

part-time
associate's and bachelor's
degree programs

Degree Programs: Admission Requirements,
Residency, Transfer Information, General
Education Requirements and Graduation

Associate's & Bachelor's Degrees
Curriculum Outlines

**“UMass Lowell’s degree programs
offer flexible electives and
concentration areas to match your
interests and career goals.”**

*-- Ann Marie Hurley, Professor of Mathematics and
Coordinator of Information Technology Programs*

A Step-by-Step Guide to Pursuing A Part-Time Undergraduate Degree at UMass Lowell

REQUIRED:

- Select your desired degree program and complete the degree program application for admission. To view a complete list of the degrees Continuing Studies offers on a part-time, evening basis, visit <http://continuinged.uml.edu/degrees>
- Mail the application with the \$40 application fee (subject to change) to:
University of Massachusetts Lowell
Admissions/Continuing Studies, Corporate and Distance Education
Dugan Hall, Room 110
Attn: Kathleen Shannon
883 Broadway Street
Lowell MA 01854-5104
- Contact the high school or college where you most recently took courses and ask them to send out official transcripts to Admissions/Continuing Studies at the address above.
- International students must have their transcripts evaluated by the Center for Educational Documentation. (<http://www.cedevaluations.com>)
- Register for courses
- Once your application and transcripts have been received, you will receive a confirmation letter from Admissions/Continuing Studies.

RECOMMENDED:

- Attend a Continuing Studies Open House/Orientation.
- Speak with a Faculty and Student Support Specialist to review degree requirements and transfer credits. (<http://continuinged.uml.edu/general/advising.htm>)
- Contact the Financial Aid Office to see if you're eligible for assistance. (<http://www.uml.edu/financialaid/>)
- If you're a veteran, senior citizen or your employer provides tuition assistance, check your eligibility for tuition waivers/remission.
- Become familiar with University policies and regulations in this catalog.
- Contact the Continuing Studies Faculty and Student Support Center with any questions at (978) 934-2474, email Continuing_Education@uml.edu or drop by Southwick Hall Room 202 on UML North, Monday through Thursday from 8:30am to 8:00pm and on Friday from 8:30am to 5:00pm.

Degree Programs: Admissions Requirements, Residency, Transfer Information, General Education Requirements and Graduation

Are you considering taking a degree program part-time, online or during evening hours? Our Faculty Program Coordinators will work with you to evaluate transfer credits and build a degree around your unique needs.



Continuing Studies offers a number of degree programs through the individual colleges at the University of Massachusetts Lowell. Students enroll in these programs to obtain practical knowledge and skills, to sharpen skills for professional advancement, to facilitate a career change, and to gain personal enrichment and satisfaction. These associate's and bachelor's degrees can be completed part time, during the evening and summer sessions. For further information on degrees available completely online, visit our website at <http://continuinged.uml.edu/online>. Degree candidates must officially apply for admission.

Since undertaking a degree program requires careful planning and scheduling of classes, students are encouraged to meet with a Faculty Program Coordinator prior to registering for courses. Program Coordinators and Student Support Specialists can help students select courses, plan a program of study, and evaluate transcripts of previous academic work. To arrange an appointment with a Faculty and Student Support Specialist, call the Faculty and Student Support Center at (978) 934-2474.

Admissions into Degree Programs

Students are welcome to register for credit or noncredit courses offered by Continuing Studies. Students who wish to pursue a certificate, an associate's degree, or a bachelor's degree must also apply for admission to a program through the Office of Admissions.

To be considered for acceptance into a certificate or degree program, students must hold a high school diploma or a General Education Development (GED) certificate. Students must be admitted to a degree program in order to be eligible for most financial aid.

The following materials must be submitted for admission:

1. A completed degree program application form, including a \$40 degree application fee (subject to change);
2. Official transcripts of all college, university or post-secondary schools attended and course descriptions;
3. Official transcript of high school records, or its equivalent (GED certificate), from applicants with no previous college/university experience.

After the above information is filed, a Faculty Program Coordinator will evaluate the student's academic records. Qualified students will receive an official letter of acceptance and a transfer credit evaluation sometime after submitting all necessary academic materials. A student who has not yet completed 18 credit hours in his or her degree program will be admitted on a provisional basis. Academic Counselors and Faculty Program Coordinators are available to answer questions regarding programs and the matriculation process. Appointments may be made by calling (978) 934-2474.

Declaration of a Major

Upon application, students are requested to declare a major. Faculty and Student Support Specialists and Faculty Program Coordinators are available to help students in selecting a field of concentration. An early decision of a major by students will greatly facilitate the selection of appropriate prerequisite courses for major fields and, accordingly, will reduce the possibilities of time-consuming errors in judgment.

ASSOCIATE'S AND BACHELOR'S DEGREE REQUIREMENTS

University policy requires all degree candidates to comply with the following standards:

1. Mastery of at least one discipline, field of knowledge or applied professional area;
2. Competence in writing the English language;
3. An understanding of the humanities, social sciences, mathematics and science; and
4. A familiarity with problems and issues of value and choice.

All Associate's Degree candidates are required to earn a 2.00 (C) cumulative average, to complete a minimum of 60 semester hours, to fulfill the residency requirements, to conform to the general regulations and requirements of the University, to satisfy the regulations and academic standards of the colleges that exercise jurisdiction over the degrees for which they are matriculating, to satisfy the curriculum requirements established by the departments or programs in their major, and to complete the University General Education requirements.

All Bachelor's Degree candidates are required to earn a 2.00 (C) cumulative average in their total course of study, to complete a minimum of 120 semester hours of course credits, to fulfill the residency requirements, to conform to the general regulations and requirements of the University, to satisfy the regulations and academic standards of the colleges that exercise jurisdiction over the degrees for which they are matriculating, to satisfy the curriculum requirements established by the departments or programs in their major, and to complete the University General Education requirements.

Residency Requirements for Associate's Degrees

In addition to meeting all the course requirements of an Associate's Degree, candidates must adhere to the following residency requirements:

1. Each student must complete at least 9 semester credits in regular course work in his or her major department and must complete at least 24 semester credits through Continuing Studies at the University of Massachusetts Lowell.
2. A student may pursue an additional associate's degree under the same regulations set forth for pursuing an additional bachelor's degree except that the total number of credits to satisfy the residency requirement is 24.

Residency Requirements for Bachelor's Degrees

In addition to satisfying specific course and achievement requirements, each bachelor's candidate must complete at least 15 semester credits in regular course work within the major department of the University for each major that is presented for a degree with a 30 semester credit minimum completed through Continuing Studies. This 30 semester credit minimum may include authorized day courses in the University.

Each candidate for a baccalaureate degree must satisfy one of the following five residency requirements:

1. Complete an associate's degree under the provisions of the Massachusetts Transfer Compact at a Massachusetts community college, earning not more than 60 semester credits, and the remainder in courses at the University, earning not less than 60 semester credits, with 30 credits earned in Continuing Studies.
2. Complete up to the first two years in an accredited two-year institution earning not more than 60 semester credits with grades of "C" (2.0 on a 4.0 scale) or better, and the remainder in courses at the University, earning not less than 60 semester credits, with 30 credits earned in Continuing Studies.
3. Complete the equivalent of the first three years of a baccalaureate program in an accredited four-year institution, earning not more than 90 semester credits ("C" grades or better) and the remaining courses at the University, earning not less than 30 semester credits in Continuing Studies.
4. Complete 90 or more semester credits at the University (30 of which must be earned in Continuing Studies) and complete the remainder of an approved prescribed course of study at another accredited institution, earning not more than 30 semester credits at that institution.
5. Complete the equivalent of the first three years of a baccalaureate program at the University of Massachusetts Lowell and the remaining credits through Continuing Studies, earning not less than 30 credits (unless University of Massachusetts Lowell day classes are authorized).

The requirement of 30 semester credits of study in the University of Massachusetts Lowell's Continuing Studies courses may not be satisfied through course equivalency procedures.

Residency Requirement for Major Fields

Each bachelor's degree candidate must complete at least 15 credits of course work in their major at the University of Massachusetts Lowell for each major that is presented for a degree.

Guidelines for Additional Bachelor's Degrees

A student who has already earned a bachelor's degree may be admitted to the University to pursue an additional bachelor's degree in accordance with the following:

1. The nomenclature of the additional degree to be pursued must be distinctly different from the previously conferred degree (e.g., Bachelor of Arts, Bachelor of Science, Bachelor of Science in Engineering, Bachelor of Science in Business Administration);
2. The major field of the previous degree must be clearly distinct from that of the additional degree;
3. The work for the additional degree must include the Continuing Studies residency requirements;
4. The final 30 credits presented for the additional degree must be in addition to and independent of any previous baccalaureate;
5. A minimum of 15 credits must be taken through Continuing Studies in the major field that is presented for the additional degree; and
6. A minimum of 30 semester credits must be completed through Continuing Studies (unless University of Massachusetts Lowell day classes are authorized).

Candidates for the additional bachelor's degree must earn a minimum of 30 credits and must comply with any special college regulation concerning completion at the University of major field and professional program requirements (including collateral and prerequisite course requirements for the major/professional program). Second degree candidates may be eligible for major field honors but are not eligible for University honors unless they have completed 60 credits at the University for the additional bachelor's degree.

Day Programs for Students Matriculating for Continuing Studies, Corporate and Distance Education

Students who have established matriculation for University of Massachusetts Lowell Continuing Studies degrees at either the associate or baccalaureate levels may be permitted to pursue specifically authorized day courses. Such students must secure the written approval of their program coordinators for all projected courses prior to filing an application with the Office of Undergraduate Admissions.

Admission into a Graduate Certificate or Degree Program

Students interested in applying into graduate degree or certificate programs should contact Graduate Admissions at (800) 656-GRAD or <http://www.uml.edu/grad>. Students with bachelor's degrees from accredited institutions are eligible to enroll as non-degree students for a maximum total of 12 credits (depending on the program) prior to matriculating into formal graduate degree programs. Students must formally apply to graduate certificate programs before enrolling in graduate courses intended for specific certificate programs.

Transfer Student Information

Students may transfer academic credit completed at other accredited institutions of higher education toward an undergraduate certificate, associate's degree or bachelor's degree. (Only one course may be transferred into each undergraduate certificate program.) Official transcripts must be sent to UMass Lowell's Office of Admissions.

Credit will be accepted if it is equivalent to University of Massachusetts Lowell instruction, if it is applicable to the intended program, and if the student has received a grade equivalent to a "C-" (1.7 on a 4.0 scale) or better, as shown on official transcripts of record that are received directly from other accredited institutions. An applicant who has attended one or more institutions must request each Registrar to mail directly to the University of Massachusetts Lowell a transcript of his or her record even though credits were not earned or presented for transfer. No credit will be recognized for the grade of "P" unless the catalog of the transferring institution specifically states that "P" is equivalent to a final course grade of "C-" (1.7 on a 4.0 scale). Quarter credits are recognized on a pro-rated basis of three quarter credits to two semester credits.

