards, Paine, Jefferson, Madison, Emerson, Thoreau, Lincoln, Frederick Douglass, William James, Dubois, Dewey, and Jane Addams.
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?”
3 cr.

**PH 304 PHILOSOPHY OF RELIGION**
Prerequisite: PH 103 or permission of the instructor. 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.
3 cr.

**PH 307 CONTEMPORARY MORAL PROBLEMS**
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.
3 cr.

**PH 308 ENVIRONMENTAL ETHICS**
This is an examination of threats to the environment and proposed remedies including policies of sustainable development. Human centered, bio-centered, and deep ecological philosophy theories are applied to such questions as the following: “Do people have a right to a livable environment?” “What duties do presently existing people have to future human generations?”
3 cr.

**PH 310 ETHICS IN THE PROFESSIONS**
Prerequisite: Junior 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.
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.
3 cr.

**PH 321 EASTERN RELIGIONS**
Prerequisite: Sophomore 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.
3 cr.
PHYSICS (School of Arts and Sciences)

PHYS 101 PHYSICS OF ENERGY I
This is a study of the principles of mechanics and thermodynamics applied to energy-related topics including transportation, heating, air conditioning, and applications of solar energy. Two class hours, three-hour lab. 3 cr. Laboratory fee $30.

PHYS 102 PHYSICS OF ENERGY II
This is a study of electricity, electronics, and nuclear physics with particular attention to energy supply and demand, sources of electrical power, and nuclear generation of electricity. Two class hours, three-hour lab. 3 cr. Laboratory fee $30.

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 $30.

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 $30.

PHYS 113 GENERAL ASTRONOMY
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. No prior background in the physical sciences is presupposed. Occasional observations are held, weather permitting. The course satisfies the lab science requirement. 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, hydrostatics, and fluid flow. 4 cr.

PHYS 131 ELEMENTS OF MECHANICS I
Corequisite: Enrollment in MATH 131. 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 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. 3 cr.

PHYS 132 ELEMENTS OF MECHANICS II
Prerequisite: Physics 131, MATH 131, 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 $40.

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 $40.

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 page 30. 1-3 cr.

PHYS 390 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 440 UNDERGRADUATE RESEARCH
Prerequisite: Permission of the Department, approval of the dean. See “Undergraduate Research” on page 35. 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.

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 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 204 ORGANIZATIONAL PSYCHOLOGY
Prerequisite: PSY 101. Not open to those who have received credit for MAN 204. This is a study of the behavior of individuals within complex social systems. The focus is upon groups and subgroups and their responses to internal and external stimuli. Concerns of the industrial psychologist (recruitment, selection, training, and incentives) are treated. 3 cr.
PSY 205 PSYCHOLOGY OF GENDER  
(formerly PSY 105)  
Prerequisite: PSY 101. This is an examination of the social, cultural, political, and biological influences on human sex roles, attitudes, stereotypes, and other behaviors. The course also considers the historical significance and validity of gender similarities and differences in the behavior of males and females. 
3 cr.

PSY 207 AN INTRODUCTION TO STATISTICS FOR THE SOCIAL SCIENCES  
Prerequisite: MATH 100 or equivalent. 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, and tests of significance. Credit for both this course and MATH 207 or QM 207 is not permissible. 
3 cr.

PSY 211 DEVELOPMENTAL PSYCHOLOGY  
Prerequisite: PSY 101. This is a study of the behavioral changes from infancy through childhood. 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 212 ADOLESCENT PERSONALITY AND DEVELOPMENT  
Prerequisite: PSY 101. This course explores the adolescent experience through the examination of a variety of theories (Freud, Erikson, Piaget, etc.) that look at physical, emotional, and intellectual development and also the domains of family life, peer relationships, schooling, community, and cross-cultural experience. Students will reflect on their own adolescent experiences and seek to discover ways of relating to contemporary adolescents which will foster growth and positive development. Learning will be assessed by quizzes, tests, and class discussions on theories of adolescent development and by paper assignments where a contemporary adolescent will be interviewed and profiled. 
3 cr.

PSY 290 SPECIAL TOPICS  
Topics in psychology that are not offered on a regular basis are examined. The course may be repeated for credit if the topic varies. 
1-3 cr.

PSY 301 INTRODUCTION TO INTERVIEWING  
Prerequisite: PSY 101 or SO 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 304 EDUCATIONAL PSYCHOLOGY  
Prerequisite: PSY 101. This is a psychological analysis of the educational process with special attention to the nature of learning and to the factors that condition it. Topics examined include mental development, the learning process, and social learning as well as current educational situations. 
3 cr.

PSY 306 ABNORMAL PSYCHOLOGY  
Prerequisite: PSY 101 and sophomore 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 class as they relate to our understanding of normal and abnormal development. 
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 METHODS AND TECHNIQUES OF EXPERIMENTATION  
Prerequisite: PSY 101; PSY 207; or permission of the instructor. This is a study of the methodology of psychological research from the initial conception of a hypothesis to the publication of the results of systematic investigation. Special attention is given to the problems of experimenter bias and ethics. Supervised laboratory exercises are conducted. 
3 cr.

PSY 310 EXPERIMENTAL PSYCHOLOGY  
Prerequisite: PSY 309. This 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. 
3 cr.

PSY 311 CHILD BEHAVIOR MANAGEMENT: THEORY AND PRACTICE  
Prerequisite: PSY 101, 211, or 313, or permission. 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) and children. Topics include how to communicate with a child, authority versus respect, how to reward good behavior, and strategies for dealing with undesirable behavior with the emphasis on time-out procedures. 
3 cr.

PSY 312 PHYSIOLOGICAL PSYCHOLOGY  
Prerequisite: PSY 101; BIO 101 or 103; 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 classical and operant conditioning through human and comparative studies in 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 THE SOCIAL ENVIRONMENT AND HUMAN BEHAVIOR  
Prerequisite: Six credit hours of psychology and/or sociology. This is a social systems approach to the relationships among individuals, groups, families, communities, and organizations. The emphasis is on human diversity and its influence upon the social environment as well as the impact of vari-
ous psychological and environmental factors upon human growth, development, and behavior, and their importance in society.

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 333-334 INDEPENDENT STUDY**
See “Independent Study” on page 30. 1-3 cr.

**PSY 390 SPECIAL TOPICS**
Topics in psychology that are not offered on a regular basis are examined. The course may be repeated for credit if the topic varies.

1-3 cr.

**PSY 413 ANIMAL LEARNING AND BEHAVIOR**
Prerequisite: PSY 101; 313 and junior psychology standing or permission of the instructor. This is an examination of the basic research and theories in animal learning and their applications to human behavior. Inherited behavior and the basic research in classical and operant conditioning are covered. Topics include learning by observation, schedules of reinforcement, stimulus control and conceptual behavior, and biological influences on learning.

3 cr.

**PSY 414 ANIMAL LEARNING LAB**
Prerequisite: PSY 313. The basic principles of operant conditioning are demonstrated using standard operant conditioning equipment with rats. Each student is responsible for one rat and takes it through a series of exercises designed to illustrate basic operant conditioning principles covered in PSY 313: unconditional 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 the principles to the behavior or organisms outside the laboratory are covered.

3 cr.

**PSY 416 INTRODUCTION TO COUNSELING SKILLS**
Prerequisite: Senior standing in psychology or permission of 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 Rogerian nondirective counseling. The emphasis is on the integration of theories, skills, and practice of counseling.

3 cr.

**PSY 418 BEHAVIORAL COUNSELING METHODS**
Prerequisite: Senior standing in psychology or permission of instructor. This is a survey of current, empirically supported methods of behavioral counseling. The emphasis is on helping clients change their behavior. Case materials include examples from a wide range of settings and client characteristics.

3 cr.

**PSY 420 HISTORY OF PSYCHOLOGY**
Prerequisite: PSY 101 and junior psychology standing or permission of the instructor. This is an examination of the history of modern psychology that includes its philosophical and scientific influences, with an emphasis on psychology since the 1800s. Topics covered include such major figures as Darwin, Wundt, Freud, Galton, James, Watson and Skinner, and systems of psychology such as structuralism, functionalism, behaviorism, and psychoanalysis. The course traces philosophical concepts such as rationalism, empiricism, mechanism, dualism, and determinism.

3 cr.

**PSY 421 MODERN THEORIES OF PSYCHOLOGY**
Prerequisite: PSY 420 or permission. This is an examination of the development of modern behaviorism and cognitive psychology as two dominant paradigms in modern psychology. They are compared to each other and to other areas of modern psychology including Psychoanalytic, Humanistic, and Developmental fields. These comparisons examine how each theory defines psychology as a subject matter. Topics include scientific methodology, the role of scientific explanation in psychology, the study of verbal behavior and creativity, Skinner’s writings on behaviorism and cognitivism, and applications of these paradigms to the development of educational, social, and cultural systems.

3 cr.

**PSY 440 UNDERGRADUATE RESEARCH**
Prerequisite: PSY 310, senior standing or permission of the chair. See “Undergraduate Research” page 35. 1-3 cr. Laboratory fee may be required.

**PSY 480 INTERNSHIP IN PSYCHOLOGY**
See “Internships” on page 31. 1-3 cr.

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**QM QUANTITATIVE METHODS (School of Business)**

**QM 201 INTRODUCTION TO BUSINESS STATISTICS**
Prerequisite: CIS 101, 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 is not permissible.

3 cr. Laboratory fee $10.

**QM 302 FORECASTING FOR BUSINESS**
Prerequisite: QM 201; CIS 200 or CIS 201. 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 $10.

**QM 310 QUALITY AND OPERATIONS MANAGEMENT**
Prerequisites: MATH 1xx, MATH 1xy. QM 201, MAN 101, MK 200, AC 202, FN 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 101, 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 $10.
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 is a study of the incidence, distribution, interrelations, and nature of social problems characteristic of highly industrialized urban societies. The focus is on social structure and modern technology as causes of problems and on the role of government and social institutions in their solution.

3 cr.

SO 205 INTRODUCTION TO CULTURAL ANTHROPOLOGY
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 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 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 COMPLEX ORGANIZATIONS
Prerequisite: SO 101. This is a study of complex organizations and their effects upon individuals in industrialized and post-industrialized societies.

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 311 SOCIOLOGY OF MINORITY GROUPS
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 314 AMERICAN CULTURE AND THE BLACK EXPERIENCE
Prerequisite: Six credit hours of psychology and/or sociology. 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 322 SOCIOLOGICAL THEORY AND METHODS
Prerequisite: SO 101, PSY 207. 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 323 SEMINAR IN THEORY AND METHOD
Prerequisite: SO 322. This course is a continuation of the Theory and Methods course. Students conduct their own sociological research project involving research design, literature review, data collection, and analysis.

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, SO 101 or SO 205. 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.

3 cr.

SO 330 SOCIOLOGY OF COMMUNICATION
Prerequisite: PSY 101 or SO 101. This is a study of the theories, research findings, and behavior of small groups. Topics include development, structure, and function; the influence of the group upon the behavior of the individual; and intragroup and intergroup relations.

3 cr.

SO 333-334 INDEPENDENT STUDY IN SOCIOLOGY
See “Independent Study” on page 30.

1-3 cr.

SO 341 OCCUPATIONAL SOCIOLOGY
Prerequisite: SO 101. This is a study of the occupational structure of the United States. Topics include relationships to stratification, ethnic groupings, demography, urbanization, and technology. Emphasis is on the changing requirements of society and the probable outlook for various careers.

3 cr.

SO 343 DOMESTIC VIOLENCE
Prerequisite: PSY 101, SOC 101, CJ 101 or permission of instructor. Domestic violence between adults is studied from an interdisciplinary perspective. The cycle of vio-
lence, 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 343.
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. This is a study of the major social and cultural changes occurring in contemporary societies with major emphasis on the United States. Topics include social trends, planned social change and social invention, technological development as a cause of unplanned social change, the transformation of the workplace in industrial and information societies, and social movements.
3 cr.

SO 413 SOCIAL INEQUALITY AND JUSTICE
Prerequisite: SO 101 and junior standing. This is a consideration of the causes of institutionalized inequality in social life. Topics include theories of social class and the distribution of social powers and privileges. Special attention is given to caste and class in America and their relationship to the development of civil rights.
3 cr.

SPAN SPANISH
(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.
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 centered on probable law enforcement situations.
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.
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.
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.
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.
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.
3 cr.

SPAN 333-334 INDEPENDENT STUDY IN SPANISH
See “Independent Study” on page 30.

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, ethnicity, 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 216 HUMAN BEHAVIOR IN THE SOCIAL ENVIRONMENT
Prerequisite: Six credit hours of psychology, sociology, or social work. This course is a social systems approach to the relations among individuals, families, groups, communities, and organizations. Emphases are human diversity and its influence on the social environment; the impact of the social environment on human growth, development, and behavior; and the relevance of these issues to social work practice.
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, junior standing and permission of Social Work Department chair. This is a study of the theoretical framework of social systems and of intervention. The focus is on generic principles of intervention and the role of the social worker as generalist. The course provides an analysis of professional values, value dilemmas, culturally sensitive social work practice, and ethics in practice.
3 cr.

SW 302 SOCIAL WORK INTERVENTIVE METHODS II
Prerequisite: SW 301 and junior standing. Students learn interviewing skills as they are used in social work practice. The course focuses on micro-level interviews, but students also learn how to apply interviewing skills to diverse populations at micro, mezzo, and macro levels. Students learn use of self, attending, questioning, action, 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 with referrals, interviewing for advocacy, telephone and referral skills, and engaging difficult clients are covered. Students use critical thinking skills to recognize and assess their use of interviewing concepts and their progress as social work interviewers.
3 cr.

SW 303 SOCIAL WORK INTERVENTIVE METHODS III
Prerequisite: SW 301 and junior standing. Students learn the knowledge, values, and skills of macro level social practice with communities and organizations. The course applies the social work problem solving process and social work values and ethics to macro level 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 promoting social justice are covered.
3 cr.

SW 304 SOCIAL WORK INTERVENTIVE METHODS IV
Prerequisite: SW 301, 302, and 303. This is a focus on social work practice with 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, case management, and building programs. 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 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. Through understanding concepts of prevention, intervention, and treatment, along with understanding issues regarding substance abuse policy, students survey the field of substance abuse prevention, diagnosis, and treatment. The course discusses the myths surrounding alcoholism, identifies who is at most risk, and looks at the progression of alcohol use to alcoholism. 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, GO 102, and junior social work 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 policy on human functioning.
3 cr.

SW 314 FIELD INSTRUCTION IN MACRO PRACTICE
This course, taken concurrently with SW 303, Social Work Methods III and SW 313, Social Welfare and Social Policy provides students with the opportunity to experimentally 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 skills in advocacy, community education, empowerment, and policy analysis.
3 cr.

SW 315 THE FAMILY AND SOCIAL WORK PRACTICE
This is an examination of the social worker’s role in working with families including family assessment, support, treatment, and referrals. Students learn family systems theory, how to identify family strengths, the impact of situational and developmental factors on family functioning, stress situations that interfere with the personal and social functions of the family, and the role of the family therapist. Topics include family life, life-styles, strengths, and common problems of troubled families, as well as assessment and treatment methods.
3 cr.

SW 319 SOCIAL WORK AND RESEARCH
Prerequisite: PSY 207 or MATH 207 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 sophisticated consumers of professional research and mass media reporting. The fo-
CUS 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 311. 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, child battering, poverty, ageism, sexual harassment, codependency, and AIDS 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’s physical health. The course gives students a framework for working with women clients. 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 301, SW 302, SW 303, and senior standing in social work. 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 standing in social work. 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. This course and ED 409 may not both be counted toward the minimum 122 credit hours required for the degree. 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: Completion of all Social Work Methods courses, Corequisite: Concurrent registration in SW 409 and 410. This is a seminar emphasizing the integration of academic knowledge with fieldwork education. The focus is on helping students adjust to their new role as a social work intern. 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 setting. Students create research proposals for field-based research projects. 2 cr.

SW 415 SEMINAR IN FIELD INSTRUCTION II
Prerequisite: SW 409, 410, and 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. 1 cr.
GRADUATE PROGRAMS — GENERAL INFORMATION

Requirements for the Degrees
In order to qualify for a master’s degree, a student must:

1. Be formally admitted to the degree program.
2. Complete the required program 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 program must be taken within this eight-year period as well.
3. Apply no more than 12 credit hours of transfer credit toward 600-level courses in any graduate program. Normally, the final courses needed to complete the degree 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.
4. Take at least 24 credit hours of the master’s degree graduate course requirements at the College.
5. Attain a grade point average of 3.0 or higher (in all courses that are applied toward the degree).
6. A student continuously 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 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.
7. 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:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Point Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Superior</td>
<td>A (4.0)</td>
</tr>
<tr>
<td>Above Average</td>
<td>A- (3.7) B+ (3.3)</td>
</tr>
<tr>
<td>Average</td>
<td>B (3.0)</td>
</tr>
<tr>
<td>Below Average</td>
<td>B- (2.7) C+ (2.3)</td>
</tr>
<tr>
<td>Failure</td>
<td>F (0)</td>
</tr>
</tbody>
</table>

Incomplete Work
W (Withdraw)
To withdraw from a course the student must complete a form available from the Office of Student Administration Services or the Office of 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 within two weeks after the midsemester closing of grades. A grade of “W” may also be given up until two weeks prior to the last day of classes provided the student’s work and attendance are satisfactory at the time of withdrawal. A grade of “W” carries no academic penalty or prejudice.