Grades of transferred courses will be recorded with the notation "CR," which designates that credit has been granted and will not be computed into a student's cumulative grade point average at the University of Massachusetts Lowell. Please note that all credits to be transferred must be identified at the time of application for transfer. The University reserves the right to deny credit for course work taken by the student prior to admission if it is identified and presented after transfer. Residency requirements are also considered when transfer credit is being evaluated.

University Restrictions Concerning Transfer Credit Recognition

Courses completed at non-public institutions that are not accredited by the major regional accrediting associations will not be credited to degree programs of the University; nor will credit be granted for courses that are unacceptable to the transfer institution for its own associate's or bachelor's programs or that are completed within post-secondary school diploma programs. Noncredit CEU courses, adult enrichment or refresher courses, and secondary school correspondence and home study courses also are not recognized for transfer credit. The University reserves the right to refuse recognition for courses that were taken more than ten years prior to the date when a student applies for transfer when, in the opinion of Department Chairpersons and Faculty Program Coordinators, the knowledge attained in such courses is deemed to be out of date and/or in need of verification. Competencies that a student has achieved through such courses, or by any other means, may be recognized for credit if verified by CLEP or departmental examinations.

Commonwealth Transfer Compact

The University of Massachusetts Lowell has affirmed its intention to maintain flexibility in the transfer of qualified students from community colleges of the Commonwealth of Massachusetts. For the implementation of this objective, the University of Massachusetts Lowell has subscribed to the Commonwealth Transfer Compact.

All courses that have been accepted by the University from signatory community colleges of the Commonwealth Transfer Compact are listed on the student's transcript; and those courses that are not applicable to specific curriculum requirements are credited, whenever possible, as unrestricted elective courses. Since some curricula of the University do not provide for such unrestricted elective courses, or the number of transferred courses may exceed the number of unrestricted elective courses that are permitted within the specifications for minimum degree requirements, transferred courses that are not applicable to the specific requirements of a curriculum are not counted in the determination of the number of course credits completed until the semester of graduation. This procedure prevents the early imposition of a grade point requirement for retention that is in excess of that specified for the number of credits completed and applicable to the student's particular curriculum.

The revised Commonwealth Transfer Compact (1990) provides a process to facilitate the transfer of collegiate credits and to ensure the appropriate recognition of academic progress earned by students at a community college who wish to continue their education at a public college or university.

**Need help making sense of all this?
Call our Faculty and Student Support Center
at (978) 934-2474. Our team of
Faculty and Student Support Specialists
can help you with your questions!**

A Step-by-Step Guide to Transferring International Credits

Students pursuing a degree at UMass Lowell who would like to transfer college credits earned outside the U.S. need to contact the Center for Educational Documentation (CED) to have their credits evaluated for potential transfer credit. The Center for Educational Documentation (CED) provides UMass Lowell with professional assistance in interpreting the educational background of persons educated abroad.

The information we have provided below is designed to help guide students through the process, but we strongly advise that students check directly with CED for the most up-to-date information regarding regulations, requirements, restrictions, forms and applicable fees.

Center for Educational Documentation, Inc.
PO Box 231126
Boston, MA 02123-1126
Phone: (617) 338-7171
Fax: (617) 338-7101
Email: info@cedevaluations.com
<http://www.cedevaluations.com>

THE PROCESS:

Applicants must submit the following by mail to the Center for Educational Documentation (CED):

1. A completed Credential Evaluation Request Form (available on CED's website).

For UMass Lowell Continuing Studies to receive the evaluation, request that the evaluation be sent to:
University of Massachusetts Lowell
Dugan Hall, Room 104
883 Broadway Street
Lowell, MA 01854-5104

2. Documentation to support the earning of credits.

The documents needed to prepare an evaluation depend on the purpose and use of the evaluation, but generally include:

- Diplomas, degrees and certificates
- Transcripts, study books, course and grade listings, or course syllabi
- Program outlines or course descriptions as needed
- Notice of certification (e.g., teacher, accountant)

Original documents or legible, notarized copies of original documents showing the stamp or seal of the institution should be submitted. CED reserves the right to request original documents as needed. They should be sent to CED by certified mail. To have your documents returned by certified mail, an additional shipping and handling charge is required; please refer to the CED website for up-to-date cost and procedure.

Translations certified by Consulate, Embassy, Notary Public or Translation Service must be provided together with the documents in the original language for documents in languages other than English.

Evaluations are not prepared until the complete documentation and all necessary supporting material is received. If additional information is needed to supplement materials submitted, CED will contact the applicant to inform them of any additional documentation required.

3. Application fee and other fees as required.

The fee depends on the type and complexity of the evaluation and is indicated on the CED Credential Evaluation Request Form. Please refer to CED for any applicable additional fees and fee policies.

The transcript evaluation, once completed by CED, will be mailed to the University of Massachusetts Lowell and a copy sent to the applicant. A Continuing Studies Program Coordinator then evaluates which credits will transfer and an evaluation worksheet will be sent to you.

Students Transferring from Massachusetts Community Colleges to Public Colleges and Universities Offering the Baccalaureate Degree

Section I: Requirement for Transfer Compact Status

A student shall be eligible for Transfer Compact status if he or she has met the following requirements:

- a. Completed an associate's degree with a minimum of 60 credit hours exclusive of developmental course work;
- b. Achieved a cumulative grade point average of not less than 2.0 (in a 4.0 system) at the community college awarding the degree; and
- c. Completed the following minimum General Education core, exclusive of developmental course work:

English Composition/Writing	6 cr
Behavioral and Social Sciences	9 cr
Humanities and Fine Arts	9 cr
Natural or Physical Science	8 cr
Mathematics	3 cr

The sending institution is responsible for identifying the transcript of each student who is a candidate for transfer under this compact.

Section II: Credits to be Transferred

The 35 credits in General Education specified in Section I will be applied toward the fulfillment of the receiving institution's General Education requirements.

A minimum of 25 additional credits will be accepted as transfer credits by the receiving institution. These credits may be transferred 1) as free electives, 2) toward the receiving institution's additional General Education requirements, 3) toward the student's major, or 4) as any combination as the receiving institution deems appropriate.

Only college-level course credits consistent with the standards set forth in the Undergraduate Experience recommendations are included under this Compact. Credits awarded by the sending institution through CLEP, challenge examinations and other life-experience evaluations for course credit may be included when the community college certifies that a student qualifies under this Compact.

Section III: Credits Beyond the Associate's Degree

To complete the baccalaureate degree, a student who transfers under this Compact may be required to take no more than 68 additional credits unless:

- a. The student changes his or her program upon entering the receiving institution; or
- b. The combination of additional General Education requirements, if any, and the requirements of the student's major at the receiving institution total more than 68 credits.

Under these circumstances, transfer students will be subject to the same requirements as native students. The term "native student" refers to students who began their undergraduate education at the baccalaureate institution.

Depending upon the date of matriculation into a degree program through Continuing Studies at the University of Massachusetts Lowell, each student is responsible for satisfying either the following General Education 2000 Program Requirements or the University Core Requirements on page 51.

GENERAL EDUCATION 2000 PROGRAM REQUIREMENTS

For students who matriculated into a degree program since the Fall 2005 semester.

The General Education Program at UMass Lowell fosters active learning by asking students to think critically, communicate effectively and embrace cultural diversity.

Courses within the program are designed to provide students with a foundation that prepares them for continued work within their major and minor fields, as well as endowing them with the intellectual habits that will enable them to become lifelong learners.

There are two major components to the General Education Program:

- 1) Breadth of Knowledge, which consists of a year of college writing; a semester of mathematics courses; and three courses in each of three areas: Arts and Humanities, Social Sciences, and Science and Technology; and
- 2) General Education courses within a major, which are defined differently in each major field, but meet the University's Diversity and Ethics requirements.

Course Requirements

The General Education Program consists of two parts: a course distribution requirement and requirements to be fulfilled through the student's major program. Seven learning outcomes are to be addressed by the General Education Program. They are:

1. Breadth of Knowledge
2. Critical Thinking
3. Clear Communication
4. Diversity
5. Ethics
6. Self-Direction and Collaboration
7. Information Literacy

The first three learning outcomes should be fulfilled through the course distribution requirement; the remaining four learning outcomes should be fulfilled through courses provided by the major department. Learning outcomes 2) and 3), which are central to the course distribution requirement, are also reinforced throughout the student's major program. Ideally, all seven learning goals will eventually become embedded in the curriculum as a whole. Thus a student's first exposure to a particular goal may be in General Education courses, but students may find the principles behind these goals reinforced repeatedly throughout their undergraduate experience.

General Education Course Distribution Requirements

The Course Distribution Requirement consists of a total of 36-38 credits and address three of the learning outcomes:

Breadth of Knowledge (learning outcome #1)

Students must demonstrate familiarity with several different areas of knowledge and several different modes of inquiry (outside of their major program). This requirement consists of five categories of courses. All courses in categories c), d), and e) must be chosen from an approved list and no more than two may be from the same department:

- a) College Writing I & II
 - b) Mathematics 1 course (provided by the Math department)
 - c) Arts and Humanities 3 courses
 - d) Social Sciences 3 courses
 - e) Science and Technology 3 courses (2 must contain an experimental learning component)
- Total: 36-38 credits

Each General Education course in the distribution requirement provides elements of:

Critical Thinking (learning outcome # 2)

Students must demonstrate the ability to synthesize information, discover connections, differentiate between facts and opinions,

assess evidence, draw conclusions, construct arguments on both sides of a debate using the best available evidence, solve problems, develop and test hypotheses.

Clear Communication (learning outcome # 3)

Students must demonstrate the ability to communicate effectively: to articulate, support and defend a position using appropriate modes of communication.

Major Program General Education Requirements

Each major program provides appropriate ways for its students to address the learning outcomes 4-7. The major programs have developed plans for complying with their part of the General Education Program in consultation with the General Education Coordinating Committee.

Diversity (learning outcome # 4)

Students must demonstrate the ability to understand diverse groups of peoples, cultures and views. Diversity is defined broadly to include culture (i.e., national origin, language, ethnicity and religion), race, gender, social class, age, sexual orientation and disability).

This learning outcome should be met by each student's selection of at least one General Education course, major course (or sections of courses) or elective that meets the criteria for significant diversity content. Courses that fulfill the diversity requirement may also count toward other requirements of General Education and the major.