I (Incomplete)
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” becomes “F” for work not completed after 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. Graduate students admitted conditionally must also fulfill the conditions set forth by the appropriate dean at the time of admission. With regard to dismissal, all grades in all courses are considered.

In all cases where a letter of intent to dismiss for academic reasons has been sent, the student has the right to appeal to the Graduate Committee within two weeks of notice. If an appeal is successful and the student is allowed to continue, the conditions of the 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 courses in the Schools of Business and Engineering may be audited on a space-available basis by alumni who have completed bachelors’ or masters’ degrees at Western New England College and who also have the listed prerequisites for the course selected. Courses in the Weekend MBA, the Accelerated MBA, and the School of Law are not available for alumni auditors. The College does not maintain any record or registration or completion of courses by alumni auditors.
Withdrawal from the College

Failure to attend class does not constitute a formal withdrawal and may result in a grade of “F.” If it becomes necessary to withdraw from the College, an official withdrawal form must be completed and filed with Student Administrative Services. Withdrawal forms are available in the Office of Continuing Education, 206 Herman Hall. When personal appearance is prevented by such conditions as severe illness or absence from the area, application for withdrawal may be made by mail. The letter should state the reasons for the withdrawal. The date on which the official withdrawal form is filed with Student Administrative Services is considered to be the date of withdrawal.

Undergraduate Student Registration for Graduate-Level Business Courses

Several regulations, listed below, apply to undergraduate students wishing to register for graduate courses in business:

1. 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.
2. Courses at the 500 level are not open to undergraduates who have completed the corresponding undergraduate course.
3. 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.
4. The student is not considered a matriculating graduate student until officially accepted by the graduate school.
5. Upon acceptance into the graduate program, the student may request transfer of these graduate courses.
6. Undergraduates registering for graduate courses are responsible for submitting all proper forms which are available from the assistant dean, School of Business.

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. The graduate faculty is drawn from a variety of disciplines, from specialists practicing in the business world and from the full-time faculty.

The graduate business programs lead to the following degrees:

A general Master of Business Administration (MBA); an MBA with a concentration in accounting; acquisition and contracting; finance, health care management, human resource management, international business, management information systems, or marketing; Master of Science in Accounting; Master of Science in Criminal Justice Administration; and Master of Science in Information Systems. Also offered is a certificate program for graduate study in management.

The One Year Weekend MBA Program provides the opportunity for students to earn their MBA in one year with all classes taking place on the weekends. Classes are scheduled on Saturdays from 9 a.m. to 1 p.m. and 2 p.m. to 6 p.m. and on Sundays (in the winter and spring semesters) from 9 a.m. to 1 p.m. Students are provided with everything necessary from breakfast and books, to lunches, and a laptop computer.

All students follow the same set of courses leading to a Master’s Degree in Business Administration. Individual interests may be pursued by choice of topics for projects and papers. Success in this program depends on the student’s ability to work intensively outside of class, either in independent study or in small teams.

The Accelerated MBA is a fast-paced program leading to a degree in just 18 months. Each class meets Mondays and Thursdays from 6:15 p.m. to 9:45 p.m. There are 12 courses in the program.

Team-building is an important component of this program. Entering students remain together in all 12 classes. Outside of class, students communicate on-line with each other and also with the instructor. Prospective candidates for the program must have at least a four year undergraduate degree from an accredited college or university and have acquired the necessary academic foundations for unconditional acceptance into the program. Students must also have three years of paid, full-time, professional career experience.

A laptop computer is provided to all students in this program. Students also receive all books, manuals, and software as well as dinner each night of the program.

Master of Business Administration (MBA)

Purpose. The MBA is designed to develop and enhance the skills of those who hold or aspire to hold positions of responsibility within organizations. Students

GRADUATE PROGRAM IN ARTS AND SCIENCES

Master in Public Administration will be offered in the Fall 2000. For more information, contact the Office of Continuing Education.
attain a theoretical understanding and practical grasp of effective business and organization principles in both global and domestic environments.

Student in the MBA program will extend and refine their knowledge of business through study, experiential exercises, and assessment of performance in the areas listed under program objectives.

**Program Objectives:**

**Managerial Skills:** a theoretical understanding and practical grasp of managerial skills, such as organizing, planning, controlling, and resolving conflicts.

**Problem-solving Skills:** the ability to define problems, generate alternative solutions, select techniques, and develop solutions, utilizing critical thinking skills, innovation, and creativity.

**Decision-making Capabilities:** the capacity to weigh the risks and rewards, as well as costs and benefits, involved in making business decisions.

**Quantitative Skills:** the ability to solve problems in the business environment utilizing mathematical and statistical techniques.

**Information Systems:** an understanding of how information and technological systems can assist in the workplace and the ability to utilize the appropriate computer technology.

**Communication Skills:** the ability to present ideas persuasively to others orally; and the ability to write clearly, concisely, and effectively.

**Leadership Skills:** the ability to set direction, influence, and support others in the pursuit of the organization's mission and goals.

**Team-based Competencies:** the skills in team-based performance situations developed through competency in such areas as cooperation, group problem-solving, and consensus building.

**Ethical Analysis:** the evaluation of business decisions involving ethical conflicts between stakeholders and societal values.

**Environmental Analysis:** an understanding of how demographic diversity affects the political, social, and legal business environment.

**Integrative Perspective:** the ability to integrate functional areas in the analysis of organizational issues.

**Structure.** The MBA is composed of three areas: a foundation course, core courses, and concentration courses. In addition to the general MBA, seven concentrations are available: accounting, finance, health care management, human resource management, international business, marketing, or management information systems. Students may earn a second graduate concentration (but not a second MBA degree) by returning following graduation as a non-degree student to fulfill the requirements of the additional concentration. All courses for the second concentration must be completed within eight years of the date of degree conferment.

Students without undergraduate preparation in the following foundation areas must take graduate modules preparing them for the formal MBA curriculum: accounting, math, communication, spreadsheet and presentation software, Internet skills, and economics. Waivers may be granted for previous work or academic experience or by a proficiency test through the Dean's office.

**Foundation requirements:** 11 credit hours (waiver possible, as noted below)

**Core Courses:** 28 credit hours (graduate level courses to be taken by all students who have no previous graduate work)

**Electives:** 9 semester hours (graduate level courses)

**Foundation Requirements:** All students are expected to demonstrate proficiency through academic experience or work in the following five foundation areas:

1. Quantitative Analysis
2. Business Communication
3. Computer Software/Internet Skills
4. Economics
5. Accounting

The Admissions committee will evaluate each applicant’s prior academic record to determine if the student meets all or some of these requirements. Students who meet some of the foundation requirements must achieve proficiency in the remaining areas.

Instruction in each of the first four above-listed foundation areas will be provided via a two-credit module. Students must complete the required foundation module(s) with a grade of B or higher. The foundation area requirement must be completed before taking the core or elective course(s) in the program for which the foundation area is a prerequisite.

Students who have no prior academic preparation, but have documented relevant work experience, may demonstrate proficiency by obtaining a grade of B or better in a waiver examination in the foundation area.

In addition, the MBA program requires one year (two semesters) of accounting with a combined grade point average of B or better, completed within the eight years prior to application. If the candidate for the program has not taken the courses or received the required grades, Western New England College has an accounting course, AC 500: Accounting Perspectives, which will fulfill the requirement. This Course is offered several times during the academic year.

**Core Courses:** Core courses may only be taken following successful completion of the foundation requirements. Nonmatriculated students must obtain permission of the Assistant Dean of the School of Business prior to taking 600 level courses in accounting and finance.

**Concentration/Electives courses:** Elective courses must be chosen in keeping with the students’ interests, professional needs, and the requirements of the program. Electives are chosen from the graduate 600-level courses offered for MBA students. Nonmatriculated students must
obtain permission of the Assistant Dean of the School of Business prior to taking 600 level courses in accounting and finance in order for such courses to count towards the degree. Electives are listed in this catalogue with their course codes. Elective courses may be taken anytime during the program as long as the prerequisite requirements of the course are satisfied. In the general program electives are listed as BUSE 6xx. Any 600 level course offered by the School of Business satisfies this requirement.

**Master of Business Administration (MBA) General Program**

The general program provides students with the opportunity to select electives that meet personal and career goals not addressed by the other concentrations.

**Foundation requirements—11 credit hours**

- BUS 510  Quantitative Analysis
- BUS 520  Business Communication
- BUS 530  Computer Software/Internet Skills
- BUS 540  Economics
- AC 500  Accounting Perspectives

**Cluster A courses—9 credit hours**

- CIS 610  Information Technology Management and Applications
- MAN 600  Team Leadership
- MK 640  Marketing Management

Foundation requirements must be completed before starting the course for which the foundation is a prerequisite. Courses in a cluster may be taken in any order as long as all the prerequisites are met. Floating course BUS 650 can be taken as part of Cluster B or Cluster C. Floating electives may be taken in any of clusters A, B, or C as long as all course prerequisites are met.

**Cluster B courses—12 credit hours**

- MAN 610  Organizational Behavior
- QM 610  Decision Support Models
- AC 630  Accounting for Decision Makers
- FIN 630  Corporate Financial Management

**Cluster C course—3 credit hours**

- BUS 680  Strategic Management

**Floating electives—13 credit hours** (including 9 credit hours of general electives)

- BUS 650  The Changing Social, Political, Ethical, and Legal Environment of Business
- BUSE 6xx  Business Elective
- BUSE 6xx  Business Elective
- BUSE 6xx  Business Elective

**Master of Business Administration (MBA) Concentration in Accounting**

The concentration in accounting provides students the opportunity to study accounting systems from a management point of view.

**Foundation requirements—11 credit hours**

- BUS 510  Quantitative Analysis
- BUS 520  Business Communication
- BUS 530  Computer Software/Internet Skills
- BUS 540  Economics
- AC 500  Accounting Perspectives

**Cluster A courses—9 credit hours**

- CIS 610  Information Technology Management and Applications
- MAN 600  Team Leadership
- MK 640  Marketing Management

Foundation requirements must be completed before starting the course for which the foundation is a prerequisite. Courses in a cluster may be taken in any order as long as all the prerequisites are met. Floating course BUS 650 can be taken as part of Cluster B or Cluster C. Floating electives may be taken in any of clusters A, B, or C as long as all course prerequisites are met.

**Cluster B courses—12 credit hours**

- MAN 610  Organizational Behavior
- QM 610  Decision Support Models
- AC 630  Accounting for Decision Makers
- FIN 630  Corporate Financial Management

**Cluster C course—3 credit hours**

- BUS 680  Strategic Management

**Floating electives—13 credit hours** (including 9 credit hours of general electives)

- BUS 650  The Changing Social, Political, Ethical, and Legal Environment of Business
- AC 602  Financial Accounting II
- AC 6xx  Accounting Elective
- AC 6xx  Accounting Elective

**Master of Business Administration (MBA) Concentration in Acquisition and Contracting**

(Please note: This program is only offered at Western New England College’s off-campus locations. For further information please call 1-800-446-9632 or 781-933-1595.)

In every evaluation of government purchases of major systems, whether for defense or other agencies, the evaluators have felt that the personnel responsible for business relations with industry require greater professionalism, increased sophistication, and more innovative contracting techniques. The increasing technical complexity in
the purchasing field places increased emphasis and demand upon the skill and resourcefulness of acquisition personnel. To provide personnel with the broad understanding of federal policy, business strategy, and system complexities, the program of graduate study in acquisition and contracting has been established. The degree program provides students with an overall understanding of business operations; improves their analytic, decision-making, and communication skills; and enables them to better understand the many economic, social, legal, technical, and political considerations present in the field of federal acquisition.

**Foundation requirements—11 credit hours**

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<th>Course</th>
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<tbody>
<tr>
<td>BUS 510</td>
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<tr>
<td>BUS 520</td>
<td>Business Communication</td>
</tr>
<tr>
<td>BUS 530</td>
<td>Computer Software/Internet Skills</td>
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<tr>
<td>BUS 540</td>
<td>Economics</td>
</tr>
<tr>
<td>AC 500</td>
<td>Accounting Perspectives</td>
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</table>

**Cluster A courses—9 credit hours**

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<tr>
<th>Course</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>CIS 610</td>
<td>Information Technology Management and Applications</td>
</tr>
<tr>
<td>MAN 600</td>
<td>Team Leadership</td>
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<tr>
<td>MK 640</td>
<td>Marketing Management</td>
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</tbody>
</table>

Foundation requirements must be completed before starting the course for which the foundation is a prerequisite. Courses in a cluster may be taken in any order as long as all the prerequisites are met. Floating course BUS 650 can be taken as part of Cluster B or Cluster C. Floating electives may be taken in any of clusters A, B, or C as long as all course prerequisites are met.

**Cluster B courses—12 credit hours**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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<tbody>
<tr>
<td>MAN 610</td>
<td>Organizational Behavior</td>
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<tr>
<td>QM 610</td>
<td>Decision Support Models</td>
</tr>
<tr>
<td>AC 630</td>
<td>Accounting for Decision Makers</td>
</tr>
<tr>
<td>FIN 623</td>
<td>Federal DOD Budgeting</td>
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</table>

**Cluster C course—3 credit hours**

<table>
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<tr>
<th>Course</th>
<th>Title</th>
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<tbody>
<tr>
<td>BUS 680</td>
<td>Strategic Management</td>
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**Floating electives—13 credit hours**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>BUS 650</td>
<td>The Changing Social, Political, Ethical, and Legal Environment of Business</td>
</tr>
<tr>
<td>LS 692</td>
<td>Principles of Government</td>
</tr>
<tr>
<td>LS 6xx</td>
<td>Elective</td>
</tr>
<tr>
<td>MAN 6xx</td>
<td>Elective</td>
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</tbody>
</table>

**Master of Business Administration (MBA) Concentration in Finance**

The concentration in finance provides students with an opportunity to understand the financial theory and practical application of concepts to actual case problems. Also, a study of the investment markets, analysis, and a survey of financial institutions are covered.

**Foundation requirements—11 credit hours**

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<tr>
<th>Course</th>
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<tbody>
<tr>
<td>BUS 510</td>
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<tr>
<td>BUS 520</td>
<td>Business Communication</td>
</tr>
<tr>
<td>BUS 530</td>
<td>Computer Software/Internet Skills</td>
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<tr>
<td>BUS 540</td>
<td>Economics</td>
</tr>
<tr>
<td>AC 500</td>
<td>Accounting Perspectives</td>
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</table>

**Cluster A courses—9 credit hours**

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<tr>
<th>Course</th>
<th>Title</th>
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<tbody>
<tr>
<td>CIS 610</td>
<td>Information Technology Management and Applications</td>
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<tr>
<td>MAN 600</td>
<td>Team Leadership</td>
</tr>
<tr>
<td>MK 640</td>
<td>Marketing Management</td>
</tr>
</tbody>
</table>

Foundation requirements must be completed before starting the course for which the foundation is a prerequisite. Courses in a cluster may be taken in any order as long as all the prerequisites are met. Floating course BUS 650 can be taken as part of Cluster B or Cluster C. Floating electives may be taken in any of clusters A, B, or C as long as all course prerequisites are met.

**Cluster B courses—12 credit hours**

<table>
<thead>
<tr>
<th>Course</th>
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</thead>
<tbody>
<tr>
<td>MAN 610</td>
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<tr>
<td>QM 610</td>
<td>Decision Support Models</td>
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<tr>
<td>AC 630</td>
<td>Accounting for Decision Makers</td>
</tr>
<tr>
<td>FIN 630</td>
<td>Corporate Financial Management</td>
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</tbody>
</table>

**Cluster C course—3 credit hours**

<table>
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<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS 680</td>
<td>Strategic Management</td>
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</tbody>
</table>

**Floating electives—13 credit hours**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS 650</td>
<td>The Changing Social, Political, Ethical, and Legal Environment of Business</td>
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<tr>
<td>FIN 6xx</td>
<td>Business Elective</td>
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<tr>
<td>FIN 6xx</td>
<td>Business Elective</td>
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<tr>
<td>FIN 6xx</td>
<td>Business Elective</td>
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</tbody>
</table>

**Master of Business Administration (MBA) Concentration in Health Care Management**

This concentration is designed for health care professionals or those who wish to be health care professionals. The foundation requirements are the same as in all other MBA degree programs, but some core courses study management issues within a health care setting. Concentration courses cover additional topics in health care. Many courses in this concentration are offered by our faculty on site at area hospitals.

**Foundation requirements—11 credit hours**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUS 510</td>
<td>Quantitative Analysis</td>
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<tr>
<td>BUS 520</td>
<td>Business Communication</td>
</tr>
</tbody>
</table>
Graduate Programs

BUS 530  Computer Software/Internet Skills
BUS 540  Economics
AC 500  Accounting Perspectives

Cluster A courses—9 credit hours
CIS 610  Information Technology Management and Applications
MAN 600  Team Leadership
MK 628  Marketing for Health Care Organizations

Foundation requirements must be completed before starting the course for which the foundation is a prerequisite. Courses in a cluster may be taken in any order as long as all the prerequisites are met. Floating course BUS 650 can be taken as part of Cluster B or Cluster C. Floating electives may be taken in any of clusters A, B, or C as long as all course prerequisites are met.

Cluster B courses—12 credit hours
MAN 610  Organizational Behavior
QM 610  Decision Support Models
AC 630  Accounting for Decision Makers
FIN 630  Corporate Financial Management

Cluster C course—3 credit hours
BUS 680  Strategic Management

Floating electives—13 credit hours (including 9 credit hours of general electives)
BUS 650  The Changing Social, Political, Ethical, and Legal Environment of Business
MAN 660  Health Care Management
MAN 6xx*  Elective
MAN 6xx*  Elective

*These electives must be selected from MAN 621, MAN 630, MAN 640, MAN 641, MAN 642, or MAN 643.

Master of Business Administration (MBA)
Concentration in Human Resource Management

The concentration in human resource management is intended to provide students with the skills and knowledge necessary to work in the human resource environment of a business.

Foundation requirements—11 credit hours
BUS 510  Quantitative Analysis
BUS 520  Business Communication
BUS 530  Computer Software/Internet Skills
BUS 540  Economics
AC 500  Accounting Perspectives

Cluster A courses—9 credit hours
CIS 610  Information Technology Management and Applications

*These courses must be selected from MAN 661, MAN 662, MAN 663, MAN 664, or MAN 665

Master of Business Administration (MBA)
Concentration in International Business

The concentration in international business is intended to provide students with a global business perspective and the skills necessary to operate in the world of international business. Students examine subjects such as management of international operations, international marketing, international finance, and multinational business.

Foundation requirements—11 credit hours
BUS 510  Quantitative Analysis
BUS 520  Business Communication
BUS 530  Computer Software/Internet Skills
BUS 540  Economics
AC 500  Accounting Perspectives

Cluster B courses—12 credit hours
MAN 610  Organizational Behavior
QM 610  Decision Support Models
AC 630  Accounting for Decision Makers
FIN 630  Corporate Financial Management

Cluster C course—3 credit hours
BUS 680  Strategic Management

Floating electives—13 credit hours (including 9 credit hours of general electives)
BUS 650  The Changing Social, Political, Ethical, and Legal Environment of Business
MAN 631  Human Resource Management
MAN 6xx*  Elective
MAN 6xx*  Elective

*These electives must be selected from MAN 621, MAN 630, MAN 640, MAN 641, MAN 642, or MAN 643.
can be taken as part of Cluster B or Cluster C. Floating electives may be taken in any of clusters A, B, or C as long as all course prerequisites are met.

**Cluster B courses—12 credit hours**
- MAN 610 Organizational Behavior
- QM 610 Decision Support Models
- AC 630 Accounting for Decision Makers
- FIN 630 Corporate Financial Management

**Cluster C course—3 credit hours**
- BUS 680 Strategic Management

**Floating electives—13 credit hours (including 9 credit hours of general electives)**
- BUS 650 The Changing Social, Political, Ethical, and Legal Environment of Business
- MK 627 International Marketing
- MAN 633 Management of International Business
- FIN 622 International Finance

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**Master of Business Administration (MBA) Concentration in Management Information Systems**

The concentration in management information systems provides students the opportunity to study systems and information concepts in organizations from a management point of view. Students completing the program have sufficient knowledge to become information analysts—those who work in a user department performing the liaison between their department and a computer department. The concentration in MIS would also be appropriate for any manager who works with or is concerned with information systems in organizations. This concentration is not open to students with an undergraduate major in computer information systems or management information systems.

**Foundation requirements—11 credit hours**
- BUS 510 Quantitative Analysis
- BUS 520 Business Communication
- BUS 530 Computer Software/Internet Skills
- BUS 540 Economics
- AC 500 Accounting Perspectives

**Cluster A courses—9 credit hours**
- CIS 610 Information Technology Management and Applications
- MAN 600 Team Leadership
- MK 640 Marketing Management

Foundation requirements must be completed before starting the course for which the foundation is a prerequisite. Courses in a cluster may be taken in any order as long as all the prerequisites are met. Floating course BUS 650 can be taken as part of Cluster B or Cluster C. Floating electives may be taken in any of clusters A, B, or C as long as all course prerequisites are met.

**Cluster B courses—12 credit hours**
- MAN 610 Organizational Behavior
- QM 610 Decision Support Models
- AC 630 Accounting for Decision Makers
- FIN 630 Corporate Financial Management

**Cluster C course—3 credit hours**
- BUS 680 Strategic Management

**Floating electives—13 credit hours (including 9 credit hours of general electives)**
- BUS 650 The Changing Social, Political, Ethical, and Legal Environment of Business
- CIS 632 Data Management
- CIS 633 Communications, Networking, Internet, and Web Technologies
- CIS 634 Systems Analysis, Modeling, and Design

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**Master of Business Administration (MBA) Concentration in Marketing**

The concentration in marketing is designed for students whose present professional responsibilities or plans for career development require basic understanding and competency in the functional areas of marketing. Students in this concentration benefit from the special emphasis on marketing research methodologies, the development and marketing of new products, physical distribution and channel management, and marketing planning and strategy.

**Foundation requirements—11 credit hours**
- BUS 510 Quantitative Analysis
- BUS 520 Business Communication
- BUS 530 Computer Software/Internet Skills
- BUS 540 Economics
- AC 500 Accounting Perspectives

**Cluster A courses—9 credit hours**
- CIS 610 Information Technology Management and Applications
- MAN 600 Team Leadership
- MK 640 Marketing Management

Foundation requirements must be completed before starting the course for which the foundation is a prerequisite. Courses in a cluster may be taken in any order as long as all the prerequisites are met. Floating course BUS 650 can be taken as part of Cluster B or Cluster C. Floating electives may be taken in any of clusters A, B, or C as long as all course prerequisites are met.

**Cluster B courses—12 credit hours**
- MAN 610 Organizational Behavior
- QM 610 Decision Support Models
Master of Business Administration (MBA)
One Year Weekend MBA Program

The One Year Weekend MBA Program at Western New England College provides the opportunity for students to earn their MBA in one year with all classes taking place on the weekends.

It provides a selected course of advanced studies to meet the needs of individuals who have career experience and insights into the management of organizations. The program also provides for the changing educational needs of the surrounding community and the growing complexity of lifestyles and business commitments. Prospective candidates for the program must have at least a four year undergraduate degree from an accredited college or university and three years of paid, full-time professional career experience.

The tuition for the program covers courses, books, manuals, software, a laptop computer, and meals.

For further information refer to the MBA catalogue which is available through the School of Business.

Accelerated MBA Program

The Accelerated MBA is a fast-paced program leading to a degree in just 18 months. Each class meets Mondays and Thursdays from 6:15 to 9:45 p.m. There are 12 courses in the program.

Team-building is an important component of this program. Entering students remain together in all 12 classes. Outside of class, students communicate on-line with each other and also with the instructor. Prospective candidates for the program must have at least a four year undergraduate degree from an accredited college or university and three years of paid, full-time professional career experience.

A laptop computer will be provided to all students in this program. Students will also receive all books, manuals, and software as well as dinner each night of the program.

Additional MBA Concentration

A student who has completed any Western New England College MBA program may earn an additional MBA concentration, but not a second MBA degree, by completing additional graduate courses in a postgraduate nondegree status. The requirement is usually three or more School of Business 600-level courses, depending upon the concentration selected.

Master of Science in Accounting (MSA)

Purpose. The Master of Science in Accounting degree has been developed to provide students with the opportunity to further their interest in professional accounting with particular emphasis on a specialized career goal. To accomplish this, students have the opportunity to make a selection of electives. The philosophy of this program is to provide students with a challenging academic environment in which to develop a knowledge and understanding of the problems and controversies within a given area of accounting.

Because the computer plays such an important role in all areas of business and society today, the use of the computer and its applications is an important element in all segments of this program.

Quantitative methods and applications are also important tools for the accounting profession today and in the future. For this reason, exposure to quantitative and operations research models is stressed in the Master of Science in Accounting degree. This program is designed for students with any undergraduate major.

Structure. The MSA is composed of three areas: foundation courses, core courses, and elective courses. All students in the MSA program with no prior graduate work must take core courses and electives totaling 30 credit hours. Seven foundation courses are also required, but may be waived depending on previous education. The maximum number of credit hours for a student required to take all courses in the program is 51.

Students with an undergraduate grade point average of “B” or better in each of the following courses: six hours of elementary accounting, six hours of intermediate accounting, three hours of auditing, three hours of taxation, and three hours of advanced accounting are only required to take the core and elective courses totaling 30 credit hours. Core courses may only be taken following successful completion of the appropriate foundation courses or through waivers of the appropriate foundation courses.

Courses are offered mainly in the evening. No thesis is required.

Foundation Courses—21 credit hours

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>AC 500</td>
<td>Accounting Perspectives</td>
</tr>
<tr>
<td>AC 602</td>
<td>Financial Accounting II</td>
</tr>
<tr>
<td>AC 603</td>
<td>Financial Accounting III</td>
</tr>
<tr>
<td>AC 613</td>
<td>Fundamental Concepts of the Tax Structure</td>
</tr>
<tr>
<td>AC 619</td>
<td>Auditing</td>
</tr>
</tbody>
</table>
AC 621  Financial Accounting IV
AC 630  Accounting for Decision Makers

**Core Courses**—12 credit hours
AC 610  Cost-Based Decision-Making
AC 622  Accounting Theory and Contemporary Issues
AC 661  Accounting Seminar
QM 610  Decision Support Models*

* QM 610 has a prerequisite of CIS 610. Students may take CIS 610 as one of their electives or they may demonstrate proficiency in a PC-based spreadsheet program.

**Designated Electives**—9 credit hours
AC 609  CPA Problems
AC 611  Municipal and Fund Accounting
AC 614  Advanced Topics in Taxation
AC 620  Advanced Topics in Auditing
AC 631  Controllership
AC 632  CPA Law Concepts
CIS 648  Computer Auditing, Security, and Control
FIN 630  Corporate Financial Management Applications
AC 690  Special Topics

**Electives**—9 credit hours
Chosen from 600-level courses with the advice and concurrence of an advisor.

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**Master of Science in Criminal Justice Administration**

*(Please note: This program is only offered at Western New England College’s off-campus locations. For further information please call 1-800-446-9632 or 781-933-1595 or, in the Springfield area, 413-782-1249.)*

The educational goal of this program is to provide students seeking a high quality Masters Degree in Criminal Justice Administration with a theoretical understanding and a practical grasp of the dynamics of the culture and community in which law enforcement agencies and correctional facilities perform their vital services. Also, the program provides students with the knowledge and tools necessary to administer and manage those agencies and facilities efficiently and effectively.

**Program Graduates’ Capabilities**

1. Have an understanding and appreciation of the role of law enforcement and corrections in their communities. Have a basic understanding and appreciation of the role of law in the regulation and protection of public and private interests. Understand changes in practice required by recent decisions of federal, state, and municipal courts.
2. Have an understanding and appreciation of the cultural and ethnic diversity within their community to enable their agencies to perform necessary services effectively.
3. Be acquainted with the more commonly accepted theories of the origin of community conflict and the sources of violence.
4. Understand the fabric of federal, state, and local government agency interaction and politics in order to be able to provide the leadership and political acumen to gain access to the resources necessary for the efficient and effective operation of their own departments and agencies. Have an understanding of the importance of public relations.
5. Have a theoretical understanding and practical grasp of the basic principles of public agency administration and personnel management.
6. Have a theoretical understanding and a practical grasp of public agency planning, accounting, budgeting, and finance.
7. Be able to identify, understand, and make efficient and effective use of technologies for law enforcement, data analysis, communications, and routine office work.
8. Have a theoretical and practical understanding of policing strategy and tactics. Understand and be able to apply the various investigatory techniques, and understand the latest scientific methods in forensics, data collection and analysis, and detection.
9. Provide leadership in the development of high professional standards by being able to write clear and effective reports, to make persuasive and interesting presentations, and to provide clear and expert testimony. Understand and practice high standards of ethical conduct.
10. Have an understanding and appreciation of, and the ability to make use of, the substantial literature of policing in both fiction and non-fiction. Recognize moral ambiguity.

**Admissions Standards**

1. An undergraduate degree from an accredited college or university.
2. In-service law enforcement experience required.
3. Up to six credit hours can be waived if the candidate can demonstrate sufficient police and/or FBI academy coursework provided no previous credit has been granted.
4. Up to 12 credit hours from a different master’s level CJ program can be applied toward the satisfaction of the degree requirements.
5. A minimum of 24 credit hours must be completed at Western New England College.
6. Each candidate will be reviewed by the Admissions Committee to determine whether the candidate has the necessary requirements.

**Foundation Courses**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MCJA 501</td>
<td>Management Theory and Concepts for Criminal Justice</td>
</tr>
<tr>
<td>MCJA 502</td>
<td>Law Enforcement in America</td>
</tr>
</tbody>
</table>
Required Core Courses

MCJA 601 Criminal Justice Administration
MCJA 602 Organizational Behavior in Criminal Justice
MCJA 611 Criminal Procedure
MCJA 612 Criminal Law
MCJA 616 Budgeting and Planning in Criminal Justice
MCJA 620 Ethical Issues in Criminal Justice
MCJA 625 Data Base Management in Criminal Justice
MCJA 695 Advanced Community Policing

Electives (select two):

MCJA 609 Constitutional Law
MCJA 610 Report Writing for the Justice Professional
MCJA 613 Security and Loss Prevention for Management
MCJA 614 Police and the Public: Communication Techniques
MCJA 615 Risk Management in Criminal Justice
MCJA 630 Field Research in Criminal Justice
MCJA 640 Management, Unions, and Collective Bargaining in Criminal Justice
MCJA 641 Stress Management in Criminal Justice
MCJA 642 Organizational Development in Criminal Justice

1. An understanding of issues in the management of information systems organizations including:
   - Management of information systems and information technology resources
   - Development and implementation of information systems policies and standards
   - Information systems planning and its relationship to organizational objectives
   - Ethical and social issues in development and use of information technologies

2. Technical competency in core technologies and techniques of management information systems including:
   - Data management and database management systems
   - Systems analysis and design
   - Data communications, networking, and Internet technologies
   - Software development

3. An understanding of the strategic application of information systems in business and the use of information systems technologies for competitive advantage.

Admission Requirements

1. A baccalaureate degree from an accredited college or university.
2. Experience with a Windows-based GUI operating system and with Microsoft Office or comparable productivity software.
3. Experience and/or training equivalent to a 3-credit, undergraduate course in computer programming with a third-generation programming language.

Students who have not met requirement 2 and 3 may be given provisional admission but will not be permitted to matriculate in the program or to enroll in all graduate CIS courses until the requirements are met by completing the appropriate undergraduate courses or their equivalent.

Common Body of Knowledge Requirements

To receive the MSIS degree, students will be required to demonstrate academic competency in each of the following business common body knowledge areas: accounting or finance, economics, and marketing.

Academic competency in a common body of knowledge area may be demonstrated in any of several different ways, subject to the approval of the graduate admissions committee or of the chairperson of the Computer Information Systems department, e.g., completion of an undergraduate or graduate course in the area, completion of the appropriate MBA graduate foundation module, or satisfactory completion of a standard competency examination. Business courses taken in fulfillment of other pro-
gram requirement (as program electives, for example) may be used to demonstrate competency in common body of knowledge areas.

**Curriculum**
The curriculum consists of three parts:

1. A common IS core (one course)
2. A customizable IS core (five courses)
3. Electives (two courses)

As follows:

**IS Common Core Course** — 4 credit hours
- CIS 630 MIS Technology and Management Issues (4 credits)

**IS Customizable Core Courses (any 5 of the following) — 20 credit hours**
- CIS 632 Data Management
- CIS 633 Communications, Networking, Internet, and Web Technologies
- CIS 634 Systems Analysis, Modeling, and Design
- CIS 635 Issues in Software Development
- CIS 636 Management of MIS
- CIS 637 Information Technology Integration and Infrastructure

**Electives (two 3 or 4-credit graduate IS or Business electives) — 6-8 credit hours**

*CIS 630 must be completed in the first 16 hours of the MSIS program.