Ethics (learning outcome # 5)

Students must demonstrate an awareness of the implications of choosing various principles of action. This learning outcome should be met by each student's selection of a General Education course, major course, or elective with significant ethics content. Courses that fulfill the ethics requirement may also count toward other requirements of General Education and the major.

Self-Direction and Collaboration (learning outcome # 6)

Students must demonstrate the ability to complete an intellectual project, both independently and in collaboration with others. Major programs may choose to meet this learning outcome by requiring a capstone project, a directed study or a portfolio of learning experience.

Information Literacy (learning outcome # 7)

Students must demonstrate the ability both to use appropriate media to gather information relative to their major field and to access reliable general information.

Courses Approved for General Education 2000 Program as of January 2007

See www.uml.edu/gened for the most up-to-date listing of courses approved for the General Education 2000 Program.

Note: Courses followed by D or E have been approved for the Diversity or Ethics standards.

Arts and Humanities (AH)

English:

- Great Books of Antiquity, 42.201
- Great Books Modern, 42.202
- Human Values in Western Culture I, 42/59.205 (D, E)
- Human Values in Western Culture II, 42/59.206 (D, E)
- Poetry, 42.211
- Short Story, 42.212
- Monsters, Apes, and Nightmares, 42.216 (E)
- Horror Story, 42.217
- Introduction to Theatre, 42/59.219
- Oral Communication, 42.222
- Turning Fiction into Film, 42.232
- Literature and Women, 42.240
- Contemporary Women Writers, 42.243 (D)
- Women in the Middle Ages and Renaissance, 42.244

- Gay and Lesbian Literature, 42.245 (D)
- Values in American Culture, 40/42.248 (D, E)
(also listed as 59.248)
- Literature on Technology and Human Values, 42/59.249 (E)
- The Bible as Literature, 42.250
- War in Literature, 42.251 (E)
- The Family in American Literature, 40/42.257 (D)
- Acting I, 42.261 (also 59.261)
- Introduction to Shakespeare, 42.267
- Continental Fiction in Translation, 42.272
- Literature of the Beat Movement, 42.274
- Crime and Literature, 42.285 (D)
- History of English Literature I, 42.291
- History of English Literature II, 42.292
- History of English Literature III, 42.293
- History of American Literature I, 42.294
- History of American Literature II, 42.295

Arts and Humanities (AH) - continued

History of American Literature III, 42.296 (D)
 The South in American Literature, 42.311 (D)
 Studies in Film, 42.341
 Arthurian Literature: Love, War, and Magic, 42.349
 African American Literature, 42.376 (D)

History:

Classical Civilization, 43.101
 Western Civilization I, 43.105 (D)
 Modern World, 43.106 (D)
 United States to 1877, 43.111 (D)
 American Civilization since 1877, 43.112 (D)
 American Economic History, 43.206 (D)
 The Middle Ages, 43.227 (D)
 Women in European History, 43.228
 History of Crime and Social Control, 43.306 (D)
 African American History, 43.275 (D)
 European Social and Economic History, 43.304
 History of Science I: The Invention of Science, 43.311
 Science in the Modern World, 43.312 (E)
 American Environmental History, 43.316
 Problems of Modern Ireland, 43.336 (D)
 Slavery and Abolition, 43.345 (D)
 Colonial America: History and Culture, 43.350 (D)

Philosophy:

Introduction to Philosophy, 45.201 (E)
 Introduction to Logic and Critical Reasoning, 45.202 (E)
 Introduction to Ethics, 45.203 (D, E)
 Introduction to Political Philosophy, 45.206 (E)
 Ancient Philosophy, 45.285 (E)
 Ways of Knowing, 45.301
 God and Philosophy, 45.304 (D)
 Language, Signs and Symbols, 45.305
 Philosophy and Film, 45.316
 Environmental Philosophy, 45.327 (D, E)
 Engineering and Ethics, 45.334 (E)
 Ethical Issues in Technology, 45.335 (E)
 Early Modern Philosophy, 45.336 (E)
 Mysticism: East and West, 45.340 (D, E)
 Science, Ethics, and Society, 45.341 (E)
 Critical Theory & Society, 45.342 (E)
 Eastern Philosophy and Religion, 45.348 (D,E)
 World Philosophies, 45.350 (D, E)
 Problem of Evil, 45.351 (D, E)
 Existence and Anxiety, 45.352 (E)
 Philosophies of Art and Beauty, 45.384
 Bioethics and Genetic Research, 45.401 (E)

Cultural Studies:

Gender and Sexuality in French Cinema, 50.375 (D)
 French Cinema and Society, 50.376 (D)
 Images of Women in French Cinema, 50.378 (D)

Art History:

Art Appreciation, 58.101 (D)
 History of Art I, 58.203 (D)
 History of Art II, 58.204 (D)
 History of Architecture, 58.206
 Nineteenth Century Art, 58.211
 Twentieth Century Art, 58.221

Greek and Roman Art and Architecture, 58.231
 American Art and Architecture, 17th-19th Centuries, 58.313
 Italian Renaissance Art, 58.321
 Italian Mannerism, 58.330
 Italian Baroque Art, 58.332
 Women and Art, 58.340
 Art History and Film, 58.370

Music:

Basic Music Theory, 71.110
 Gender Issues in Music, 74.103 (D)
 Music in Western Civilization, 74.161
 Music History I, 74.261
 Music History II, 74.262
 American Music, 74.301 (D)
 African-American Concert Music, 74.320 (D)
 Jazz, 74.355 (D)
 History of Rock Music, 74.386 (D)
 American Musical Theater, 74.356 (D)
 Music, Technology and Society, 78.301

Interdisciplinary Programs:

Introduction to Gender Studies, 59.240 (D,E)
 Acting I, 59.261
 Understanding Technological Risk, 59.303 (E)
 European Cinema: Across Cultures, 59.374
 Computers in Society, 59.395 (E)

Social Sciences (SS)Nursing:

Introduction to Gerontology, 30.306

Legal Studies:

Introduction to Business Law, 41.262
 Legal Issues Involving Racism, 41.360 (D)

Criminal Justice:

Gender, Race, and Crime, 44.360 (D)
 Intimate Partner Violence, 44.477
 Child Maltreatment, 44.478 (E)

Political Science:

Introduction to American Politics, 46.101
 Introduction to Politics, 46.110 (D)
 Comparative Political Systems, 46.112 (D)
 Introduction to International Relations, 46.121 (D)
 Constitutional Law and Politics (and honors section), 46.235 (D)
 Civil Liberties Law and Politics (and honors section), 46.237 (D)
 Literature, Politics and Genocide in Cambodia, 46.348 (D, E)

Psychology:

General Psychology, 47.101
 Social Psychology, 47.209 (D)
 Psychology of Personality, 47.232
 Community Psychology, 47.255 (D)
 Child and Adolescent Development , 47.260
 Abnormal Psychology, 47.272
 Theories of Learning, 47.276
 Psychology of Consciousness, 47.333
 Psychology of Women, 47.335 (D)
 Human Sexuality, 47.351
 Sport and Exercise Psychology, 47.355

Human Development II, 47.360
 Introduction to Development Disabilities, 47.363 (D)
 Psychology of Language, 47.365 (D)

Sociology:

Introduction to Sociology, 48.101 (D, E)
 Social Anthropology, 48.102 (D)
 Introduction to Social Values, 48.110 (D, E)
 Peacemaking Alternatives, 48.215 (D, E)
 Sociology of the Family, 48.231 (D)
 Introduction to Gender Studies, 48.240 (D)
 Sociology of Deviance, 48.255
 Sociology of the Mass Media, 48.260 (D, E)
 Self in Society, 48.270
 Sociology of Genocide, 48.317 (D, E)
 Social Stratification, 48.341 (D)
 Women in Society, 48.370 (D)

Economics:

The Future of Work in the Global Economy, 49.110
 Economics I, 49.201
 Macroeconomics, 49.202
 Labor Economics, 49.302 (D)
 Introduction to Environmental Economics, 49.315 (SSE)
 U.S. Economic History, 49.325 (D)
 Health Economics, 49.345 (E)

Regional Economic and Social Development:

Introduction to Regions, 57.201
 Sustainable Development, 57.211 (E)
 Regional Health and the Environment, 57.218 (D)
 Gender, Work, and Public Policy (sr. status req.), 57.420 (D)

Environmental, Earth and Atmospheric Sciences:

World Regional Geography, 88.101 (D)
 Geography of the US and Canada, 88.102
 Foundations of Conservation and Environmental Concern,
 88.104 (E)

Interdisciplinary Programs

Introduction to Gender Studies, 59.239 (D,E)
 Cultural, Social and Value Issues in American Universities, 59.380 (E)

Science (SC) and Technology (TN)

No more than one technology (TN) or technology and lab (TNL) course may be used to satisfy this standard. At least two of the three Science and Technology courses must include lab. (Definitions: SCL or TNL: Lab is corequisite; students must take both lecture and lab to satisfy general education standard. SCLO or TNLO: Students may take lecture and lab together to satisfy SCL standard or lecture without lab for SC credit)

Engineering:

Technology and the Human-Built World, 10.101 (TN)
 Digital Information World, 16.111 (TNL)
 Principles and History of Radio, 16.233 (TNL)
 Artbotics, 91.117 (TNL)

Clinical Laboratory Sciences:

Human Anatomy and Physiology 1, 35.101/103 (SCL)
 Human Anatomy and Physiology 2, 35.102/104 (SCL)

Biology:

Principles of Biology I with Lab, 81.111/113 (SCL)
 Principles of Biology II with Lab, 81.112/114 (SCL)
 Principles of Ecology with Lab, 81.315/317 (SCL)
 Population Genetics and Evolution, 81.435 (SC)
 Life Science I (and Lab), 83.101/(103) (SCLO)
 Life Science II (and Lab), 83.102/(104) (SCLO)
 Nutrition and Disease, 83.123 (SC)
 Plants and Human Society, 83.125/127 (SCLO)

Chemistry:

Applied Chemistry for Non-Scientists, 84.101 (SCL)
 General Chemistry I with Lab, 84.111/113 (SCL)
 General Chemistry II with Lab, 84.112/114 (SCL)
 Chemistry I with Lab, 84.121/123 (SCL)
 Chemistry II with Lab, 84.122/124 (SCL)
 Honors Chemistry I, 84.135 (SCLO)
 Honors Chemistry II, 84.136 (SCLO)

Environmental, Earth and Atmospheric Sciences:

The Nature of Science, 85.120 (SC)
 Weather and Climate and Lab, 85.141 (SCL)
 Astronomy and Lab, 87.115/117 (SCL)
 General Geology, 89.101 (SC)
 Earth and Life, 89.151/153 (SCL)
 Forensic Geology (honors), 89.215 (SCL)

Physics:

Introductory Physics I (and Lab), 95.101/96.101 (SCL)
 General Physics I (and Lab), 95.103/(96.103) (SCLO)
 Exploring the Universe and Lab, 95.121/96.121 (SCL)
 Physics I and Lab, 95.141/96.141 (SCL)
 Honors Physics I (and Lab), 95.161/(96.161) (SCLO)
 Radiation and Life (and Lab), 99.101/102 (SCLO)

GENERAL EDUCATION/UNIVERSITY CORE REQUIREMENTS

For students who enrolled in an associate's or bachelor's degree program prior to the Fall 2005 semester.