All IS core courses are four credits and IS electives are three credits. Thus, the minimum number of credit hours for the degree is 30.

**Course Waivers, Transfer Credits, and Substitutions**
In some cases, a student may possess a high degree of competence in the subject matter of a core course; however, it is unlikely that a student will be competent in all areas covered by a four credit course or that the course would be of no value at all to the student. Accordingly, the graduate admission committee may waive up to three credit hours of a four-credit core course requirement if warranted by the student's prior academic preparation and experience or to transfer or substitute credit for another comparable graduate course. In that event, the student will be required to complete a one-hour independent study covering the additional material for the course.

If a core requirement is waived, the student will be required to take an additional three credit graduate elective.

**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. It is 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. A completed application will include official transcripts sent directly from all institutions of higher education attended.

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 average of at least 2.5, or permission of the assistant dean of the School of Business.

Further information on specific program options and academic standards is available from the Office of Continuing Education.

Courses may be taken in any order as long as prerequisites are met. A suggested program of study is:
- MAN 610
- MAN 631
- MAN 630 or MAN 621*
- MAN 651
- MAN 6xx
- MAN 6xx

*The other course may be taken as an elective.

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**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 course work alone, students with research interests or the intention of further graduate work may undertake a thesis project.

**Master's Advisor.** The progress of each student toward the M.S. degree is guided and directed by a master's advisor, who is a 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 or better average) for completion in either a thesis or a non-thesis option. A minimum of five courses must be at the 600 level. Courses are offered in the evening.

**Thesis Option—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 12 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 distribution of course credits is:

<table>
<thead>
<tr>
<th>Course Type</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering Core Courses</td>
<td>12</td>
</tr>
<tr>
<td>Engineering Concentration Electives</td>
<td>9</td>
</tr>
<tr>
<td>Electives</td>
<td>3</td>
</tr>
<tr>
<td>Thesis</td>
<td>6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>30</strong></td>
</tr>
</tbody>
</table>

**Non-thesis Option — 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 12 hours of course work maintaining a "B" average or better. A final comprehensive examination is required which covers all course work completed by the student for the degree. In the MSEM program, EMGT 680 replaces the comprehensive examination. The course distribution is:

<table>
<thead>
<tr>
<th>Course Type</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering Core Courses</td>
<td>12</td>
</tr>
<tr>
<td>Engineering Concentration Electives</td>
<td>9</td>
</tr>
<tr>
<td>Electives</td>
<td>9</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>30</strong></td>
</tr>
</tbody>
</table>

**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 students’ understanding and problem-solving abilities. Concentrations are offered in either computer or electrical engineering in addition to core courses that focus on mathematical analysis, signal and system theory, microcomputers, software engineering, and solid-state electronic devices.

**Course Requirements.** In addition to the required core courses, the student must elect one of the concentration areas listed below. Elective courses and thesis topics are selected in consultation with the master’s candidate advisor.

**Core Courses.** Core courses for the electrical engineering program are as follows:

- EE 525 Linear Systems Theory
- MATH 501 Engineering Analysis II

and two courses chosen from:

- CPE 525 Software Engineering
- CPE 560 Microcomputer Hardware Design
- EE 511 Random Signals and Noise
- EE 567 Solid-State Electronic Devices
- EE 580 Signal Processing

**Computer Concentration.** Students electing the computer concentration select a minimum of three courses from the following:

- CPE 545 Computer Graphics Software
- CPE 550 Topics in Compiler Design Theory
- CPE 620 Advanced Computer Architecture
- CPE 655 Computer Network Architecture
- CPE 660 Microprocessor Software Design
- CPE 680 Distributed Processing

**Electrical Concentration.** Students electing the electrical concentration select a minimum of three courses from the following:

- EE 535 Fuzzy Logic
- EE 545 Neural Networks
- EE 570 Computer Controlled Systems
- EE 611 Digital Communication Systems
- EE 614 Advanced Electromagnetics
- EE 625 Stochastic Processes
- EE 650 Advanced Digital Signal Processing
- EE 667 Advanced Electrical Materials
- EE 670 Optimal Control Systems

**Approved Electives.** Students in the electrical engineering program may select elective 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, statistical methods for quality assurance, and the economic aspects of engineering decisions. Near completion of the program, a project course (EMGT 680) finishes the core requirements.
Core Courses
EMGT 605  Engineering Management
EMGT 609  Engineering Economy
EMGT 615  Statistical Quality Control
EMGT 680  Engineering Management Project

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  Manufacturing Engineering
EMGT 637  Ergonomics
EMGT 640  Energy Management
EMGT 643  Design of Experiments
EMGT 647  Facility Planning
IE 515  Design for Manufacture
ME 543  Introduction to Computer-Aided Manufacturing
ME 640  Flexible Manufacturing Systems
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 Computer Systems and Tools for Business and a minimum of two of the following courses)
EMGT 624  Engineering Management Information Systems
EMGT 626  Computer Simulation of Operating Systems
EMGT 648  Project Management
— or —
CIS 640  Systems Design and Project Management
ME 542  Computer-Aided Engineering
ME 543  Introduction to Computer-Aided Manufacturing
ME 645  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 625  Database Management
CIS 671  Management Support Systems
CIS 675  Database Systems
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)
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. Modern materials testing and fluid flow facilities are available for research studies.

Course Requirements. In addition to four required core courses, students must take concentration courses as specified below.

Core Courses
EMGT 609  Engineering Economy
— or —
EE 525  Linear Systems Theory
MATH 501  Engineering Analysis II
ME 542  Computer Aided Engineering
— or —
ME 544  Computer Applications in Mechanical Engineering
ME 610  Measurement Systems

Mechanical Engineering Concentration Courses
(Select a minimum of three courses)
ME 620  Computational Methods in Vibrations and Structural Analysis
ME 630  Computational Methods in Heat Transfer and Fluid Mechanics
ME 635  Design of Thermodynamic Systems
ME 640  Flexible Manufacturing Systems
ME 646  Applied Finite Element Analysis
ME 654  Computer Control of Manufacturing

Mechanical Engineering Approved Electives
Any graduate-level course approved by the master candidate’s advisor.
Western New England College has a long tradition of providing continuing education for students who need 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 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.

Temporary non-degree study is also available for qualified undergraduate and graduate part-time students who need to take required courses prior to formal admission or who wish to explore new subject areas before entering a degree program. Non-degree students may also apply for the certificate programs, which are described in greater detail below.

### Graduate Non-degree Options

#### Certificate Program

**Graduate Study in Management**

Western New England College makes this Certificate Program available to those who do not wish a degree, but who want specialized training that goes beyond a few courses. The program is intended for college graduates in any major who wish to enhance their career prospects by studying management theory and applications at the graduate level. Flexible curriculum options make this program appropriate both for business students and for those with no previous business courses or experience. A detailed description can be found on p. 183. Further information on admission and program options may be obtained from the School of Business or the Office of Continuing Education.

### Graduate Non-degree Courses

The temporary non-degree status is intended for those who wish to explore graduate study before being admitted to a degree program and for visiting graduate students from other institutions. Permission to register may be granted to qualified students up to a total of four courses (12 credit hours), taken part-time. Registration may require that the applicant submit college or university transcripts for review by an advisor. In all cases, published course prerequisites must be met. Any final grade below B (3.0) in a graduate course and/or rejection of a graduate admission application will result in suspension of further registration privileges until the student has been formally admitted. Advising and registration of non-degree graduate students takes place in the Office of Continuing Education.

### Additional MBA Concentration

A student who has completed any Western New England College MBA program may earn an additional MBA concentration, but not a second MBA degree, by completing additional graduate courses in a postgraduate nondegree status. The requirements are three or more School of Business 600-level courses depending upon the concentration selected.

#### SCHOOL OF LAW

**Dean Donald J. Dunn**

**Associate Dean Arthur Leavens**

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. In recent Princeton Review/National Jurist surveys, the School of Law was ranked third in the nation for student satisfaction, and ranked 27th in the best law school for women.

The School of Law has more than 6,000 alumni who live and practice in 46 states and several U.S. territories.

For admissions information, contact the School of Law at 413-782-1406 or 800-782-6665 or on the web at www.law.wnec.edu.
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 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 foundation courses. Courses numbered 600 and above are open only to graduate students who have successfully completed the related 500-level foundation courses or received waivers. Only 600-level courses may be used as electives in the graduate business programs.

GRADUATE COURSES IN BUSINESS:

ACCOUNTING

AC 500 ACCOUNTING PERSPECTIVES
This course is an introduction to accounting as an information system by which financial information is communicated and integrated into user's decision-making process. Emphasis is placed on the analysis and interpretation of financial statements, application of accounting principles, concepts of cash flow, and use of internal controls. 3 cr.

AC 602 FINANCIAL ACCOUNTING II
Prerequisite: AC 500. This course is designed to develop the power of analysis in using accounting data. The emphasis is on theory and the application of theory in problem-solving. After a brief review of the basic accounting cycle, the emphasis is on in-depth considerations of balance sheet accounts, cash and temporary investments, receivables, inventories, current liabilities, investments, and plant equipment. Knowledge of spreadsheets required. 3 cr.

AC 603 FINANCIAL ACCOUNTING III
Prerequisite: AC 602. This is a continuation of AC 602. The emphasis is on the theory of analyzing balance sheet accounts and the use and interpretation of financial data. Areas covered are intangibles, long-term liabilities, stockholders' equity section of the balance sheet, statements from incomplete records, errors and their correction, use of analysis of financial statements, funds flow, and price level changes. 3 cr.

AC 605 MANAGERIAL ACCOUNTING FOR HEALTH CARE SYSTEMS
Prerequisite: AC 500. This course is a study of the generally accepted accounting principles and procedures of not-for-profit accounting with special reference to health care delivery systems. Emphasis is on the budget, control, and financial reporting of governmental regulations. Topics include modeling, planning, control analysis of costs, and cost-volume-profit relationships. Not open to students who have taken AC 630. 3 cr.

AC 610 COST-BASED DECISION-MAKING
Prerequisite: AC 630 and QM 610. This course is an advanced study of managerial accounting. Subjects include cost allocation, capital budgeting and evaluation, alternative costs, direct costing, and models for planning and control. The emphasis is on planning, control, use of costing information, and use of quantitative methods in accounting applications. Recent CPA and CMA examination questions are used. 3 cr.

AC 611 MUNICIPAL AND FUND ACCOUNTING
Prerequisite: AC 500. This course examines accounting concepts for non-profit organizations. Areas covered include governmental and municipal organizations, educational institutions, hospitals, and social organizations. 3 cr.

AC 613 FUNDAMENTAL CONCEPTS OF THE TAX STRUCTURE
Prerequisite: AC 500. This is a comprehensive explanation of the federal and state tax structure. The emphasis is on practice in applying tax principles to specific problems related to individuals, corporations, and partnerships. 3 cr.

AC 614 ADVANCED TOPICS IN TAXATION
Prerequisite: AC 613. This course examines advanced issues of taxation. Topics include corporate tax planning; partnerships; combinations, reorganizations, and liquidations; employee benefit plans; and tax planning for trusts, estates, and gifts. 3 cr.

AC 619 AUDITING
Prerequisite: AC 603. This course explores the auditing procedures and techniques used in public accounting. Emphasis is on the preparation of audit working papers. 3 cr.

AC 620 ADVANCED TOPICS IN AUDITING
Prerequisite: AC 619. This course examines the statements on auditing standards issued by the AICPA. Also considered are the effect of standards on audit reports, current issues in auditing, audit CPA examinations. 3 cr.

AC 621 FINANCIAL ACCOUNTING IV
Prerequisite: AC 603. This course examines advanced accounting theory and practice in specialized areas. Topics include partnerships, business combinations and consolidations, and accounting for international operations. Problems from the AICPAs uniform examinations for certified public accountants are used extensively. 3 cr.

AC 622 ACCOUNTING THEORY AND CONTEMPORARY ISSUES
Prerequisite: AC 603. 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. 3 cr.

AC 630 ACCOUNTING FOR DECISION MAKERS
Prerequisite: AC 500, CIS 610. This course 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. Topics include standard costs, cost-volume-profit analysis, budgeting, relevant costs for decision-making, activity-based cost/management, transfer pricing, and performance measurement in decentralized organizations. Quantitative tools, such as regression are utilized for analysis. Familiarity with a spreadsheet program is expected. 3 cr.
AC 631 CONTROLLERSHIP
Prerequisite: AC 630. This course studies the collection, analysis, and presentation of information used by executives in corporate planning and decision-making.
3 cr.

AC 632 CPA LAW CONCEPTS
Prerequisite: AC 603. This course considers the SEC regulations and requirements applicable to accounting and the preparation of financial statements for organizations subject to SEC regulation.
3 cr.

AC 652 INTERNAL AND OPERATIONAL AUDITING
Prerequisite: AC 500. This course examines auditing concepts applied to the internal structure of an organization. The emphasis is on the evaluation of an organization’s effectiveness in meeting management goals and objectives. Publications of the Institute of Internal Auditors are used.
3 cr.

AC 661 ACCOUNTING SEMINAR
Prerequisite: 15 hours of accounting credit at either the foundation or core level. This course involves individual and/or group research in current accounting practice problems, auditing, theory, and practical applications. Normally taken at the end of the program.
3 cr.

BUSINESS

BUS 510 QUANTITATIVE ANALYSIS
This module provides an analysis of the fundamentals of algebra and introductory statistics, with emphasis on applications to business and economics. Topics include applications of linear equations, basic functions, fundamental probability concepts, and descriptive statistics.
2 cr.

BUS 520 BUSINESS COMMUNICATION
This module further develops student skills in writing and presenting for business. Students must show proficiency both in writing and in oral presentation before being certified for credit. Use of a word processing program is recommended. A well-organized, grammatically correct position paper of at least 1000 words on some aspect of business is a final course requirement. A proficient 5 minute oral presentation is also required.
2 cr.

BUS 530 COMPUTER SOFTWARE/INTERNET SKILLS
This module provides instruction in spreadsheet and presentation software as well as basic techniques of web and e-mail navigation, data bank searching, and elementary website construction.
2 cr.

BUS 540 ECONOMICS
This module studies how resources are allocated in western nations. Half the module will investigate how markets set prices, determine production levels, and affect social welfare. The other half will focus on aggregate phenomena including interest rates, employment levels, and national output levels. The role of government in economic resource allocation will be considered throughout.
2 cr.

BUS 650 THE CHANGING SOCIAL, POLITICAL, ETHICAL AND LEGAL ENVIRONMENT OF BUSINESS
Prerequisite: BUS 540 or equivalent. 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
Prerequisites: AC 630, BUS 650, CIS 610, FIN 630, MAN 610, MK 640, QM 610. This capstone course integrates the functional areas of an organization in the analysis of complex business situations. Emphasis is on the external and internal environments as well as the supportive strategies and policies necessary to achieve success for the enterprise.
3 cr.

COMPUTER INFORMATION SYSTEMS

CIS 610 INFORMATION TECHNOLOGY MANAGEMENT AND APPLICATIONS
Prerequisite: BUS 510 or equivalent, BUS 530 or equivalent. 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. The 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 630 MIS TECHNOLOGY AND MANAGEMENT ISSUES
Intended to be of value both to technical MIS professionals and to non-technical management and business professionals, this course will provide a basic introduction to information technology and the major components of information technology infrastructure, the nature and role of information technology in the organization and issues and concerns in management of MIS and in the integration of MIS with the organization (from both a business and political perspective), and the role of IS and IT in providing a basis for gaining competitive advantage. The course will include coverage of social and ethical issues affecting the selection and design of information systems in support of organizational objectives. Technical topics are introduced primarily through readings, team assignments, individual presentations and leading class discussions on cases and readings, team project papers, and a team presentation.
4 cr.

CIS 632 DATA MANAGEMENT
This course explores the world of data in business: its generation, storage, retrieval, manipulation and transformation into information. To do so, the following topics will be covered: storage models, modeling of derived data, data relationships, design of databases (focusing on normalization), data definition and input, data manipulation (focusing on SQL), and information generated by a DBMS. The relational database management system model will be emphasized.
4 cr.

CIS 633 COMMUNICATIONS, NETWORKING, INTERNET, AND WEB TECHNOLOGIES
This course investigates managerial aspects as well as software and hardware architectures of communications systems. It focuses on the relationship of communications technologies to the whole organization and its environment. It examines different communication and networking technologies and systems, including the Internet and Web systems. Topics include the relationships of communications technology with information systems, the regulatory environment, the impact of communications technologies on people and organizations, Internet/Intranet/Extranet systems, and website engineering and management.
4 cr.

CIS 634 SYSTEMS ANALYSIS, MODELLING, AND DESIGN
This course is an introduction to the tools and techniques of system analysis and design and project management within the general framework of the Systems Development Life Cycle. Examples of topics to be 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 include
project management considerations and project scheduling tools and techniques such as Gantt charts and PERT/CPM networks. The course will also consider organizational and behavioral factors to be considered in system design.

CIS 635 ISSUES IN SOFTWARE DEVELOPMENT
Prerequisites: Working knowledge of programming in a 3rd or 4th Generation Language. This course includes an examination of current ideas and trends in the software development technology. Major strengths and weaknesses of different application development systems and tools are analyzed and discussed. Students develop computer applications for typical business and management functions with the emphasis on programming database and Web applications. Popular application development tools are utilized and examined.

CIS 636 MANAGEMENT OF MIS
This course introduces the student to the ongoing operations of Management Information Systems, but does not address their creation. Key topics include development of an information architecture, making effective use of data as an operational and strategic asset, Information Technology planning; addressing the unique features of IT personnel, building a responsive IT infrastructure, and using IS for competitive advantage. Students will be expected to be familiar with, or willing to become familiar with, these issues with past and present employers.

CIS 637 INFORMATION TECHNOLOGY INTEGRATION AND INFRASTRUCTURE
This course is an introduction to systems integration (or applying multiple information systems techniques, technologies, platforms, and systems) to integrate the enterprise and work-group processes and functions through development of a cohesive set of business processes and the development, selection, and coordination of inter-connected functional applications to meet current and anticipated organizational needs. The course considers the development and maintenance of an integrated architecture to serve intra- and inter-organizational needs in a rapidly changing, competitive social and technological environment. Topics include interoperability, standards, vendor strategies, enterprise-wide architectural and data models, technology directions, Enterprise Resource Planning (ERP) systems, and collaborative work systems (groupware).

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. Offered fall semester of odd-numbered years. Students with an undergraduate CIS major cannot receive graduate credit for this course.

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.

CIS 680 SYSTEMS PROJECT
Prerequisite: 15 credits of CIS courses. This course provides students with a formal opportunity to design and develop a practical computer-based application incorporating features and techniques studied earlier in various required courses in the MSIS program. Team projects are developed using modern tools.

FINANCE

FIN 611 MONEY, BANKING, AND MONETARY THEORY
Prerequisite: BUS 640. This course examines the organizations, functions, and problems of modern financial institutions including commercial banks, thrifts, and credit unions. The emphasis is on monetary theory and current monetary policy as they affect credit markets and the international economy.

FIN 613 FINANCIAL ASPECTS OF HEALTH CARE DELIVERY SYSTEMS
Prerequisite: AC 500 and QM 610. This course is a study of the financial management principles and techniques of health care delivery systems. Topics include cost control, budgeting, planning and reporting processes, sources of operating revenues and the impact of regulations governing third-party reimbursement.

FIN 617 INVESTMENT THEORY
Prerequisite: FIN 630. This course introduces investments and fundamental and technical analysis. Topics include an overview of markets and corporate securities including stocks, bonds, options, futures, and commodities.

FIN 618 SECURITY ANALYSIS AND PORTFOLIO MANAGEMENT
Prerequisite: BUS 640 and FIN 617. This course examines both fundamental and technical analysis of securities. Topics include methodology for analyzing financial reports, valuing securities, selecting investments, and managing a portfolio.

FIN 622 INTERNATIONAL FINANCE AND MULTINATIONAL BUSINESS
Prerequisite: FIN 630 and BUS 640. This course studies business operations in a multinational environment. The course addresses the international monetary environment and financing foreign investments and operations.

FIN 623 THE FEDERAL DOD BUDGET
The course covers the federal budget cycle using Department of Defense procedures as the model. The complete Department of Defense planning and budget cycle is examined beginning with the development of the five-year Defense Plan and continuing through the submission of the annual budget to Congress and ending with the final enactment of the budget by Congress. Congressional procedures are examined as well as pertinent rules and restrictions for budget execution. This course is normally offered only in the Off-campus program.

FIN 630 CORPORATE FINANCIAL MANAGEMENT APPLICATIONS
Prerequisite: CIS 610 and AC 630. This course studies techniques of raising and investing funds. It examines how corporations benefit society by raising funds in the financial markets and employing them in productive activity. All aspects of resource allocation including working capital management, capital budgeting, operating control, financial structure, and capital risk management are considered. Knowledge of a spreadsheet required.

FIN 650 ADVANCED FINANCIAL MANAGEMENT
Prerequisite: FIN 630, QM 610 and AC 630. 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.
LEGAL STUDIES

LS 654 ENVIRONMENTAL CONSIDERATION IN SYSTEMS ACQUISITION
This interdisciplinary course examines the systems manager's concern for environmen-
tal issues from economic, technical, administrative, and legal viewpoints. The statutory authority, practices, effectiveness and implications for management of various federal and local organizations such as EPA, ERDA, NRC, and OSHA are explored. The cost, schedule, and productivity implications of environmental protection are studied in the context of systems manage-
ment. This course is normally offered only in the Off-campus program.
3 cr.

LS 692 PRINCIPLES OF GOVERNMENT CONTRACTING
This is an overview of federal acquisition and contracting policies, law, and tech-
niques. It examines the law of contracts, authority to purchase for the government, methods of placing contracts, and types of contracts. Emphasis is upon requirements to be met prior to award, problems associated therewith, and methods for resolving such problems. This course is normally offered only in the Off-campus program.
3 cr.

LS 693 THE ADMINISTRATION OF GOVERNMENT CONTRACTS
Prerequisites: LS 692 or the equivalent. This is a study of the procedures and rules applicable to the resolution of contract claims and disputes, the role of the administrative contracting officer, surveillance methods, subcontracts, authority of government agents, rules of contract interpretation, defective performance, excusable delay, changes, contract clauses, inspection, acceptance, termination, and payment. This course is normally offered only in the Off-campus program.
3 cr.

MANAGEMENT

MAN 600 TEAM LEADERSHIP
Prerequisite: BUS 520 or equivalent. This course focuses on the development of leadership and team-related competencies. Reading and research in the areas of leadership and teams are reviewed and discussed. Students practice skills in team leadership including providing direction and support, leadership communications, conflict management, providing performance feedback, and meeting management.
3 cr.

MAN 601 PRINCIPLES AND FUNCTIONS OF MANAGEMENT
Planning, leadership, organizing, and resource allocation strategies are discussed in this course. Emphasis is placed on the role of quality and continuous improvement from the perspective of the manager in pursuit of the goal attainment of the organization.
3 cr.

MAN 610 ORGANIZATIONAL THEORY AND BEHAVIOR
This course analyzes the structural and behavioral aspects of organizations. Macro issues covered are organizational life cycle, organizational communication, cross-cultural management, organization culture, and planned change. Micro issues studied include group dynamics, management ethics, power, motivation, and decision-making processes. Cases, experiential exercises, and a team project help connect theory and practice.
3 cr.

MAN 621 LAW AND THE BUSINESS ENTITY
This course surveys the law as it applies to business. Topics include the legal system, “white collar” crime, employment law, the business entity, property, and the protection of ideas and processes.
3 cr.

MAN 627 SMALL BUSINESS MANAGEMENT
This course integrates students’ previous graduate study into a concentration on small business. The emphasis is on the unit as a whole from feasibility and creation to operation. The course draws on the practical experience of the S.B.A.’s consulting program, guest speakers, lectures, and selective research.
3 cr.

MAN 630 A HUMANISTIC APPROACH TO LEADERSHIP AND MANAGEMENT
This course studies fiction, biography, drama, and film as primary sources to arrive at a better understanding of how effective leadership and management occur. Management theory readings on leadership serve as background in building managerial initiative, planning, and risk-taking skills. Students work to develop a coherent personal leadership style.
3 cr.

MAN 631 HUMAN RESOURCE MANAGEMENT
This course considers the management of human resources in an enterprise. Emphasis is on translating the theories of behavioral science into policy and action in selecting, training, and motivating members of the organization as well as in structuring their work roles in a context cognizant of the legal environment.
3 cr.

MAN 633 MANAGEMENT OF INTERNATIONAL BUSINESS
This course is a study of management approaches used by multinational corpora-
tions in their foreign operations. Topics include the foreign investment decision, market analysis, relations with host governments, intercultural communications, relations with labor and labor unions, organization of the firm, planning, and control.
3 cr.

MAN 640 MANAGEMENT, UNIONS, AND CONFLICT RESOLUTION
This course examines labor forces and labor markets. Topics include management problems, opportunities, and policy alternatives in personnel management; the development and nature of union organiza-
tions; the collective bargaining process; alternative dispute resolution (ADR); and other conflict resolution strategies.
3 cr.

MAN 641 STRESS MANAGEMENT
This course involves the identification and appraisal of stress and tension in the corporate setting. Topics include planning and implementing proven programs, techniques, and strategies to reduce stress at work.
3 cr.

MAN 642 ORGANIZATIONAL DEVELOPMENT AND CHANGE STRATEGIES
This course studies behavior science principles and practices applied to organizations. The focus is on organizational culture, its human and social processes, and the role of planned system-
atic change.
3 cr.

MAN 643 CAREER DEVELOPMENT
This course examines the concepts, tools, and approaches to managing the careers of others. Also included is an examination of various psychological instruments used for collecting and assessing data about individuals and organizations.
3 cr.

MAN 648 OPERATIONS MANAGEMENT
Prerequisite: QM 610. This course examines the operations function in an enterprise. Topics include problems; analytical techniques; recent developments; various behavioral, economic, mathematical, and technical aspects of the field; and relationships and interactions between operations and other functions of the firm.
3 cr.

MAN 650 COMMUNICATION IN BUSINESS
This course explores communication from the perspective of the manager. Topics include formal and informal channels of communication; structure and content of messages; theories and models of communi-
cation; and identifying a personal style of oral, written, and nonverbal communi-

MAN 651 ETHICS IN BUSINESS
This course examines and reflects upon the inevitable moral dilemmas and ethical responsibilities facing business
MAN 660 HEALTH CARE MANAGEMENT
This course is an in-depth survey of the functional organization and structure of the American health system. Topics include organizational structure, institutional interrelationships, and the managerial process at several levels within various health service institutions.
3 cr.

MAN 661 LEGAL ASPECTS OF HEALTH CARE MANAGEMENT
This course studies the laws and regulations controlling health care. Topics include consumer protection, malpractice and licensure, and the rights, responsibilities, and liabilities of individual providers, consumers, and institutions.
3 cr.

MAN 662 ETHICS AND THE HEALTH CARE PROFESSION
This course explores basic concepts in ethics and their relation to the health care professional. Topics include confidentiality, consent, patient rights, professional responsibilities, cost, and dilemmas such as euthanasia, abortion, and sterilization.
3 cr.

MAN 663 CURRENT ISSUES IN HEALTH CARE MANAGEMENT
This course explores current concepts and issues in the health care field. Topics may include competition, the medical marketplace, strategic planning issues such as corporate reorganization and organizational diversification, social/medical care issues such as the care of the elderly and poor, the role of government in health care, and the concept of wellness and its impact on health care organization and delivery.
3 cr.

MAN 664 COMMUNITY HEALTH ADMINISTRATION
This course studies major health organizations and their problems. Topics include social and political influences on community health agencies, models of planning, and health care delivery.
3 cr.

MAN 665 INTERNAL SYSTEMS OF HEALTH CARE MANAGEMENT
This course examines the internal organizational structure of modern health care facilities. Topics include payment modes, facility requirements, personnel policies, labor relations, community relations, professionalism, and the interrelationship of health personnel and support elements.
3 cr.

MAN 669 MATERIALS HANDLING MANAGEMENT
This is a study of the various subsystems of the physical distribution with special emphasis on industrial and military packaging, material handling, and transportation. The various elements that affect physical distribution, i.e., cost, information control, documentation, and shipping hazardous and sensitive materials are analyzed from a management point of view.
3 cr.

MAN 696 DOD REQUEST FOR PROPOSAL (RFP) PREPARATION
Prerequisite: LS 692 or the equivalent. The course covers the preparation and coordination of, as well as the interrelationships among, the major documents associated with the preparation of a DOD RFP. Source selection planning and conduct are also covered. A typical system acquisition is traced from the issue of the Program Management Directive through Contract Award. This course is normally offered only in the Off-campus program.
3 cr.

MAN 697 MANAGEMENT OF MAJOR SYSTEMS ACQUISITION
Prerequisite: LS 692 or the equivalent. This is a seminar in policies and regulations relating to the management of major acquisition systems. The roles of the executive, legislative, and judicial branches of the government; the defense industry; and the program manager are analyzed in relation to their impact on the systems acquisition process. This course is normally offered only in the Off-campus program.
3 cr.

MAN 698 ACQUISITION SUPPORT FUNCTIONS
Prerequisite: LS 692 or the equivalent. The course examines major systems functions in support of systems and equipment acquisition. It relates their planning and execution to the overall responsibilities of the program manager, the principal contracting officer, and the other related system program office disciplines within the acquisition cycle. This course is normally offered only in the Off-campus program.
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 628 MARKETING FOR HEALTH CARE ORGANIZATIONS
This course’s major emphasis is on application of marketing in the healthcare field, addressing some of the unique problems/opportunities. The use of problem solving techniques and decision tools currently utilized by marketing managers in making decisions are examined. Involvement of significant interdisciplinary approaches that clarify and heighten reality are stressed.
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 CONTEMPORARY MARKETING FOR MANAGERS
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.

CRIMINAL JUSTICE ADMINISTRATION

MCJA 501 MANAGEMENT THEORY AND CONCEPTS FOR CRIMINAL JUSTICE
This course provides a fundamental examination of the role of management in criminal justice and law enforcement organizations. Management theories and concepts are discussed and applied through case analysis. 3 cr.

MCJA 502 LAW ENFORCEMENT TO AMERICA
This course begins with a study of the history of law enforcement in America, and extends to the role of law enforcement in present day America. Concepts of patrol, community policing, peacekeeping, police corruption, police discretion, and police organizations are studied as well as the role of corrections. This course is normally offered only in the Off-campus program. 3 cr.

MCJA 601 CRIMINAL JUSTICE ADMINISTRATION
This course covers criminal justice organizations, their processes, power, and organization conflicts. Problems of communication, motivation, job design, leadership, and group behavior are studied as well as steps in decision-making, organizational effectiveness, and change and innovation. This course is normally offered only in the Off-campus program. 3 cr.

MCJA 602 ORGANIZATIONAL BEHAVIOR IN CRIMINAL JUSTICE
This course provides an examination of the behavioral aspects of criminal justice organizations. Emphasis is placed on research findings and the applications of behavioral science to CJ organizations. Topics include leadership, group dynamics, and communication. This course is normally offered only in the Off-campus program. 3 cr.

MCJA 609 CONSTITUTIONAL LAW
This is a study of the major constitutional decisions which have shaped the current status of America including Federalism, the Separation of Powers, powers of the state and federal governments, the nationalization of the Bill of Rights, First Amendment rights, the rights of persons accused of crime, and equal protection of the law. This course is normally offered only in the Off-campus program. 3 cr.

MCJA 610 REPORT WRITING FOR THE JUSTICE PROFESSIONAL
Techniques of writing clear and effective reports, and the ability to teach subordinates to do the same, is the major emphasis of this course. Students should be able to observe and report salient facts relating to crime scenes, interviews, demonstrations, meetings, and arrests. The development of the more lengthy format for a position paper/study is included. This course is normally offered only in the Off-campus program. 3 cr.

MCJA 611 CRIMINAL PROCEDURE
This is a study of the concepts and practices of prosecution including jurisdiction, extradition, statute of limitations, and jeopardy. This includes proceedings by the prosecution prior to trial including complaint, warrant, arrest, summons, preliminary examinations, indictments, bench warrants, and arraignments. Steps available to defendants such as bail, habeas corpus, and the various types of pleas are discussed. This course is normally offered only in the Off-campus program. 3 cr.

MCJA 612 CRIMINAL LAW
This course covers such major common law felonies as robbery, rape, arson, sodomy, burglary, larceny, and murder as well as other common law crimes and certain statutory crimes, both state and federal. The course also includes recent changes in the law regarding such crimes and their prosecution. This course is normally offered only in the Off-campus program. 3 cr.

MCJA 613 SECURITY AND LOSS PREVENTION FOR MANAGEMENT
The purpose of this course is to provide the professional manager with proven techniques of reducing loss or threat of loss, both through security design in industry and physical security in business. It includes the interrelationship between physical security and crime prevention as well as the functions of the manager necessary to provide intrusion and access control as well as internal theft and control. This course is normally offered only in the Off-campus program. 3 cr.

MCJA 614 POLICE AND THE PUBLIC COMMUNICATION TECHNIQUES
This course is designed to enable students to make persuasive and interesting public presentations; to deal with the press, radio, and television media in an effective manner; to understand and be able to use proper interviewing techniques; and to be able to present an honest, professional, yet authoritarian face to the public in order to gain and keep its respect. This course is normally offered only in the Off-campus program. 3 cr.