Students who enrolled in an associate's or bachelor's degree program prior to the Fall 1994 semester should call the Faculty and Student Support Center at (978) 934-2474 for guidance on course selection.

All students are required to satisfy the General Education Requirements, which include a minimum of 36 credits. In fulfilling the following requirements (except Sciences), students may take no more than one course from a single department. The two-course College Writing requirement is a separate service of the English Department and does not affect that Department's participation in other categories of General Education.

Courses taken to fulfill the General Education Requirements cannot be taken on a Pass/Fail basis. Students who transfer to the University from quarter-hour schools may satisfy the number and types of courses required under General Education but could fall short of the 36-credit requirement. To meet this minimum General Education credit requirement, these students may take or transfer additional courses from any of the following eight categories.

General Education requirements must be satisfied as follows:

- A. Aesthetics: One three-credit course designated AE, BSA, or HSA.
- B. Behavioral and Social Sciences: Two three-credit courses designated BS, BSA, BSV.
- C. College Writing: Two three-credit courses designated CW are required: 42.101 and 42.102 or 42.103 and 42.104.
- D. Historical Studies: One three-credit course designated HS, HSA, or HSV.
- E. Literature: One three-credit course designated LT or LTV.
- F. Mathematics: One three-credit course designated MA in the 92 series at the level of 92.111 (Mathematical Perspectives) or higher.
- G. Sciences and Technology: A minimum of three courses totaling a minimum of nine credit hours in courses designated SC, SCV, SL, ST, STL in the Continuing Studies Course Bulletin must be earned, with at least two courses that include some form of experimental learning (SL or STL).

Students electing courses to satisfy the experimental requirement with an SL or STL course that has a separate corequisite laboratory section must pass both. Although laboratory sections may be offered as separate corequisite sections of a course and carry credit: 1.) laboratory credit will not be recognized toward fulfilling the General Education requirement unless the corequisite lecture course has been passed; and 2.) corequisite laboratory sections do not count towards meeting the three-course minimum.

No more than two courses may be taken in a single department.

- H. Values, Concepts, and Choice: One three-credit course designated VC, BSV, HSV, LTV, SCV.

General Education Codes:

AE	Aesthetics	MA	Mathematics
BS	Behavioral and Social Sciences	SC	Science
BSA	BS or AE	SL	Science with experimental learning
BSV	BS or VC	ST	Science Technology
CW	College Writing	STL	Science Technology with experimental learning
HS	Historical Studies	VC	Values, Concepts, and Choice
HSA	HS or AE	VCA	Values, Concepts, Choice, and Aesthetics
HSV	HS or VC		
LT	Literature		
LTV	LT or VC		

Courses designated BSA, BSV, HSA, HSV, LTV, and SCV encompass two General Education areas. They may be used to fulfill only one General Education requirement. For example, a course designated HSA may be used to satisfy either the Historical Studies (HS) or Aesthetics (AE) requirement, and a course designated LTV may be used to satisfy either the Literature (LT) or Values, Concepts, and Choice (VC) requirement.

GRADUATION

See the commencement website at www.uml.edu/academicaffairs/commencement for more information.

Awarding of Degrees

The University awards degrees three times a year:

1. For students completing degree requirements during the Spring, the degrees are awarded in June and diplomas are available to students in June;
2. For students completing degree requirements during the Fall semester, the degrees are awarded in February and the diplomas are available to students in March; and
3. For students completing degree requirements during the Summer term, the degrees are awarded in October and the diplomas are available to students in December.

Individuals who wish to submit verification of degree completion to employers or to graduate schools during the period between the end of their final grading period and the conferring of degrees may obtain a letter of completion.

Graduation Interview

Students anticipating graduation in the coming academic year must arrange for a graduation interview through Continuing Studies. The purpose of this interview is to determine eligibility for graduation and to begin the ordering process for the diploma. During this interview, degree candidates must identify such problems as missing courses or any problems with grades, incompletes or transfer credits. Students are encouraged to meet with their Faculty Program Coordinator prior to scheduling a graduation interview.

Students who expect to complete their degree requirements in the Fall semester must complete the interview by the end of October, and students who expect to complete their degree requirements in the Spring or Summer semesters must complete their interview by mid-March, to ensure that their names are included in the graduation program and that their diplomas are available at graduation time. Appointments are scheduled by calling the Faculty and Student Support Center at (978) 934-2474.

University Honors

The University awards degrees with three levels of distinction upon those graduating students who have attained exceptional scholastic distinction. Three levels of distinction are noted at commencement: summa cum laude, magna cum laude and cum laude. University honors are officially entered on the permanent record of students. To graduate with honors, a student must have achieved a minimum grade point average of 3.25 for all courses completed at the University and must have earned a minimum of 60 semester credits at the University as an upper-class student. A total of nine (9) credits of departmental exam and/or courses graded "S" may be used toward the 60 credits needed to be considered for University Honors. Credits taken on a Pass/Fail basis may not be counted toward the 60 credit requirement.

Three levels of distinction are noted at commencement:

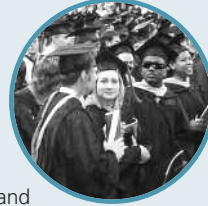
Summa Cum Laude	3.850 – 4.0
Magna Cum Laude	3.500 – 3.849
Cum Laude	3.250 – 3.499

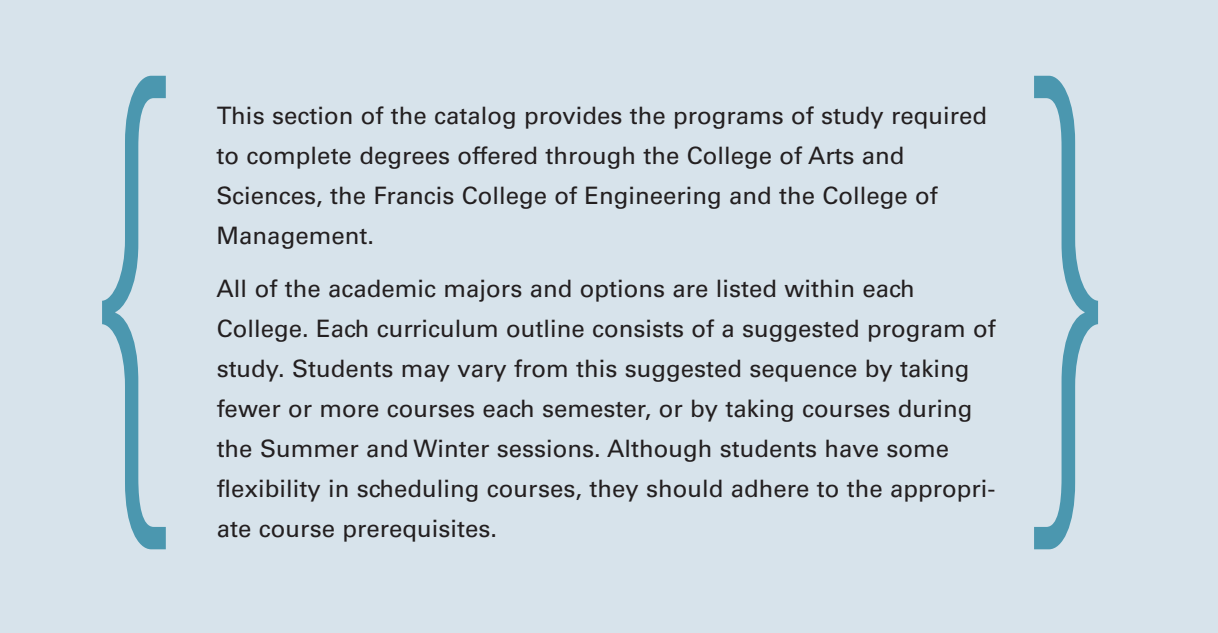
University Commencement

Graduation exercises are held once a year in early June. Undergraduates who have completed requirements during the preceding Fall semester, who complete degree requirements during the current Spring semester, and who anticipate completion of degree requirements during the next immediate Summer term are encouraged to attend commencement exercises, and their names are listed in the commencement booklet.

Graduation Checklist

- October:
 - ☆ Complete graduation interview for Fall graduates. Information is available at <http://continuinged.uml.edu/policies/graduation.htm>
- March:
 - ☆ Complete graduation interview for Spring and Summer graduates. Information is available at <http://continuinged.uml.edu/policies/graduation.htm>
 - ☆ Complete Chancellor's Medals application
- Beginning of April:
 - ☆ Pay all outstanding financial obligations
- Beginning of May:
 - ☆ Pick up cap and gown and commencement tickets at bookstore
 - ☆ Alpha Sigma Lambda members pick up academic cord at the Faculty and Student Support Office, Southwick 202, UML North, One University Ave., Lowell MA, 01854
- Mid May:
 - ☆ Senior Week activities take place
 - ☆ Senior Brunch takes place
- Beginning of June:
 - ☆ Graduation ceremony takes place
- Mid June:
 - ☆ Students not attending graduation ceremony will receive notification to pick up diploma
 - ☆ More Information available is at <http://continuinged.uml.edu/policies/graduation.htm>





This section of the catalog provides the programs of study required to complete degrees offered through the College of Arts and Sciences, the Francis College of Engineering and the College of Management.

All of the academic majors and options are listed within each College. Each curriculum outline consists of a suggested program of study. Students may vary from this suggested sequence by taking fewer or more courses each semester, or by taking courses during the Summer and Winter sessions. Although students have some flexibility in scheduling courses, they should adhere to the appropriate course prerequisites.

part-time associate's and bachelor's degree programs

Curriculum Outlines

College of Arts & Sciences

B.L.A. - Bachelor of Liberal Arts
B.A. in Psychology
B.S. in Criminal Justice
B.S. in Criminal Justice: Paralegal Option
A.S. in Information Technology
B.S. in Information Technology
B.S. in Information Technology: Business Minor
Second Degree Option: B.S. in Information Technology
B.S. in Mathematics
B.S. in Applied Mathematics
B.S. in Mathematics: Statistics Concentration
B.S. in Mathematics: Teacher Concentration

Francis College of Engineering

A.S. in Civil Engineering Technology
A.S. in Civil Engineering Technology: Surveying Option
B.S. in Civil Engineering Technology
A.S. in Electronic Engineering Technology
B.S. in Electronic Engineering Technology
A.S. in Mechanical Engineering Technology
B.S. in Mechanical Engineering Technology

College of Management

A.S. in Management
B.S.B.A. - Bachelor of Science in Business Administration

College of Arts and Sciences

THE COLLEGE OF ARTS AND SCIENCES OFFERS THE FOLLOWING CONTINUING STUDIES UNDERGRADUATE PROGRAMS:

ASSOCIATE'S AND BACHELOR'S DEGREES:

Liberal Arts, B.L.A.
Psychology, B.A.
Information Technology, A.S., B.S.
Second B.S. Degree in Information Technology
Criminal Justice, B.S.
 Paralegal Option, B.S.
Mathematics, B.S.
 Statistical Concentration
 Teacher Concentration
Applied Mathematics, B.S.

CERTIFICATE PROGRAMS:

Database Management Technologies
Contemporary Communications
Data/Telecommunications
Graphic Design & Digital Imaging
Information Technology
Multimedia Applications
Paralegal Studies
Security Management and Homeland
 Security
Spanish and Latin American
Technical Writing
UNIX
Website Design & Development

FOR MORE INFORMATION ON CERTIFICATE PROGRAM DESCRIPTIONS AND REQUIREMENTS, SEE THE CERTIFICATE PROGRAMS SECTION IN THIS CATALOG OR VISIT OUR WEBSITE AT [HTTP://CONTINUINGED.UML.EDU](http://continuinged.uml.edu)

Liberal Arts

The Bachelor of Liberal Arts degree provides students with a well-balanced liberal arts curriculum, while offering them the opportunity to pursue in-depth study in two areas of concentration. Concentrations available through Continuing Studies are Art History, English, History, Legal Studies, Psychology and Women's Studies. Other concentrations may be available with consultation with the Program Coordinator. The convenience and flexibility of this program make it an ideal choice for working adults, transfer students and for students whose education plans were previously interrupted. The program is also popular among students who plan to eventually attend graduate school, and those interested in multicultural studies, museum and archival studies, and positions within nonprofit organizations and government. This program can be taken entirely online, entirely face-to-face or as a mix of online and on-campus courses. For students entering the program in or after September 2006, the minimum required grade point average for the student graduating from the program is 2.5.

BACHELOR OF LIBERAL ARTS - Available on campus or online

TOTAL CREDITS: 120

This degree consists of 48-60 credits with concentrations in two liberal arts disciplines – see the next two pages for descriptions of the available concentrations. The minimum 48 credits must be equally divided in course work between the two concentrations – in other words, at least 8 courses (24 credits) from each concentration, with at least four of the courses from each concentration area – taken at the 300/400 level.

FIRST YEAR

FIRST SEMESTER

42.101	College Writing I - GenEd	3
----	Mathematics Course - General Education	<u>3</u> 6

SECOND SEMESTER

42.102	College Writing II - GenEd	3
----	General Education - Social Sciences (SS)	<u>3</u> 6

THIRD SEMESTER

----	General Education - Science w/Lab	4
----	General Education - Art & Humanities (AH)	<u>3</u> 7

SECOND YEAR

FIRST SEMESTER

----	Competency Requirement	3
----	Concentration I Elective	<u>3</u> 6

SECOND SEMESTER

----	Competency Requirement	3
----	Concentration II Elective	<u>3</u> 6

THIRD SEMESTER

----	General Education - Science w/Lab	4
----	General Education - Art & Humanities (AH)	<u>3</u> 7

THIRD YEAR

FIRST SEMESTER

----	Concentration I Elective	3
----	General Education - Social Sciences (SS)	<u>3</u> 6

SECOND SEMESTER

----	Concentration II Elective	3
----	Competency Requirement	<u>3</u> 6

THIRD SEMESTER

----	Competency Requirement	3
----	Free Elective	<u>3</u> 6

FOURTH YEAR

FIRST SEMESTER

----	Concentration I Elective	3
----	Concentration II Elective	<u>3</u> 6

SECOND SEMESTER

----	Concentration I Elective	3
----	Concentration II Elective	<u>3</u> 6

THIRD SEMESTER

----	General Education - Science (Non-Lab)	3
----	Free Elective	<u>3</u> 6

FIFTH YEAR

FIRST SEMESTER

----	300/400 Concentration I Elective	3
----	300/400 Concentration II Elective	<u>3</u> 6

SECOND SEMESTER

----	300/400 Concentration I Elective	3
----	300/400 Concentration II Elective	<u>3</u> 6

THIRD SEMESTER

----	General Education - Art & Humanities (AH)	3
----	General Education - Social Sciences (SS)	<u>3</u> 6

SIXTH YEAR

FIRST SEMESTER

----	300/400 Concentration I Elective	3
----	300/400 Concentration II Elective	<u>3</u> 6

SECOND SEMESTER

----	300/400 Concentration I Elective	3
----	300/400 Concentration II Elective	<u>3</u> 6

THIRD SEMESTER

----	Free Elective	3
----	Free Elective	<u>3</u> 6

SEVENTH YEAR

FIRST SEMESTER

----	Free Elective	3
----	Free Elective	<u>3</u> 6

SECOND SEMESTER

----	Free Elective	3
----	Free Elective	<u>3</u> 6

COMPETENCY REQUIREMENT

Competency Requirement assures that students will gain necessary abilities in one of the areas deemed to be important to working in the 21st Century. Students may fulfill this requirement by choosing one of the areas below and fulfilling the requirements as stated. Students who choose the foreign language competency must complete all 12 credits within that area. Students who choose one of the other competencies may, with permission of the Program Coordinator, complete 12 "competency" credits.

I. Foreign Languages: Four courses in language and civilization (12 credits) or intermediate level proficiency.

II. Practical and Technical Literacy: Four courses (12 credits). For example: courses in computer literacy, studio art, community service, healthcare, marketing and management skills, music performance.

III. Diversity of Cultural Experience: courses in art history, music history, philosophy, history.

BACHELOR OF LIBERAL ARTS

Continued

CONCENTRATION AREAS FOR THE BACHELOR OF LIBERAL ARTS DEGREE

Students are required to take 8-10 courses from each of their two concentrations (48-60 credits total). At least four of the required courses from each concentration must be taken at the 300/400 level. Students are encouraged to discuss their concentration and course selections with their Faculty Program Coordinator.

ART HISTORY CONCENTRATION

The Art History Concentration provides students with an academic foundation appropriate for pursuing a career in the arts. Graduates of the program enjoy a wide-range of professional opportunities in institutions such as museums, art galleries, publishing companies and auction houses – working in such positions as museum curators, art librarians, antiques dealers, teachers, and art columnists to name a few. The primary focus of the Art History Concentration is to create visually literate students with a fundamental understanding of the historical development of art in societies and cultures around the world. Students pursuing this concentration will further develop the ability to organize their perceptions and thoughts about artwork so that they can provide a well-informed analysis that honors the historical and cultural context of the artwork. They learn how to use professional skills and methods in their visual analysis and how to better articulate their personal interpretation of the artwork.

Some of the courses that may be included in the Art History Concentration are:

- 58.101 Art Appreciation
- 58.203 History of Art I: Prehistoric to Medieval Art
- 58.204 History of Art II: Renaissance to Modern
- 58.221 Twentieth Century Art
- 58.300 Art History, Music and Culture
- 58.321 Italian Renaissance Art
- 58.330 Italian Mannerist Art
- 58.340 Women and Art
- 58.345 Pre-Raphaelite Art

A more comprehensive list of 58.- - - Art History courses is available in each semester's course bulletin or on our website.

ENGLISH CONCENTRATION

The English Concentration provides students with a comprehensive foundation in English – from learning how to write and present information in a factual and engaging manner, to studying classic and contemporary works of English and American literature. The English Department at UMass Lowell has built an extraordinary program of study designed to give students the tools they need to succeed in a variety of professions. Graduates of the program pursue careers in fields that draw upon liberal arts training including journalism, marketing, publishing, communications, library science, museum management, theatre arts, documentary filmmaking, politics, government and the law. Whether creatively or technically inclined, students pursuing the English Concentration have the opportunity to develop a clear, professional writing style – a talent that is highly regarded in virtually every industry today.

Some of the courses that may be included in the English Concentration are:

- 42.202 Great Books of the Modern Period
- 42.211 Intro to Poetry
- 42.212 Short Story
- 42.216 Monster, Apes & Nightmares
- 42.217 Horror Story
- 42.225 Business Writing OR
- 42.226 Technical and Scientific Writing
- 42.243 Contemporary Women Writers
- 42.300 Introduction to Journalism
- 42.303 Creative Writing Poetry
- 42.314 Writing Mysteries
- 42.325 Rise of the Novel
- 42.376 Contemporary American Fiction

A more comprehensive list of 42.- - - English courses is available in each semester's course bulletin or on our website.

HISTORY CONCENTRATION

The History Concentration provides students with a deep understanding of world history and the impact historical events have had on the world in which we live today. Courses in this concentration provide students with practical experiences in research, analysis, writing, presentation, theory and critical thinking. As a result, students graduate from the program better prepared for careers in areas such as documentary film-making, international business, library science, museum management, journalism, politics, government and the law. The History Department at UMass Lowell offers a wide range of history courses that boast topics that are highly relevant to modern times. Courses feature titles such as Problems of Modern Ireland to the History of the Middle East. Students gain a better understanding of world history, its cultures and patterns that have influenced historical development and continue to impact societies on a global scale.

Some of the courses that may be included in the History Concentration are:

- 43.107 World History I
- 43.108 World History II
- 43.112 U.S. History Since 1877
- 43.242 The Second World War
- 43.270 Women in American History
- 43.274 Native American History
- 43.308 History of Crime & Social Control
- 43.336 Problems of Modern Ireland
- 43.356 Civil War and Reconstruction
- 43.393 History of the Middle East

A more comprehensive list of 43.- - - History courses is available in each semester's course bulletin or on our website.

BACHELOR OF LIBERAL ARTS

Continued

Choose Two Concentrations

From These Six Concentration Areas.