MCJA 615 RISK MANAGEMENT IN CRIMINAL JUSTICE
The purpose of this course is to inform the justice professional of actions and techniques designed to reduce or eliminate needless liability suits against criminal justice agencies. Specific topics include the hiring and firing of personnel, types of suits brought by employees, record keeping techniques which work, liability problems of high speed chases, the failure to respond, improper training, identifying municipal liability problems, and sexual harassment. This course is normally offered only in the Off-campus program. 3 cr.

MCJA 616 BUDGETING AND PLANNING IN CRIMINAL JUSTICE
Criminal justice administrators are regularly faced with the challenges of managing the financial resources funded by taxpayers. This course provides professionals with an opportunity to learn about the procedures involved in planning, forecasting, preparing, and implementing a budget in a governmental or not-for-profit criminal justice agency. Relevant accreditation standards are reviewed. This course is normally offered only in the Off-campus program. 3 cr.

MCJA 620 ETHICAL ISSUES IN CRIMINAL JUSTICE
This is a study of the moral and ethical issues facing the criminal justice professional, taught from the background of numerous literary works involving this field of criminal justice. The basis of ethical considerations in the various fields of criminal justice are examined. Students should ultimately understand and practice high standards of ethical conduct, and be able to recognize moral ambiguity. This course is normally offered only in the Off-campus program. 3 cr.
MCJA 625 DATA BASE MANAGEMENT IN CRIMINAL JUSTICE
This is a study of concepts, theory, terminology, and design techniques in database management. Topics include physical data organization, database architecture, data models with emphasis on relational model, logical database design, normalization, and relational query languages. Two projects are required. This course is normally offered only in the Off-campus program. 3 cr.

MCJA 630 FIELD RESEARCH IN CRIMINAL JUSTICE
This course covers basic scientific methods and principles of research as well as evaluation techniques used in the criminal justice field. Students are required to use these techniques in doing an extensive research project in the field of criminal justice in order to demonstrate the ability to properly collect and analyze data. This course is normally offered only in the Off-campus program. 3 cr.

MCJA 640 MANAGEMENT, UNIONS, AND COLLECTIVE BARGAINING IN CRIMINAL JUSTICE
This course analyzes the role of collective bargaining in criminal justice and analyzes the perspectives of management and unions. Topics include public sector bargaining, the role of mediation and arbitration, and policy alternatives to personnel management. The development of union organizations, the collective bargaining process, and other related topics are explored. This course is normally offered only in the Off-campus program. 3 cr.

MCJA 641 STRESS MANAGEMENT IN CRIMINAL JUSTICE
This course is designed to study the identification and appraisals of stress and tension in the criminal justice environment. Topics include planning and implementing proven programs, techniques, and strategies to reduce stress at work. This course is normally offered only in the Off-campus program. 3 cr.

MCJA 642 ORGANIZATIONAL DEVELOPMENT IN CRIMINAL JUSTICE
This course examines behavioral science principles and practices applied in criminal justice organizational culture, its human and social processes, and the role of planned systematic change. This course is normally offered only in the Off-campus program. 3 cr.

MCJA 695 ADVANCED COMMUNITY POLICING
Designed to provide the actual methodology of implementing community policing in a particular department, this course covers new ways of solving community problems using examples from a number of cities which have introduced community policing.

Actual and theoretical situations are used to develop problem-solving based approaches. This course is normally offered only in the Off-campus program. 3 cr.

QUANTITATIVE METHODS
QM 610 DECISION SUPPORT MODELS
Prerequisite: CIS 610. This course uses an intensive problem-solving approach to explore a variety of Management Science/Operations Research models implemented in a computerized environment. The major focus is on model building and interpretation of modeling outcomes for managerial decision-making. A spreadsheet software program is used. 3 cr.

GRADUATE COURSES IN ENGINEERING:

COMPUTER ENGINEERING
CPE 525 SOFTWARE ENGINEERING
Prerequisite: CPE 350. 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 also learn a variety of software design methodologies including structured design, top down design, bottom up design, incremental design, and are introduced to object oriented design. They 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 which culminates in a formal presentation. 3 cr.

CPE 545 COMPUTER GRAPHICS SOFTWARE
Prerequisite: CPE 310 and CPE 205. This is an introductory course in computer graphics. Participants in the course learn the hardware organization of the 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 also 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, scrolling, and animation. An individual project is required. The assessment of student learning in this course is based on writing programs as homework, supervised laboratory work, and the quality of the project. 3 cr.

CPE 550 TOPICS IN COMPILER DESIGN THEORY
Prerequisite: CPE 205, 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. They 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 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 exam, a research paper, and a semester long design project which culminates in a formal presentation. 3 cr.

CPE 560 MICROCOMPUTER HARDWARE DESIGN
Prerequisite: CPE 300 or equivalent. This is an advanced level course in microcomputer hardware design. The course participants survey a wide variety of microprocessors, memory, and peripheral component focusing on learning advantages and disadvantages to enable them in selecting the optimal components for the design task. Students design interface logic that makes all the components work together. In addition to logical design, students analyze timing and electrical loading and ensure that their design will work reliably under the worst conditions. They design interfaces with parallel and serial input/output ports, programmable counter-timers, direct memory access controllers, for user input/output systems such as keyboards and displays, communication systems, and mass storage systems. An individual project that involves design of interface for a specific application is required. The assessment of student learning in this course is based on participation in classroom discussion, tests, and a design project. 3 cr.

CPE 570 OPERATING SYSTEMS
Prerequisite: CPE 350 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. 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 580 COMPUTER NETWORKS
Prerequisite: ENGR 212. 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. They 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
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.

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 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 textural models such as IEEE 802, DOD, TOP, MAP, and ISDN are briefly covered.

3 cr.

CPE 660 MICROPROCESSOR SOFTWARE DESIGN
Prerequisite: CPE 525 and demonstrated knowledge of assembly language. This is a survey of fundamental concepts of structured programming of microprocessors. Topics include theoretical bases, semantic and information structure models, and top-down and bottom-up approaches to software design.

3 cr.

CPE 670 SPEECH SIGNAL PROCESSING
Prerequisite: EE 580 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 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 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 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, and a final exam.

3 cr.

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 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, to apply state space techniques to find zero input, zero state, and complete solution from state space system equations. In addition they 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 method of assessment of student learning in this course are homework assignments, quizzes, tests, and a design project.

3 cr.

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 (LEDIT, a layer editor 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 lay out basic digital logic gates, are familiar with the layout and operation of analog systems (in particular, the operational amplifier), and are 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, and a final exam.

3 cr.

EE 535 FUZZY LOGIC
Prerequisite: Senior or graduate standing. This course covers the fundamentals of fuzzy logic theory and its applications. In this course students learn to analyze crisp and fuzzy sets, fuzzy propositional calculus, predicate logic, fuzzy logic, fuzzy rule-based expert systems, and learn to 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
systems. They also learn the basis of the stability, and the economic operation of and unsymmetrical conditions, system analysis and fault analysis in symmetrical voltage relationships, generalized circuit aerial transmission lines, current and electrical characteristics and analysis of for power transmission. They also learn

Prerequisite:  EE 434 or concurrently.

projects, and a final exam.

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.

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 to single layer and multilayer neural networks architectures, linear and nonlinear activation functions, and analyze and implement McCulloch-Pitts, Hebbian, Hopfield, Perceptron, Widrow-Hoff, ADALINE, delta, and backpropagation, 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.

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, students understand the design and analysis techniques used in modern electro-optics systems and are able to 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.

EE 550 POWER TRANSMISSION
Prerequisite: EE 434 or concurrently. Students learn the theoretical foundation for power transmission. They also learn electrical characteristics and analysis of aerial transmission lines, current and voltage relationships, generalized circuit constants, circle diagrams, load flow analysis and fault analysis in symmetrical and unsymmetrical conditions, system stability, and the economic operation of systems. They also learn the basis of the fault detection mechanism. The methods of assessing student learning in this course are homework assignments, quizzes, classroom discussions, and a final exam.

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 enhances 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.

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 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, control ability, and observability of sampled data system and to design computer controlled feedback systems to improve performance of a discrete time system 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.

EE 580 SIGNAL PROCESSING
Prerequisites EE 302 and MATH 350 or equivalent. This is an introductory course in digital signal processing. This course provides the necessary 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. They understand the concepts of sampling and reconstruction of analog signals, calculate correlation of discrete time signals, use discrete time Fourier and Z transforms, simulate and design FIR and IIR digital filters, implement FIR and IIR filters in real time on a signal processing microcomputer, use the DFT and FFT to calculate the spectra of discrete time signals, and have some familiarity with adaptive filters and wavelets. Methods of assessment include homework, tests, and a short paper on a topic related to signal processing.

EE 590 SPECIAL TOPICS
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.

EE 611 DIGITAL COMMUNICATIONS SYSTEMS
Prerequisite: EE 580; 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 fast Fourier transform.

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.

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 home-
work assignments, quizzes, classroom
discussions, design projects, and a final
exam.
3 cr.

EE 625 STOCHASTIC PROCESSES
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 stochas-
tic 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 home-
work assignments, classroom discussions,
design projects, and a final exam.
3 cr.

EE 650 ADVANCED DIGITAL SIGNAL
PROCESSING
Prerequisite: ENGR 212, EE 580 or equiva-
 lent. 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 simula-
tion required.
3 cr.

EE 667 ADVANCED ELECTRICAL
MATERIALS
Prerequisite: EE 312; EE 302; EE 314 or equiva-
 lent. 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 to
analyze and design linear quadratic
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 580; 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.

EMGT 590 SPECIAL TOPICS IN
ENGINEERING MANAGEMENT
This is a study of an advanced topic in
electrical engineering and management majors who have
completed requirements for admission to
the master’s degree. Prior to registration, written permission to enroll
must be obtained from the student’s
advisor.
6 cr.

ENGINEERING
MANAGEMENT

EMGT 605 ENGINEERING
MANAGEMENT
Prerequisite: Graduate standing. This is a
study of the major management functions of
the firm with emphasis on engineering and
management. Topics include organization,
planning, coordination, and control of
operations; corporate objectives; manage-
mental 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 manage-
ment philosophy underlying QM. Product
quality and care of customers, management
leadership, teamwork, continuous improve-
ment 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 engineer-
ing 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 OPERATIONS RESEARCH
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 tech-
niques, 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
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. Course is 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 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 from the department 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. This course replaces the final comprehensive examination in the MSEM program.

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 covered in the catalog on a regular basis.

3 cr.

EMGT 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.

INDUSTRIAL ENGINEERING

IE 515 DESIGN FOR MANUFACTURE
Prerequisite: IE 314 or equivalent. This course examines techniques for analyzing product structures for ease of assembly and manufacture. It covers choice of material and processes in early design, geometric dimensioning and tolerancing, and robust design techniques.

3 cr.

MECHANICAL ENGINEERING

ME 511 ADVANCED MECHANICS OF MATERIALS
Prerequisite: ME 208; MATH 350. This is a continuation of ME 208. Topics include beams of different materials, composite beams, continuous beams, theories of failure, energy methods, thick-walled cylinders, curved bars, shear center, and unsymmetrical bending.

3 cr.

ME 519 EXPERIMENTAL STRESS ANALYSIS
Prerequisite: ME 208; ME 435 or concurrently. This is a survey of engineering techniques used to evaluate and improve structural designs. Topics include strain gauges, photoelasticity, Moire fringe patterns, and brittle coatings. Two class hours, one three-hour lab.

3 cr.

ME 526 GAS DYNAMICS
Prerequisite: ME 303; ME 316. This is a study of the dynamics and thermodynamics of compressible fluid flow. Topics include one-dimensional flow; numerical techniques; and concepts relating to exhaust pipe tuning, wind tunnel design, and gas turbine design.

3 cr.

ME 540 DESIGN OF ALTERNATIVE ENERGY SYSTEMS
Prerequisite: ME 417 and senior or graduate standing. This is an introduction to the theory and design of solar, water, wind, and geothermal power generation systems. Students examine the estimation of residential heating and cooling loads and the sizing of domestic hot water systems. An individual project involving the design of an energy independent home is required.

3 cr.

ME 542 COMPUTER-AIDED ENGINEERING
Prerequisite: Senior or graduate standing. This course is designed to assist students to develop a knowledge and the experience of solid based conceptual design. Conceptual and applications of solid modeling, engineering analysis using Finite Element Analysis, and design optimization are emphasized. SDRC Master Series and Fluent packages are utilized in the lab to supplement the lecture materials.

3 cr.

ME 543 INTRODUCTION TO COMPUTER-AIDED MANUFACTURING
Prerequisite: ME 203 and senior standing. This is an introduction to the design of machine tools. Topics include the role of
ME 544 COMPUTER APPLICATIONS IN MECHANICAL ENGINEERING
Prerequisite: ME 417 or concurrently and senior or graduate standing. This is a study of commonly used computational methods for solving engineering problems. Topics include problems in thermodynamics, heat transfer, dynamics, and structural analysis. Case studies are used to investigate problems requiring a multidisciplinary approach.
3 cr.

ME 551 FLUID MACHINERY DESIGN
Prerequisite: 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.
3 cr.

ME 590 SPECIAL TOPICS IN MECHANICAL ENGINEERING
This is a study of an advanced topic in engineering of special interest to mechanical engineering majors, but not carried in the catalogue on a regular basis.
3 cr.

ME 610 MEASUREMENT SYSTEMS
Prerequisite: ME 320; ME 435 or equivalent. This is a study of the theory and design of instrumentation for measurement and control. Emphasis is on the analysis of stimulus-response relations for dynamic measurement. Topics include application of instrumentation to the field of mechanical engineering, industrial instruments for control and measurement, and electrical and pneumatic components.
3 cr.

ME 620 COMPUTATIONAL METHODS IN VIBRATIONS AND STRUCTURAL ANALYSIS
Prerequisite: MATH 501; ME 544. This is a study of computational methods used in analysis of vibrations and structures. Topics include eigenvalue, transient and steady-state analysis of conservative and non-conservative vibratory systems, matrix methods applied to multi-degree-of-freedom systems, modal analysis methods, exact and approximate analysis method of distributed parameter systems, Lagrange equations with engineering applications, and the solution of equations of motion by numerical procedures. Computer applications are emphasized.
3 cr.

ME 630 COMPUTATIONAL METHODS IN HEAT TRANSFER AND FLUID MECHANICS
Prerequisite: ME 417; MATH 501; ME 544. This is a review of the basic equations of fluid mechanics and heat transfer. Topics include finite difference solution techniques; studies of stability, accuracy, and convergence; solutions of the wave equation, heat equation, Laplace equation, and Burger’s equation; numerical methods for solving boundary layer equations; techniques for solving for the viscous forces and heat transfer over complex bodies; and computer simulation.
3 cr.

ME 635 DESIGN OF THERMODYNAMIC SYSTEMS
Prerequisite: ME 304. This is a study of the design of thermodynamic systems. Topics include zeroth, first, second, and third laws of thermodynamic potentials; phase, chemical equilibrium for single and multicomponent systems; and computer applications of thermal systems applied to chemical reactions, combustion processes, and mechanical system designs.
3 cr.

ME 640 FLEXIBLE MANUFACTURING SYSTEMS
Prerequisite: ME 543 or ME 544. This is an introduction to management decisions during FMS project planning, design, and implementation. Topics include distributed processing; integrated CAD/CAM systems and part program preparation; tool databases; industrial robots, automated warehouses, and guided vehicles; coordinate measuring machines in computer integrated systems; interfacing computers, machine tool controllers, and industrial robots; computer-aided project planning and dynamic part scheduling; economic considerations; and social aspects.
3 cr.

ME 646 APPLIED FINITE ELEMENT ANALYSIS
Prerequisite: Baccalaureate degree in mechanical, civil, or aeronautical engineering or permission of the instructor. This is a course designed to assist engineers in understanding the basic concepts of the finite element method and the use of the ANSYS program to perform computer-aided modeling and analysis. Topics include linear, nonlinear, static, dynamic, and thermal analyses of models. Emphasis is on programming using graphics terminals and workstations.
3 cr.

ME 654 COMPUTER CONTROL OF MANUFACTURING
This is an introduction to NC systems. Topics include point-to-point positioning control and continuous path contouring control, interpolation methods, actuating devices and sensors, digital computer interfaces (AtoD, DtoA, DtoD), position and velocity feedback control loops, and programmable logic controllers.
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, but not carried in the catalogue on a regular basis.
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 and written permission to enroll must be obtained from the student’s advisor.
6 cr.