LEGAL STUDIES CONCENTRATION

The Legal Studies Concentration allows students to gain extensive insight into today's legal system – providing graduates with a wide-range of professional opportunities in the industry. The Legal Studies Concentration enables students to gain a broad-based understanding of legal practices while they work towards a solid foundation in liberal arts. Students have the opportunity to study a variety of legal topics including criminal and tort law, contract law, corporate law (partnerships, limited partnerships, joint ventures, and corporate structure), family law (marriage, custody, adoption, divorce, child support, juveniles, right to die, reproduction control, surrogate parenting and fetal tissue transfer), environmental law (federal and state legislation and public-interest litigation), racial discrimination, and real estate law (deeds, title examinations, methods of co-ownership and landlord and tenant rights and liabilities). Many of the courses in this concentration provide students with a preview to classes offered in law school.

Some of the courses that may be included in the Legal Studies Concentration are:

- 41.262 Introduction to Business Law
- 41.360 Legal Issues in Racism
- 41.363 Corporate and Property Law
- 41.367 Environmental Law
- 41.370 Real Estate Law
- 41.376 Family Law
- 41.381 Women and the Law
- 41.387 Legal Research Methods
- 41.490 Legal Aspects of Cyberspace

A more comprehensive list of 41.-.- Legal Studies courses is available in each semester's course bulletin or on our website.

PSYCHOLOGY CONCENTRATION

The Psychology Concentration is designed to acquaint students with the science that surrounds the human mind. Courses in this concentration cover such topics as human development, the learning process, sexuality, the relationship between physiological and psychological processes in humans and animals, sensation and perception, cognitive processes, motivation and emotion, personality, behavioral disorders, and social behavior. Graduates of the program can pursue careers in psychology-related fields such as social work, mental health care, human services, counseling, marketing research, labor relations, management and productivity improvement. For those who wish to become a licensed psychologist, an advance degree is typically required, yet the Psychology Concentration provides students with an academic foundation that is conducive to further pursuit of an advanced degree in this field.

Some of the courses that may be included in the Psychology Concentration are:

- 47.101 General Psychology
- 47.260 Child and Adolescent Development
- 47.272 Abnormal Psychology
- 47.312 Learning and Behavior
- 47.335 Psychology and Women
- 47.351 Human Sexuality
- 47.360 Adult Development & Aging
- 47.363 Intro to Disabilities Studies
- 47.477 Seminar: Contemporary Trends – Addictions

A more comprehensive list of 47.-.- Psychology courses is available in each semester's course bulletin or on our website.

WOMEN'S STUDIES CONCENTRATION

The Women's Studies Concentration explores the history of women in societies throughout the world – providing students with an understanding of how social and cultural influences have shaped the lives and roles of women throughout history. For graduates, there is a growing demand in the workforce for experts on gender issues. In fact, women's studies specialists are increasingly being used as consultants in both the public and private sector. Graduates of this concentration receive all the benefits of a well-rounded liberal arts education, plus advanced knowledge of issues particularly affecting women in the workplace today.

Note: The following list includes courses from some of the other concentration areas, but they may only be counted once towards one of the two concentration areas.

- 41.376 Family Law
- 41.381 Women and the Law
- 42.241 Women in Film
- 42.243 Contemporary Women Writers
- 43.270 Women in American History
- 43.380 Work and Society
- 44.360 Gender, Race, and Crime
- 44.477 Intimate Partner Violence
- 47.335 Psychology and Women
- 47.351 Human Sexuality
- 48.231 Sociology of the Family
- 48.370 Women in Society
- 48.305 Sociology of Family Law
- 50.378 Women in French Cinema
- 58.340 Women & Art

Psychology

The Bachelor's Degree in Psychology is one of UMass Lowell's most popular degree programs for students who are interested in social and behavioral sciences. This program can be taken entirely online or as a mix of online and on-campus classes.

The Psychology curriculum acquaints students with scientific methods and psychological studies. It provides students with theoretical foundations in various subfields of psychology: experimental, developmental, social, personality and clinical psychology. The curriculum emphasizes the application of psychological knowledge and skills in many areas of human functioning.

BACHELOR OF ARTS IN PSYCHOLOGY - Available on campus or online

YEARS 1-7: SUGGESTED PROGRAM OF STUDY

TOTAL CREDITS: 120

The following course outline is only a suggested course load. Based on student experiences, we do not recommend registering for more than 3 online courses per semester.

FIRST YEAR

FIRST SEMESTER

42.101	College Writing I - GenEd	3
92.---	General Education - Mathematics	6
	(92.151/111/183 or 92.283 recommended)	

SECOND SEMESTER

47.101	General Psychology	3
----	General Education - Social Science (SS)	6

THIRD SEMESTER

----	Beginning Language I	3
42.102	College Writing II - GenEd	3
		6

SECOND YEAR

FIRST SEMESTER

----	General Education - Science w/Lab	4
----	General Education - Arts/Humanities (AH)	3
		7

SECOND SEMESTER

47.260	Child and Adolescent Development	3
----	Beginning Language II	3
		6

THIRD SEMESTER

47.269	Research I: Basics	3
47.232	Psychology of Personality or	3
47.272	Abnormal Psychology	6

THIRD YEAR

FIRST SEMESTER

----	General Education - Social Science (SS)	3
----	General Education - Science w/Lab	4
		7

SECOND SEMESTER

----	Intermediate Language I	3
47.209	Social Psychology OR	3
47.255	Community Psychology	6

THIRD SEMESTER

47.---	Experimental Psychology Elective (see courses on next page)	3
----	General Education - Arts/Humanities (AH)	3
		6

FOURTH YEAR

FIRST SEMESTER

----	General Education - Science (Non-Lab)	3
----	Intermediate Language II	3
		6

SECOND SEMESTER

47.369	Research II: Statistics	3
3.---	General Education - Arts/Humanities (AH)	3
		6

THIRD SEMESTER

47.300/400	Psych. Elective	3
----	General Education - Social Science (SS)	3
		6

FIFTH YEAR

FIRST SEMESTER

----	Free Elective	3
47.375	Research III: Laboratory	3
		6

SECOND SEMESTER

47.300/400	Psych. Elective	3
----	Psych. or Free Elective	3
		6

THIRD SEMESTER

----	Free Elective	3
----	Free Elective	3
		6

SIXTH YEAR

FIRST SEMESTER

47.4 --	Advanced Seminar (see course listings on next page)	3
----	300/400 Psych. or Free Elective	3
		6

SECOND SEMESTER

----	300/400 Free Elective	3
----	Free Elective	3
		6

THIRD SEMESTER

----	Free Elective	3
47.4 --	Advanced Psych. Elective	3
		6

SEVENTH YEAR

FIRST SEMESTER

----	Psych. or Free Elective	3
----	300/400 Free Elective	3
		6

SECOND SEMESTER

----	Free Elective	3
----	Free Elective	3
		6

*Consult the GenEd 2000 website at www.uml.edu/gened regarding all GenEd requirements. Psychology majors fulfill GenEd Diversity and Ethics requirements by completing the major.

BACHELOR OF ARTS IN PSYCHOLOGY

Continued

GENERAL GUIDELINES FOR PSYCHOLOGY MAJOR REQUIREMENTS

(For freshmen entering Fall 2003 and subsequently)
A major in psychology consists of 36-45 credits with at least 18 credits at the 300 level or higher. Students transferring to the college and wishing to major in Psychology must make individual arrangements with the Program Coordinator regarding satisfaction of major course requirements.

Required Courses

- 47.101 General Psychology
- 47.260 Child and Adolescent Development
- 47.269 Research I: Basics*
- 47.369 Research II: Statistics
- 47.375 Research III: Laboratory

*Note: Students must earn a minimum grade of C in 47.269 before taking 47.369.

Choose One Course in Each of the Following Three Areas:

a. Personality and Abnormal Psychology:

- 47.232 Psychology of Personality
- 47.272 Abnormal Psychology

b. Social and Community Psychology:

- 47.209 Social Psychology
- 47.255 Community Psychology

c. Experimental Psychology:

- 47.273 Brain, Mind & Behavior
- 47.276 Theories of Learning
- 47.277 Sensation and Perception
- 47.278 Cognitive Psychology

Take Two 300/400 Level Psychology Courses:

- 47.300/400
- 47.300/400

Take One Advanced Seminar:

- 47.472 Seminar in Personality
- 47.473 Seminar in Social Psychology
- 47.474 Seminar: Developmental Psychology
- 47.475 Seminar in Clinical Psychology
- 47.476 Seminar: Experimental Psychology
- 47.477 Seminar: Contemporary Trends in Psychology
- 47.480 Integrative Seminar

Take One Additional 400 Level or Higher Psychology Elective:

- - - - Any 400 level seminar
- - - - Practicum (w/permission of instructor)
- - - - Directed Study (w/permission of Dept. Chair)
- - - - Graduate Level Course (Seniors w/instructor's permission)

LANGUAGE REQUIREMENT

Students in the Psychology major are required to demonstrate intermediate level proficiency in a foreign language.

Criminal Justice



The University of Massachusetts Lowell offers a Bachelor of Science Degree in Criminal Justice. This program offers a strong concentration in professional courses while simultaneously assuring the student a traditional, well-rounded liberal arts education. The typical student takes between 36 and 48 credits in professional courses.

In addition to this, the student majoring in Criminal Justice will fulfill a professional skills requirement. This consists of either attaining intermediate proficiency in a modern foreign language or completing four mathematics courses in computers. In the event the student chooses the foreign language skill, the University recommends Spanish.

BACHELOR OF SCIENCE IN CRIMINAL JUSTICE

YEARS 1-7: SUGGESTED PROGRAM OF STUDY

TOTAL CREDITS: 120

The following course outline, which lists 3 courses each semester, is only a suggested course load. First-year students should not take more than 1 or 2 courses their first semester. Subsequent course loads may be determined by the students' own personal time constraints. A 2.2 cumulative average overall and a 2.5 average in the major are necessary for graduation.