GRADUATE COURSE IN PUBLIC ADMINISTRATION:

PUB 600 ENVIRONMENT OF PUBLIC ADMINISTRATION
Prerequisite: Acceptance into the master’s program. The vast majority of Americans live and work in major urban centers today. Those who serve them in public management must oversee and administer a wide range of programs that deeply impact the quality of life citizens enjoy, from the provision of affordable housing to alleviating traffic congestion, attracting economic development, fighting violent crime, and dozens of other vital services. As the first course in the Master of Public Administration program, PUB 600 will assist beginning graduate students with developing a better appreciation for the political environment they will encounter as they seek to carry out their responsibilities in an efficient, equitable, and accountable manner in government.

Who makes the decisions? Where is the real power in urban governance? Throughout the semester, efforts will be made to develop a model of decision making and power that best fits the world of urban politics and administration. Students will test different explanatory models and incorporate their impressions into a seminar paper that will be delivered to the class during the last two weeks of the semester. This course is offered only in the Off-campus program on the Springfield campus.
3 cr.
LEARNING BEYOND THE CLASSROOM

Wholistic Student Development – Learning through Participation and Reflection

A philosophy of wholistic student development, where students are encouraged to reflect, think, talk, and write on their outside of the classroom experiences, governs student life at Western New England College. Through involvement as well as reflection, students are encouraged to participate in the learning process as they develop. All programs and activities in student life embody the tenets of this philosophy. This organizing principle is mirrored in all student services, activities, policies, and academic courses. Staff members within the Office of Student Affairs coordinate these programs with the assistance and cooperation of the faculty. The goal is to encourage students to be more reflective about outside of the classroom experiences through integrating their curricular and scholarly lives. Activities are student-oriented and focus on academic and personal development.

Program objectives include the following:
- Achieving intellectual competence
- Learning about emotions and values
- Developing interpersonal skills
- Developing an awareness of social identity
- Exploring career options and lifestyles
- Appreciating cultural diversity
- Learning about physical fitness and health
- Gaining artistic and cultural appreciation

Examples of outside of the classroom experiences include:
- Annual expositions such as career fairs, a health fair, and a student activities fair
- Academic support services (time management, study skills, tutorial assistance)
- Substance abuse education
- Fall, spring, and summer orientation for new students
- Service learning
- Peer advising
- Issues in human sexuality
- Human relations lectures, the performing arts, cultural diversity
- Leadership development

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 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. Freshmen are normally assigned to traditional residence halls. Sophomores normally reside in either traditional or suite-style living units. Juniors and seniors may reside in apartments at Gateway Village. All residence facilities are furnished with twin or bunk beds, wardrobes, bureaus, desks, and chairs. Apartment 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 payment deadlines. Each area within the residency complexes is staffed by an area coordinator, a residence manager, and several resident advisors. Area coordinators 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 housing area. Resident advisors are full-time undergraduate students working directly with a specific living group. Residence Life is supervised by the director and assistant director of Residence Life with support and assistance from a secretary.

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 snack bar, called the Rock Cafe, 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. Junior and senior students residing in Gateway Village apartments and commuting students may choose to participate in a variety of alternative meal plans.

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, music practice rooms, student media offices, the broadcast studios of the College’s radio station, WNEK. It also contains an arts and crafts room, an art gallery featuring monthly exhibits, a music and dance studio, fully equipped dark room facilities, a television lounge, and a variety of conference and meeting rooms. A game room and newly designed Cyber Cafe provide 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 Dean
of Students, Student Activities, Residence Life, Career and Human Resources, Counseling, 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.

Parents’ Association

Originally founded in 1978 by a group of interested parents of undergraduate students, the Parents’ Association provides an organized vehicle for allowing parents to take a more active part in the affairs of the College. Principally, the Parents’ Association seeks to promote projects of direct impact on the quality of student life, assisting in providing students with educational and recreational resources and increasing dialogue between parents and the College. A Parent Handbook is published by the Parents’ Association and is distributed to parents of new students.

Student Assistance

Student Administrative Services. The Office of Student Administrative Services (SAS) combines the functions of billing and collections, financial aid, and records and registration. Student Administrative Services is designed to conveniently serve all clients of the 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 Disabilities 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 of the Student Disabilities Services office works 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.

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. Workshops and group counseling are regularly scheduled throughout the academic year, and psychiatric consultations are available on a referral basis. Students may borrow self-help books and tapes from a book/audio tape lending library. Remember, 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.

Career and Human Resources. The Office of Career and Human Resources assists students and alumni with career planning, occupational exploration, job search strategies, graduate school decision-making, and internship programs. All students are encouraged to use the resources of Career and Human Resources. These include a computer career guidance program, a library of career related books and directories, company literature, periodicals, newsletters, and reference files for a wide variety of occupations. The Office of Career and Human Resources offers programs on a range of career related topics. Many of these programs are sponsored for 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, its assistance in identifying career options, and continuing supply of updated job identification resources. An Alumni Career Network program puts students in contact with alumni actively employed in their fields and eager to share occupational information. The career recruiting program brings students in contact with employers through on-campus recruiting and résumé referrals. Students are also assisted in finding summer employment. 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. A weekly newsletter is published and serves as a principal tool for alerting students to employment opportunities, recruiting schedules, and workshops. The newsletter is now online at www.wnec.edu/html/chr.html. The Office of Career and Human Resources’ effective combination of educational career programs and job search services provides a valuable complement to the student’s academic experience.

Career and Human Resources also coordinates student employment. Students who receive a Federal Work Award should plan to visit Career and Human Resources to complete a student employment application, review available employment opportunities, and be referred for interviews.

Health Services. The College’s well-equipped health facilities provide care on an outpatient basis. The Office of Health Services, located in the Alumni Healthful Living Center, is under the immediate supervision of a nurse practitioner. A part-time physician maintains a regular schedule of on-campus office hours. Health Services provides urgent care of episodic illnesses and injuries, gynecology services, as well as counseling in all areas of health maintenance and promotion. Referrals are provided to those in need of specialist care. Treatment at the College’s Health Services is free of charge to all students currently enrolled. Students are, however, responsible for the cost of off-campus medical care and most laboratory work. All full-time and three-quarter time students are required by Massachusetts state law to carry medical insurance. Each year the students must notify Health Services, by waiver, what insurance company insures them. If students do not provide a waiver then they will be enrolled in the College’s health insurance plan. Massachusetts law also requires full-time students to provide a record of immunizations against measles, mumps, rubella, diphtheria, and tetanus. All full-time students are further required to provide a completed physical examination form from a licensed health care provider with a complete health history to Health Services prior to the start of the academic year.

Co-curricular Activities. Co-curricular activities and “learning beyond the classroom” experiences are integral parts 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 special 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 their own way. The Catholic, Jewish, and Protestant clergy meet Tuesdays at noon with students, faculty, and administrators of their respective denominations. One particular effort sponsored through Campus Ministry concerns encouraging volunteers for community outreach in areas of need such as world hunger, homelessness, adult literacy, and the like. Campus Ministry joins the Cultural Liaison Office on campus to work closely with the Springfield Council of Churches, the Western Massachusetts Interfaith Council, 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 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 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 time 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
• Creating specific goals for academic, physical, and personal accomplishments
• Encouraging involvement and participation in campus life
• Assisting in development of an educational plan and scheduling of classes
• Promoting social adjustment
• Monitoring and encouraging academic progress and engagement
• Fostering awareness of the value of a college education
• Increasing student awareness of a global society
• Building student confidence.

Programs and Services

Programs and sessions 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, the program or advisor interaction is of little value. The following programs help students make a successful adjustment to college life:

1. Summer Orientation and Registration (SOAR)

Students and parents may 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 90 percent of first year students choose to participate.

2. First Week

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 freshman students and freshman transfer students with 15 or less completed college credits are required to successfully complete a two credit course focusing on academic skills development, discovery of academic interests, critical thinking, and promotion of educational values. The seminar is normally taught by 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. Students in pre-pharmacy and pre-physician assistant may voluntarily elect to take the First Year Seminar as part of the first semester curriculum. First Year Seminar is further distinguished by the school of origin.

4. Summer Reading Assignment

All freshman students scheduled to enroll in the First Year Seminar are assigned a selected reading for summer study. In an effort to heighten awareness of college aca-
ademic work and challenge students in critical thinking, students attend the first class in freshman seminar during the Summer Orientation and Registration (SOAR) program. 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 vary in the Schools of Arts and Sciences, Business, and Engineering.

5. Academic Progress Monitoring

There are two key indicators which 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 skip class do not succeed. When excessive absence patterns are noted, students may be advised of the potential impact on progress. At the completion of the sixth week of classes, the first set of grades are calculated based on assignments completed to date. In progress grades are distributed to first year students only through the assigned advisors. Instructors also have the option of forwarding specific suggestions for improvement, which are then shared with students for consideration and action.

6. Tutoring

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.

7. Freshman Focus Program

The Freshman Focus Program serves as an umbrella under which freshman students can access particular opportunities for personal growth. Programs range from a Student Activities Expo designed to acquaint students with clubs and organizations to workshops on learning about cultural and ethnic diversity. 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. Freshmen living on campus also find that residence hall assignments are often clustered around academic interests to ease the formation of study groups and sharing of career development information. Students who study together and share academic interests are more likely to find college a true learning community. Yet another dimension includes the development of student centered community expectations, a set of guiding principles governing student living and interaction.

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.

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 to assist in the development of educational and career plans. Academic advisors are the principle resource regarding information on academic requirements and should be consulted prior to completion of course registration.

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, upperclass students work with seminar instructors to mentor students in the development of academic skills and attitudes.
5. Resident Advisor

In each residence hall living unit, there is an upperclass student living in that unit to assist students in the formation of an environment conducive to study and personal development.

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 the Office 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; and the Massachusetts College of Pharmacy and Health Sciences. 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, coffeehouse concerts, performing arts, recreation, and special affairs such as Family and Friends Weekend. 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 halls. Organized by elected student representatives from each of the residence areas, RHA provides coordination of student house council governance units and of all social, recreational, and educational programs. It also provides suggestions to the College for improvement in the 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 co-curricular endeavors and to enhance the academic experience. Examples of recognized student groups affiliated with academic departments include the Accounting Association, Marketing Club, Internet Association, Political Science Club, Math Club, Association for Computing Machinery Student Chapter, Biology Club, Management Association, Financial Management Association, Behavioral/Social Sciences Club, 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, and Martial Arts Club.

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 wide range of activities in which to express themselves. Musicians and performers alike have many opportunities to perform on a regular basis and at traditional College events.

The Campus Chorus performs at the annual Fall Convocation, the Festival of Lights in December, the Martin Luther King, Jr. celebration in January, and at Commencement. The newly formed Golden Bear Pep Band performs at home football and basketball games. Students can also display their artwork in the College’s Art Gallery or have their fiction and poetry published in the literary magazine.

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 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. 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 the Campus Center, 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.
Professional Societies

Alpha Kappa Psi. Alpha Kappa Psi is one of the oldest professional associations for students pursuing business-related careers. The Theta Lambda Chapter at Western New England College provides a forum for discussion of career options, professional standards, business ethics and practices, and stresses personal ethics and academic achievement.

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 life-style 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.

**Delta Mu Delta.** Delta Mu Delta is a national honor society for both men and women majoring in business administration. Its purpose is to promote higher scholarship in training for business and to recognize and reward scholastic attainment in business subjects. Student members must be selected from the top 20 percent of their total class on the basis of cumulative grades. Candidates must have completed at least one half of the work required for a baccalaureate degree and have achieved a G.P.A. of 3.4 or higher.

**Pi Sigma Alpha.** Pi Sigma Alpha is the national political science honor society. Students majoring in government, 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 while football competes in the New England Football Conference. 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. 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 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.

Student Conduct Code
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 and contains 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 Dean of Students. The Code for undergraduate students is also reprinted in the Student Handbook.
TUITION, EXPENSES, FINANCES, SCHOLARSHIPS, LOANS

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TUITION

Undergraduate

Full-time Students
(12 hours or more per semester)
Basic Annual Fees (2000-2001)
Tuition (12-17 credit hours per term) $14,354.00*
Student Activities Fee 200.00
Technology Fee 200.00
Comprehensive Services Fee 750.00
Student Insurance Fee (subject to waiver) 750.00

16,254.00

Residential Fee
Room (two occupants) & Board 7,050.00
Total $23,304.00

* Students who select programs of more than 17 credit hours are charged at a rate of $356 per credit hour for each credit hour over 17.
In addition to the basic tuition, a fee is charged on all engineering courses at a rate of $30 per credit hour.
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.

Pre-Physician Assistant Student Tuition
Pre-physician Assistant students who register for MCPHS courses are charged an additional amount equal to the difference between Western New England College per credit hour tuition and MCPHS per credit hour tuition for each credit hour.

Part-time Students
(Less than 12 hours per semester)
Tuition per credit hour (2000-2001) $356.00*
Registration Fee (per semester, nonrefundable) 20.00
Registration Fee. (Part-time students only)
Each semester a registration fee of $20 for part-time undergraduate and graduate students is charged at the time of actual registration.

* In addition to the basic tuition, a fee is charged on all engineering courses at a rate of $30 per credit hour. Pre-physician assistant students who register for MCPHS courses are charged the MCPHS tuition for those courses.

Comprehensive Services Fee. (Part-time students only)
The Comprehensive Services Fee covers some of the costs associated with health services, counseling, athletic facilities, placement services, and other support activities at the College. The fee is $9 per credit hour for students taking less than a full-time course load.

Graduate
Graduate students are charged per credit hour as follows:

Tuition per credit hour (2000-2001) $409.00*
Registration Fee (per semester, nonrefundable) 20.00

* In addition to the basic tuition, a fee is charged on all engineering courses at a rate of $30 per credit hour.

FEE STRUCTURE

All Students
Application Fee. The College application fee of $30 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.

Engineering Fee. In lieu of individual laboratory fees for each engineering course, the College has established an engineering fee of $30 per credit hour for all engineering courses. These fees are payable at the time of registration and are not refundable.

Full-Time
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, and other support activities at the College. The fee is $375 per semester for full-time undergraduate students.

Student 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 $100 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.

**Technology Fee**

A fee of $100 per semester is charged for technology which provides all students with Internet access, voice mail, and E-mail. Internet access is gained through use of on-campus facilities, dialup access, and resident hall capabilities. All students have access to voice mail either directly through their residence hall service or by direct dial to the voice mail service. This service is available from on or off campus from any touch-tone phone. E-mail service is available to all students, faculty, administrators, and Internet addressable users. This fee also allows students with the opportunity to learn in a technologically sophisticated environment.

**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 2000-2001 academic year for each student are as follows:

<table>
<thead>
<tr>
<th>Room Type</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Double Occupancy/20 meal plan</td>
<td>$7,050.00</td>
</tr>
<tr>
<td>Gateway Apartments</td>
<td>$3,850.00*</td>
</tr>
</tbody>
</table>

*Room fee only.

An initial deposit of $100 must accompany any request for College housing. A $500 nonrefundable reservation confirmation payment for the fall semester is due and payable by July 1 with the balance due and payable on August 1. Room and board fees for the spring semester are due and payable not later than January 2. Summer housing is normally available and requires payment in full prior to assuming occupancy.

All rates are for occupancy on a semester basis and are not refundable. 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 room 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 within 24 hours after the last final examination and the appropriate check-out procedure is to have been completed.

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 Reservation Deposit.** In order to effect residency within College housing, a room reservation deposit of $100 must be filed along with the appropriate request for College housing. The deposit is due immediately upon notification of acceptance from the director of admissions or as otherwise defined by the College. While the deposit will be applied toward the room fee, it is not refundable to a returning student if the student fails to take occupancy. This deposit applies only to the room, not the board plan.

**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 $50 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**

Freshman and sophomore students who reside in College housing are required to participate in the board plan.

A 20-meal plan may be selected. Other meal plans are also available. Non-resident students have the option of participating in the meal plan. 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 2000-2001 academic year is $3,450.00.

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. Resident students who seek an exemption from the board plan must apply in writing to the director of the Office of Residence Life prior to assuming occupancy. Normally, such requests are considered only when extreme medical or religious conditions require dietary requirements that Food Service is unable to satisfy. All requests for exemption must be renewed annually and require appropriate documentation in order to be considered. Students who fail to secure the required exemption 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.

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.

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 deferred payments as stated under the sections on Deferred Payment Privilege, Prepayment Plan, or for company underwriting as stated under the section on Tuition Paid by Employers.

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 $300 to $500 per year.

Withdrawals and Refunds

Tuition and fees are not transferable and are 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 ⅔% will be refunded during the second week of classes.
- 33 ⅓% 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 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 twelve 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.

The plan period starts April 30 for the academic year beginning in the fall. There is a down payment required if the plan begins after April 30. A payment book is issued and payments are due promptly each month. If the student does not attend, all payments made will be refunded.

**Deferred Payment Privilege**

Students who wish to pay their college charges in installments during the course of the semester may elect to do so. A finance charge is 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.