FIRST YEAR

FIRST SEMESTER

42.101	College Writing I	3
44.101	The Criminal Justice System	3
----	Skills Requirement I	<u>3</u>
		9

SECOND SEMESTER

42.102	College Writing II	3
41.234	Criminal Law	3
----	Skills Requirement II	<u>3</u>
		9

SECOND YEAR

FIRST SEMESTER

----	General Education - Social Sciences (SS)	3
92.283	General Education - Mathematics (Introduction to Statistics) OR	<u>3</u>
	Statistics for Behavioral Sciences (recommended)	6
92.283	Statistics for Behavioral Sciences (recommended)	9

SECOND SEMESTER

----	General Education - Social Sciences (SS)	3
----	General Education - Science*	<u>3</u>
		6

THIRD YEAR

FIRST SEMESTER

44.221	Criminology	3
44.--	Criminal Justice Elective	3
----	Criminal Justice Collateral	<u>3</u>
		9

SECOND SEMESTER

44.--	Criminal Justice Elective	3
----	Skills Requirement III	3
----	General Education - Science*	<u>3</u>
		9

FOURTH YEAR

FIRST SEMESTER

----	Skills Requirement IV	3
----	General Education - Arts/Humanities (AH)	3
44.390	Introduction to Criminal Justice Research	<u>3</u>
		9

SECOND SEMESTER

----	General Education - Arts/Humanities (AH)	3
----	Free Elective	3
44.370	Criminal Justice Management	<u>3</u>
		9

FIFTH YEAR

FIRST SEMESTER

44.--	Criminal Justice Elective	3
----	Criminal Justice Collateral	3
----	General Education - Arts/Humanities (AH)	<u>3</u>
		9

SECOND SEMESTER

44.300/400	Criminal Justice Elective	3
44.--	Criminal Justice Elective	3
----	Criminal Justice Collateral	<u>3</u>
		9

SIXTH YEAR

FIRST SEMESTER

----	Free Elective	3
44.300/400	Criminal Justice Elective	3
----	Criminal Justice Collateral	<u>3</u>
		9

SECOND SEMESTER

----	General Education - Science*	3
44.371	Criminal Justice Planning and Evaluation	3
----	Criminal Justice Collateral	<u>3</u>
		9

SEVENTH YEAR

FIRST SEMESTER

----	Criminal Justice Collateral	3
----	General Education - Social Sciences (SS)	3
----	Free Elective	<u>3</u>
		9

SECOND SEMESTER

----	Free Elective	3
----	Free Elective	3
----	Free Elective	<u>3</u>
		9

*Science: three courses, nine credits minimum, with at least two courses that include some form of experimental learning.

BACHELOR OF SCIENCE IN CRIMINAL JUSTICE

Continued

CRIMINAL JUSTICE

REQUIREMENTS: 36 - 48 CREDITS

The major in the Bachelor of Science in Criminal Justice consists of at least 36 credits in criminal justice courses, of which at least 15 credits should be at the 300 level or above.

COLLATERAL REQUIREMENTS: 18 CREDITS

In addition to the major courses and the professional skills area, Criminal Justice majors should select six courses from the following list of collateral courses. Six credits must be at the 300 level or above. Courses used to fulfill the professional skills requirement may be used toward fulfillment of this requirement. The collateral courses should be chosen from Legal Studies, Psychology, Political Science or Sociology. The following is a list of suggested collateral courses from which students may choose:

- 41.261 Introduction to Legal Concepts
- 41.262 Introduction to Business Law
- 41.363 Corporate and Property Law
- 41.369 The Courts and the Constitution
- 41.376 Family Law
- 41.381 Women and the Law
- 41.383 Alternative Dispute Resolution
- 42.382 Crime in Literature
- 43.216 American Urban History I
- 43.217 American Urban History II
- 43.268 History of the Family and Childhood in the U.S.
- 43.308 History of Crime, Conflict, and Social Control in the U.S.
- 43.349 English Constitutional and Legal History
- 44.435 Alternative Dispute Resolution
- 45.203 Introduction to Ethics
- 46.105 Introduction to Public Policy
- 46.202 Practical Public Affairs
- 46.230 Law and the Legal System
- 46.265 State and Local Politics
- 46.270 Legislative Politics
- 46.345 Constitutional Law and Politics
- 46.347 Civil Liberties, Law and Politics
- 46.355 Government Fiscal Policy
- 46.356 Public Policy Analysis
- 46.360 Public Administration
- 47.209 Social Psychology
- 47.232 Psychology of Personality
- 47.260 Child and Adolescent Development I
- 47.272 Abnormal Psychology
- 47.360 Human Development II
- 47.364 Psychology of Crime and Corrections
- 48.231 Sociology of the Family
- 48.234 Study of Minorities

- 48.235 Black Experience in American Life
- 48.255 Social Deviance
- 48.256 Political Sociology
- 48.341 Social Stratification
- 48.345 Urban Sociology
- 48.361 Sociology of Law and the Criminal Justice System
- 48.402 Social Research
- 92.283 Introduction to Statistics
- 92.363 Introduction to Data Analysis

All courses in the Criminal Justice major are regarded as professional courses and are not accepted either in transfer or as elective options in other degree programs in the College of Arts and Sciences, except for the following:

- 44.101 The Criminal Justice System
- 44.221 Criminology I
- 44.234 Criminal Law
- 44.261 Juvenile Delinquency
- 44.321 Advanced Criminology II
- 44.335 Juvenile Court: Philosophy and Practice Justice

PROFESSIONAL SKILLS REQUIREMENT: 12 CREDITS

Students are required to meet proficiency standards in one of the following:

- a. Intermediate proficiency in a modern language, preferably Spanish OR
- b. Proficiency in Criminal Justice Technology and Information Systems to be demonstrated by passing a minimum of four courses (12 credits) as follows:
 - 44.203 CJ Technology & Information Systems
 - One of the following:
 - 90.385 Introduction to Information Security
 - 91.113 Exploring the Internet
 - 44.397 Crime Mapping
 - 44.395 Statistics in Criminal Justice
 - 44.398 Data Analysis in Criminal Justice

PROGRAM TRACKS

There are three main areas of tracks that a student may elect: Enforcement, Law and the Courts, or Corrections. Courses suggested for one track are not exclusive, and some crossover is desirable.

Enforcement

- 44.101 The Criminal Justice System
- 44.141 Police Functions
- 44.221 Criminology

- 44.233 Criminal Procedure
- 44.234 Criminal Law
- 44.243 Criminalistics I
- 44.244 Criminalistics II
- 44.261 Juvenile Delinquency
- 44.341 International Perspectives on Crime and Crime Control
- 44.370 Criminal Justice Management
- 44.371 Criminal Justice Planning
- 44.373 Issues in Police Administration
- 44.390 Introduction to Criminal Justice Research
- 44.490 Criminal Justice Honors Seminar

Law and the Courts

- 44.101 The Criminal Justice System
- 44.221 Criminology
- 44.233 Criminal Procedure
- 44.234 Criminal Law
- 44.261 Juvenile Delinquency
- 44.321 Advanced Criminology
- 44.331 Penal Law
- 44.335 Juvenile Justice
- 44.351 Community Based Corrections
- 44.360 Gender, Race, and Crime
- 44.370 Criminal Justice Management
- 44.371 Criminal Justice Planning
- 44.380 Selected Issues in Criminal Justice
- 44.390 Introduction to Criminal Justice Research
- 44.490 Criminal Justice Honors Seminar
- 46.230 Law and the Legal System

Corrections

- 44.101 The Criminal Justice System
- 44.151 Introduction to Corrections
- 44.221 Criminology
- 44.233 Criminal Procedure
- 44.234 Criminal Law
- 44.261 Juvenile Delinquency
- 44.331 Penal Law
- 44.351 Community Based Corrections
- 44.370 Criminal Justice Management
- 44.371 Criminal Justice Planning
- 44.372 Issues in Correctional Administration
- 44.390 Introduction to Criminal Justice Research
- 44.490 Criminal Justice Honors Seminar
- 46.230 Law and the Legal System

FREE ELECTIVES: REMAINING CREDITS

Please note that from among all electives, either collateral or free electives, that the student presents for graduation, at least two must be at the 300 or 400 course level.

BACHELOR OF SCIENCE IN CRIMINAL JUSTICE: PARALEGAL OPTION

YEARS 1-7: SUGGESTED PROGRAM OF STUDY

TOTAL CREDITS: 120

The following course outline, which lists 3 courses each semester, is only a suggested course load. First-year students should not take more than 1 or 2 courses their first semester. Subsequent course loads may be determined by the students' own personal time constraints. A 2.2 cumulative average overall and a 2.5 average in the major are necessary for graduation.

FIRST YEAR

FIRST SEMESTER

41.103	Introduction to Paralegal Studies	3
42.101	College Writing I	3
44.101	The Criminal Justice System	<u>3</u> 9

SECOND SEMESTER

44.301	Computer Applications for the Legal Profession	3
42.102	College Writing II	3
----	General Education - Science*	<u>3</u> 9

SECOND YEAR

FIRST SEMESTER

----	General Education - Mathematics	3
----	General Education - Social Sciences (SS)	3
46.230	Law and the Legal System	<u>3</u> 9

SECOND SEMESTER

----	General Education - Social Sciences (SS)	3
----	Skills Requirement	3
44.234	Criminal Law	<u>3</u> 9

THIRD YEAR

FIRST SEMESTER

----	Collateral Elective	3
----	Skills Requirement	3
----	General Education - Science*	<u>3</u> 9

SECOND SEMESTER

----	Skills Requirement	3
----	General Education - Arts/Humanities (AH)	3
----	Collateral Elective	<u>3</u> 9

FOURTH YEAR

FIRST SEMESTER

41.390	Litigation	3
41.387	Legal Research Methods	3
----	Collateral Elective	<u>3</u> 9

SECOND SEMESTER

----	Paralegal Elective	3
----	Collateral Elective	3
----	Collateral Elective	<u>3</u> 9

FIFTH YEAR

FIRST SEMESTER

41.376	Family Law	3
----	General Education - Arts/Humanities (AH)	3
41.370	Real Estate Law	<u>3</u> 9

SECOND SEMESTER

----	General Education - Science*	3
----	General Education - Social Sciences (SS)	3
41.363	Corporate and Property Law	<u>3</u> 9

SIXTH YEAR

FIRST SEMESTER

----	Paralegal Elective	3
----	Paralegal Elective	3
----	General Education - Arts/Humanities (AH)	<u>3</u> 9

SECOND SEMESTER

----	Free Elective	3
----	Paralegal Elective	3
----	Collateral Elective	<u>3</u> 9

SEVENTH YEAR

FIRST SEMESTER

44.497	Paralegal Practicum/Internship	3
----	Collateral Elective	<u>3</u> 6

SECOND SEMESTER

41.379	Law, Logic, and Ethics	3
----	Free Elective	<u>3</u> 6

*Science: three courses, nine credits minimum, with at least two courses that include some form of experimental learning.