The deferred payment schedule is as follows:

- **First Semester**
  - August 1: 25% due
  - September 1: 25% due (50% total bill paid)
  - October 1: 25% due (75% total bill paid)
  - November 1: 25% due (100% total bill paid)

- **Second Semester**
  - January 2: 25% due
  - February 1: 25% due (50% total bill paid)
  - March 1: 25% due (75% total bill paid)
  - April 1: 25% due (100% total bill paid)

This payment plan applies to any or all portions of the semester bill which are self-pay.

**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 plan 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. One third of the tuition is payable by August 1 or January 2. The balance is due 30 days after the semester is completed.

**Tuition Paid 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 underwriting the cost of tuition. Students who are underwritten by employers are considered self-paying students.

**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 Student Administrative Services, from high school guidance counselors, or access on the internet at www.fafsa.ed.gov. Students must also complete the Western New England College Application for Financial Aid. 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.). Transfer students must also file a Financial Aid Transcript form which is available from Student Administrative Services. 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 1 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 a September 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. 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.

**Scholarships and Grants**

**Admissions Assistance Awards**

Scholarships are awarded annually to prospective freshmen and transfer students. The criteria for the awards are financial need, outstanding secondary school or college academic performance, leadership potential, or diverse life experience. Awards range from a minimum of $500 to full tuition and are renewable as long as the student annually maintains a Deans’ List average and full-time enrollment.

**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 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 quality 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 Scholarship**

Scholarships are awarded annually from a fund established by the Trustees of the George I. Alden Trust in Worcester, MA, and friends of the College. Funds are awarded to full-time undergraduate and graduate students or to professional students who have a financial need.

**Alumni Scholarship**

Scholarships are awarded annually by the Alumni Association to a full-time student from each of the Schools of Business, Engineering, and Arts and Sciences. Two awards are also made to part-time students. The College selects the recipients on the basis of scholarship and need.

**American Society of Mechanical Engineers Scholarship**

Scholarships of varying amounts are awarded annually to students in the mechanical engineering curriculum who combine scholarship and need. The students should live in Berkshire, Franklin, Hampden, or Hampshire Counties. The students must have financial need and their grades should warrant continuing in mechanical engineering. The students shall be juniors or seniors at the start of the next semester.

**Army ROTC Scholarships**

Four, three, and two year scholarships are awarded annually to qualified high school seniors, freshman, and sophomore students. Scholarships pay full tuition at Western New England College, $450 for books, and a $1,500 stipend annually. There is also an 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 on 64 Bellamy Road, call 1-800-434-WNEC or 413-782-1332/45.

**Henry J. Bazan Scholarship**

A scholarship fund has been established by the Management Association and Alumni in honor of Henry J. Bazan, faculty member since 1963. A scholarship is awarded to a student in the School of Business based on financial need. Preference is given to students who are involved in College athletics and serve in a leadership position in a student organization, and are enrolled in ROTC.

**Susan Squire Bosquet Scholarship Fund**

A scholarship is awarded annually to a needy student in the Office of Continuing Education.

**Frederick N. and Maria E. Bromage Memorial Scholarship Fund**

Scholarships of varying amounts are awarded to full-time undergraduate students based on financial need from a fund established by Frederick and Maria Bromage.

**Evelyn Burton Scholarship Fund**

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 Thomas R. Burton ’70 in memory of his mother, Evelyn.

**Chester J. Chambers Memorial Scholarship**

Scholarships are awarded annually from a fund established in memory of Chester J. Chambers, ’23, who served as a Trustee of the College from 1959-1969. Recipients must be from Longmeadow or Springfield and must have a financial need.

**Leon D. Chapin Scholarship**

A scholarship is awarded to a full-time undergraduate student majoring in the accounting curriculum and beginning the senior year. The student must have a grade-point average 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 the chief fiscal officer at Western New England College at the time of his retirement in August 1979.
Arthur and Barbara Clarke Student Scholarship
Funds are available to undergraduate students with a financial need.

Steven E. Cocchi Memorial Scholarship Fund
Scholarships are awarded annually to undergraduate students from the Steven E. Cocchi Memorial Scholarship Fund. Preference is given to junior and senior undergraduate School of Business students from the Greater Springfield area.

Louis T. Cormier Memorial Scholarship
This fund was established by the wife of the late Thomas Cormier ’47, formerly of the faculty of the School of Business. It is awarded annually to a student of the sophomore year 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.

Dalfort Aviation Scholarship
A scholarship is awarded to a student in the Springfield metropolitan area who enrolls as a mechanical engineering student with financial need. Funds are made possible from the Dalfort Aviation Corporation and Mr. Jay Pritzker.

Kevin S. Delbridge 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 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 Scholarship
Scholarships of varying amounts are granted to undergraduate accounting students or law students from a fund established by the Trustees in memory of Henry T. Downey ’50/L’56, former Vice-Chairman of the Board, who died June 29, 1973.

Financial Aid Restricted Fund
Scholarships of varying amounts are awarded annually to deserving students who have demonstrated financial need.

George Sumner Gaunt 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 2.50 cumulative average. Preference is given to students working with youth development.

Harley B. Goodrich Scholarships
A scholarship fund in memory of Harley B. Goodrich ’27/L’42, secretary of the Board of Trustees of Western New England College from 1942-1974, has been established by members of Pi Tau Kappa fraternity and the Trustees. Awards are made to students who have outstanding records either in as undergraduates or in the School of Law.

Alison Mary Harris Memorial Scholarship
A scholarship fund in the memory of Alison Mary Harris ’89 has been established by her classmates, friends, and family. Awards may be made to juniors and seniors in the School of Business.

Carl R. Hellstrom Scholarship
Scholarships of amounts varying from $200 to $600 are available to either full-time or part-time students. The awards are supported by income from the Hellstrom Scholarship Fund, established by Mr. 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 stipend 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 Scholarships
Scholarships of $500 or more may be awarded to students beginning their senior year. They must have a grade point average 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.

Carl E. and Esther S. Johnson Scholarships
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 and to students from the Holyoke-Springfield area.

Father Christopher Johnson O.P., Scholarship Fund
Scholarships of varying amounts are awarded to Hispanic students with financial need who maintain a Deans’ 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.
Thomas K. Kamp 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, November 17, 1969.

Alfred and Marian LaRiviere Merit Award
This merit scholarship is awarded to two sophomore Alpha Lambda Delta members who have excelled the most academically during their second years, 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.

Alfred and Marian LaRiviere Scholarship
This scholarship(s) is awarded annually to students based on financial need from a fund established by Alfred LaRiviere '51, H'95, and his wife, Marian.

Agnes M. Lindsay Trust
Scholarship grants are awarded to needy students from rural New England (Maine, Vermont, New Hampshire, and Massachusetts).

Martin and Roberta Lower/Ludlow Textiles Scholarship
Scholarships of varying amounts are awarded based on financial need and demonstrated academic ability. Preference is given to children of employees of Ludlow Textiles Company, Inc. and to students who are Ludlow residents. This scholarship is provided from a fund established by College Trustee Martin A. Lower and his wife, Roberta.

Richard T. Lovett and Gertrude R. Lovett Scholarship Fund
Scholarships of varying amounts are awarded to undergraduate students based on financial need from a fund established by Richard T. and Gertrude R. Lovette.

Kenneth A. MacLeod Memorial Scholarship
A scholarship of $100, 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 grade-point average in a regular freshmen engineering program. A minimum cumulative grade-point average of 3.20 is necessary, and the student must be enrolled as a sophomore engineering student at the time the award is made.

MASSPOWER Scholarship
A Scholarship is awarded to a freshman from Springfield, Massachusetts, majoring in engineering or environmental science. The award is based on financial need and demonstrated academic ability. Preference is given to students who have exhibited leadership skills and reside in Indian Orchard.

Salvatore C. Mazzaferro Award
In memory of Salvatore C. Mazzaferro '52, a book prize is awarded annually to a nontraditional student who, as an accounting major, has had the highest average in accounting at the completion of the junior year.

Horace and Gertrude McCrea Scholarship Fund
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 Scholarship Fund
Scholarships are awarded annually to an electrical engineering student demonstrating a financial need.

Raymond and Shirley S. Meyers Scholarship
A scholarship is available to students with a financial need who are graduates of high schools in the Greater Holyoke-Springfield area. This fund was established by Raymond, '51, '66, and his wife, Shirley.

The Jeanne Marie Milkay Award
Established in the memory of Jeanne Marie Milkay, who graduated from the College with a Bachelor of Arts in 1984, this award is given annually to a student judged to be outstanding in the field of English.

Minority Scholarship
Merit scholarships of varying amounts are awarded to minority students or students who have demonstrated superior academic achievement through their performance in high school or college. This award is renewed each year provided the student attains dean’s list standing at Western New England College. This scholarship has been established through a gift by President Anthony Caprio.

Lawrence H. Nath Management Award
A monetary award of $200 and a plaque established in memory of Professor Lawrence H. Nath are presented each spring to a junior majoring in management with the highest cumulative average based on 30 or more semester hours at Western New England College. The student’s name is added to a plaque of honor.

Lawrence F. and Myra T. O'Brien 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.

Earl H. Paine Memorial Scholarship
Awards are made annually from a fund established in memory of Earl H. Paine ‘27 who served as treasurer from 1937-65 and on the Board of Trustees from 1951-70.

Parents Financial Aid Fund
Scholarships are awarded from a fund established by the Parents Association for needy students.

Herman E. and Maud K. Pihl Scholarship
A scholarship is granted to an undergraduate student (or 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 area.
Presidential Scholars Award
A merit scholarship based on outstanding high school academic achievement. It’s available to full-time students and is renewable.

Presidential Scholarship
The College, in an attempt to assist financial 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 and preference is given to a grade point average of 3.0 or above.

Racine 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 financial needs.

John F. Shaw Scholarships
Scholarships of various amounts are available to students from a fund established in 1973 by the will of Mr. John F. Shaw. Preference is given to students in the Greater Springfield area.

J. Resler Shultz Scholarship
Scholarships of varying amounts are awarded from a fund established by the Lasky Foundation in honor of J. Resler Shultz, director of development from 1958 to 1973. The recipients must be residents of New Jersey and preference is given to upper-class liberal arts majors.

Sigma Beta Tau Scholarship
A scholarship of $100 is awarded annually by the Sigma Beta Tau Honor Society to the student who has received the highest grade-point average in a regular sophomore engineering program. The student must be enrolled as a junior engineering student at the time of the award.

Stanley O. Smith Scholarships
Scholarships of varying amounts are awarded annually to accounting majors who show need and who are on the 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).

Jean C. Sterling Memorial Scholarship
A scholarship fund in the memory of Jean Cameron Sterling ’46 has been established. It is available to undergraduate students with a financial need.

Kevin R. Sullivan Memorial Scholarship
A scholarship fund in the memory of Kevin R. Sullivan ’81, has been established by his family and friends. Awards are offered annually to full-time students who have demonstrated a financial need and above-average academic performance. Preference is given to handicapped students and students entering their junior year.

Dorothy J. and Lucius Tarbell Scholarships
Scholarships are awarded annually to undergraduate students from a fund established by Mr. and Mrs. Lucius Tarbell. Awards are made to students who show past achievements, the desire to attend college, and the need for financial aid.

TJX Scholarship
This scholarship is available to non-traditional students with a financial need with a preference to computer related majors.

Susan Tober Scholarship
A scholarship is awarded annually to a deserving student from a fund established in 1970 by the late Susan Tober. Each year the Civitan Club of Springfield makes an additional contribution. In awarding this scholarship, attention is paid to scholastic achievement and need. Preference is given to residents of the Greater Springfield area.

Brian P. Trelease Scholarship
A merit scholarship is awarded to a student in the School of Business from a fund established by Brian P. Trelease ’67, G’71. Funding is based on the student attaining Deans’ List standing.

Trowbridge-Brown Scholarship
Scholarships are awarded annually to seniors in the School of Arts and Sciences who have the highest grade-point averages at the end of the junior year. The award is from a fund established by Clara F. Trowbridge and Ruth Trowbridge Brown.

Trustee Scholarship
The Trustees of the College have made available scholarships of one-half tuition for deserving students. The number is limited, and awards are made on the basis of scholastic achievement and need.

Richard H. Tucker Scholarship
One or more scholarships are awarded annually to deserving undergraduate engineering student(s). The scholarship is named in memory of Richard H. Tucker ’80 from a fund established by his family.

Tuition Assistance Grants
The College, in an attempt 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. Special consideration is given to academically superior students, minority students, and campus leaders.

Janice Gruppioni Underhill Scholarship
This endowed scholarship is given to a full-time undergraduate student with a financial need and preference given to students with a physical disability.
Wesley and Francis Wilson Scholarship

Scholarships of varying amounts varying from $200 to $600 are available to full-time students. At least ten awards are made each year from income derived from the fund established by the will of Mr. E. Wesley Wilson. Preference is given to students in the Greater Springfield area.

Western New England College Community Scholarships

Western New England College awards annual full-tuition scholarships to outstanding students in Springfield. Students must be from Central High School, High School of Commerce, Roger L. Putnam Vocational Technical High School, High School of Science and Technology, or Cathedral High School; have at least a 3.00 grade point average; graduate in the top 25 percent of their class; and be involved in leadership, volunteer, and community service activities especially as they relate to under-represented populations. This scholarship is renewable for the remaining three years as long as the scholarship recipient maintains a 3.00 cumulative average and carries a full-time schedule at the College.

Western New England College Scholarships

Scholarships of varying amounts are awarded annually to deserving students who have demonstrated a financial need and above-average academic performance. These awards have been established by generous gifts from friends and alumni of the College through general scholarship giving.

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 Scholarship

Scholarship awards are made annually by the Alumni Association to a full-time and part-time student from each of the Schools of Business, Engineering, and Arts and Sciences. The College selects the recipients on the basis of scholarship need and character.

Susan Squire Bosquet Scholarship Fund

A scholarship is awarded annually to a needy student in Continuing Education.

Evelyn Burton Scholarship Fund

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 Thomas R. Burton ’70 in memory of his mother, Evelyn.

Louis T. Cormier Memorial Scholarship

This fund was established by the wife of the late Thomas Cormier ’47, formerly of the faculty of the School of Business. It is awarded annually to a student of the sophomore year 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.

Carl R. Hellstrom Scholarship

Scholarships of amounts varying from $200 to $600 are available to either full-time or part-time students. The awards are supported by income from the Hellstrom Scholarship Fund, established by Mr. 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 stipend 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 Scholarships

Scholarships of $500 or more may be awarded to students beginning their senior year. They must have a grade point average 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 Scholarship

A scholarship is awarded annually to a nontraditional student 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 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 $3,125 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 $3,125 a year.

Federal Perkins (National Direct Student Loans)
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%. 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 $2,500 award while attending a private institution within the Commonwealth. Other areas, such as Connecticut, New Hampshire, Pennsylvania, Rhode Island, Vermont, Maine, and Washington, D.C., 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% 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) 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 $20,000 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.
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TRAVEL DIRECTIONS

From the East or West via Mass. Turnpike (I-90).
Leave Mass. Pike at Exit 6. Turn left on I-291 and travel South to Exit 5, “East Springfield.” Turn right off exit ramp onto Page Blvd. At first traffic light, turn left on Roosevelt Ave. Proceed 2.5 miles to traffic light at Wilbraham Rd. Turn left and travel 1.5 miles to main entrance of the campus on right. The Admissions Office is located on Wilbraham Rd. in the second house on the left after the main entrance to the College.
(Total 5.6 miles from Mass. Pike.)

From the North via Interstate 91.
Turn right off exit ramp onto Page Blvd. At first traffic light, turn left on Roosevelt Ave. Proceed 2.5 miles to traffic light at Wilbraham Rd. Turn left and travel 1.5 miles to main entrance of the campus on right. The Admissions Office is located on Wilbraham Rd. in the second house on the left after the main entrance to the College.
(Total 8.6 miles from I-91.)

From the South via Interstate 91.
Leave I-91 at Exit 2, “East Longmeadow.” Take exit ramp following signs (Route 83) to light at intersection of Longhill St. and Sunner Ave. Turn right. Travel straight on Sunner Ave. and Allen St. to traffic light at intersection of Allen St. and Bradley Rd. (3.2 miles). Turn left on Bradley Rd. and travel 1.6 miles to Wilbraham Rd. Turn right on Wilbraham Rd. and travel 0.2 miles to the main entrance on the right. The Admissions Office is located on Wilbraham Rd. in the second house on the left after the main entrance to the College.
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**REGIONAL MAP**

- Pittsburg: 527 Miles
- Albany: 92 Miles
- Washington, D.C.: 400 Miles
- Philadelphia: 254 Miles
- New York: 154 Miles
- Boston: 90 Miles
- Montpelier: 172 Miles
- Brattleboro: 61 Miles
- Springfield: 182 Miles