PROFESSIONAL SKILLS REQUIREMENT: 12 CREDITS

All students must meet proficiency standards in foreign language or professional skills:

a. Intermediate proficiency in a modern foreign language, preferably Spanish (12 credits)

OR

b. Professional skills option:

44.301	Computer Applications for the Legal Profession	3
41.387	Legal Research Methods	3
41.379	Law, Logic, and Ethics	3
92.283	Introduction to Statistics	3

PARALEGAL OPTION REQUIREMENTS:

a. Required Courses:

41.103	Introduction to Paralegal Studies	
44.234	Criminal Law	
41.261	Introduction to Legal Concepts	
OR		
46.230	Law and the Legal System	
41.370	Real Estate Law	
41.379	Law, Logic, and Ethics	
41.390	Litigation	
44.101	The Criminal Justice System	
44.301	Computer Applications for the Legal Profession	
41.363	Corporate and Property Law	
41.376	Family Law	
41.387	Legal Research Methods	
44.497	Paralegal Practicum/Internship	

BACHELOR OF SCIENCE IN CRIMINAL JUSTICE: PARALEGAL OPTION

Continued

b. The student may select an additional 12 credits in the major field. These courses can be chosen from the Criminal Justice Curriculum (44.- - - prefix) and/or from the following approved Paralegal course List:

- 41.366 International Law
- 41.367 Environmental Law and Regulations
- 41.368 Employment and Labor Law
- 41.371 Legal Issues in Health Care
- 41.490 Legal Aspects of Cyberspace
- 46.345 Constitutional Law and Politics
- 46.347 Civil Liberties, Law, and Politics

COLLATERAL REQUIREMENTS:

18 CREDITS

In addition to the major courses, the student should select six collateral course electives from the following suggested list of courses. Six credits of collateral electives must be at the 300 level or above. Courses used to fulfill the professional skills requirement may be used toward fulfillment of this requirement.

- 42.382 Crime in Literature
- 43.216 American Urban History I
- 43.217 American Urban History II
- 43.268 History of the Family and Childhood in the U.S.
- 43.308 History of Crime, Conflict, and Social Control in the U.S.
- 43.349 English Constitution and Legal History
- 45.203 Introduction to Ethics

- 46.105 Introduction to Public Policy
- 46.202 Practical Public Affairs
- 46.265 State and Local Politics
- 46.270 Legislative Politics
- 46.347 Civil Liberties, Law, and Politics
- 46.355 Government Fiscal Policy
- 46.356 Public Policy Analysis
- 46.360 Public Administration
- 46.410 Reading Seminar in Judicial Review
- 47.209 Social Psychology
- 47.232 Psychology of Personality
- 47.260 Child and Adolescent Development I
- 47.272 Abnormal Psychology
- 47.360 Human Development II
- 47.364 Psychology of Crime and Corrections
- 48.231 Sociology of the Family
- 48.234 Study of Minorities
- 48.235 Black Experience in American Life
- 48.255 Social Deviance
- 48.256 Political Sociology
- 48.341 Social Stratification
- 48.345 Urban Sociology
- 48.361 Sociology of Law and the Criminal Justice System
- 48.402 Social Research
- 92.283 Introduction to Statistics
- 92.363 Introduction to Data Analysis

Mathematics

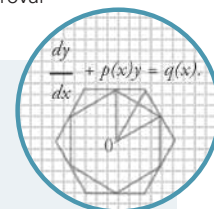
Mathematics has always been essential to our intellectual and technological advancement, and in the coming decades, our reliance on the mathematical sciences will become increasingly universal. With the arrival of the twenty-first century, mastery of the tools and techniques that are covered by the mathematical sciences will define success. The major in Mathematics is designed to provide a sequence of courses that will acquaint the student with important concepts underlying the main branches of mathematics. The Mathematics and Information Technology majors are offered under the requirements of the College of Arts and Sciences.

Programs of study are available for the following specializations: Bioinformatics, Computational Mathematics, Information Technology, Statistics, Teacher Concentration and Theoretical Mathematics. For sample program outlines not included in this catalog, please contact the Coordinator of Mathematics Programs. The Bioinformatics and the Theoretical Mathematics options may require that several courses be taken from course offerings from the day school. Courses selected for concentration/option electives must have prior written approval of the coordinator or department chair.

Please Note: All mathematics courses (except 90.010 and 90.111) are transferable to the University of Massachusetts Lowell Day Division upon appropriate University approval. Courses with the prefix 92.-.- are equivalent to those in the day school with the same number. Day school students wishing to elect courses with the prefix 90.-.- must petition the chairperson and/or coordinator in order to determine course equivalence.

About Mathematical Sciences at UMass Lowell

The Mathematical Sciences Department of the University offers three bachelor's degree programs through Continuing Studies: Mathematics, Applied Mathematics and Information Technology. The Mathematics curriculum is intended for working professionals in a wide range of related disciplines: teaching, science, engineering, decision science, actuarial science, operations research, mathematical biology, bioinformatics, economics, computer science, etc. Students interested in the Mathematics major are encouraged to take advantage of its flexibility by taking a sequence of courses related to the mathematical application of their choice. Concentration electives and electives allow the student and advisor to tailor programs to individual objectives and talents. The flexibility of the program also allows students to take advantage of the many state-of-the-art Information Technology courses available through Continuing Studies.



BACHELOR OF SCIENCE IN MATHEMATICS

YEARS 1-7: SUGGESTED PROGRAM OF STUDY

TOTAL CREDITS: 129

The following course outline, which lists 3 courses each semester, is only a suggested course load. First-year students should not take more than 1 or 2 courses their first semester. Subsequent course loads may be determined by the student's own personal time constraints.

For students entering the program in or after September 2005.

FIRST YEAR

FIRST SEMESTER

92.120	Precalculus Mathematics I	3
42.101	College Writing I	3
49.201	Economics I	<u>3</u>
	(Microeconomics) -	9
	General Education -	
	Social Sciences (SS)	

SECOND SEMESTER

92.123	Precalculus Mathematics II	3
42.102	College Writing II	3
----	General Education -	<u>3</u>
	Social Sciences (SS)	9

SECOND YEAR

FIRST SEMESTER

92.125	Calculus A	3
42.226	Technical and Scientific Communication	3
99.131	Technical Physics I	<u>3</u>
		9

SECOND SEMESTER

92.126	Calculus B	3
----	General Education -	3
	Arts & Humanities (AH)	
99.132	Technical Physics II	<u>3</u>
		9

THIRD YEAR

FIRST SEMESTER

92.225	Calculus C	3
----	Elective**	3
----	General Education - Arts,	<u>3</u>
	Humanities & Diversity (AHD)	9

SECOND SEMESTER

92.226	Calculus D	3
92.321	Discrete Structures I	3
92.385	Applied Statistics†† or	<u>3</u>
92.386	Probability and Statistics I††	9

FOURTH YEAR

FIRST SEMESTER

92.221	Linear Algebra I	3
----	Computing Requirement	3
	(see Program Coordinator)	
----	GenEd - Science with	3
	Experimental Learning	
----	GenEd - Science with	<u>1</u>
	Experimental Learning Lab	10

SECOND SEMESTER

92.222	Linear Algebra II	3
----	General Education - Arts,	3
	Humanities & Ethics (AHE)	
----	Gen. Ed.- Science with	3
	Experimental Learning	
----	GenEd - Science with	<u>1</u>
	Experimental Learning Lab	10

FIFTH YEAR

FIRST SEMESTER

92.234	Differential Equations	3
----	Elective**	3
----	Elective**	<u>3</u>
		9

SECOND SEMESTER

----	Mathematics Elective	3
	(300 level or above)*	
----	General Education -	3
	Social Sciences (SS)	
----	Concentration Elective*	<u>3</u>
		9

SIXTH YEAR

FIRST SEMESTER

92.---	_____ Analysis†	3
----	Elective**	3
----	Concentration Elective*	<u>3</u>
		9

SECOND SEMESTER

92.---	_____ Analysis†	3
----	Math Elective (300 level	3
	or above)*	
----	Elective**	3
92.375	Senior Seminar I (see	<u>1</u>
	Program Coordinator)	10

SEVENTH YEAR

FIRST SEMESTER

----	Mathematics Elective	3
	(300-level or above)*	
----	Elective**	3
----	Elective**	<u>3</u>
		9

SECOND SEMESTER

92.475	Senior Seminar II (see	3
	Program Coordinator)	
----	Concentration Elective*	3
----	Elective**	<u>3</u>
		9

*The purpose of concentration electives is to allow students, with the assistance of their advisor, to take advantage of the many state-of-the-art courses available at the University: science, information technology, engineering, decision science, actuarial science, operations research, mathematical biology, bioinformatics, economics, computer science, etc. A student may take a maximum of 15 credits of math courses (92 prefix) as concentration electives. 92.283 and 92.363 cannot be used as math electives.

**Electives may be chosen from any courses from the University. However, no more than 60 mathematics credits (beyond 92.120 and 92.123) can be counted toward graduation. All mathematics courses have prefix 92.

†Analysis requirements: One basic analysis course (92.305, 92.411, 92.501, 92.503) and one additional analysis course not used to fulfill another requirement (92.301, 92.305, 92.306, 92.322, 92.362, 92.411, 92.412, 92.413, 92.420, 92.421, 92.442, 92.450).

††Students may receive credit for both 92.385 and 92.386.

Many 500-level mathematics courses are within the grasp of upper level undergraduate students. Refer to the day school schedule of classes for graduate course listings. Many graduate courses are offered in the late afternoon/early evening time frame.

BACHELOR OF SCIENCE IN APPLIED MATHEMATICS

YEARS 1-7: SUGGESTED PROGRAM OF STUDY

TOTAL CREDITS: 129

The following course outline, which lists 3 courses each semester, is only a suggested course load. First-year students should not take more than 1 or 2 courses their first semester. Subsequent course loads may be determined by the student's own personal time constraints.

For students entering the program in or after September 2005.

FIRST YEAR

FIRST SEMESTER

92.120	Precalculus Mathematics I	3
42.101	College Writing I	3
49.201	Economics I (Microeconomics)	3 9
	General Education - Social Sciences (SS)	

SECOND SEMESTER

92.123	Precalculus Mathematics II	3
42.102	College Writing II	3
----	General Education - Social Sciences (SS)	3 9

SECOND YEAR

FIRST SEMESTER

92.125	Calculus A	3
42.226	Technical and Scientific Communication	3
99.131	Technical Physics I	3 9

SECOND SEMESTER

92.126	Calculus B	3
----	General Education - Arts & Humanities (AH)	3
99.132	Technical Physics II	3 9

THIRD YEAR

FIRST SEMESTER

92.225	Calculus C	3
----	Elective**	3
----	General Education - Arts, Humanities & Diversity (AHD)	3 9

SECOND SEMESTER

92.226	Calculus D	3
92.321	Discrete Structures I	3
92.385	Applied Statistics††	3
92.386	Probability and Statistics I††	9

FOURTH YEAR

FIRST SEMESTER

92.221	Linear Algebra I	3
----	Computing Requirement (see Program Coordinator)	3
----	GenEd - Science with Experimental Learning	3
----	GenEd - Science with Experimental Learning Lab	1 10

SECOND SEMESTER

92.222	Linear Algebra II	3
----	General Education - Arts, Humanities & Ethics (AHE)	3
----	GenEd - Science with Experimental Learning	3
----	GenEd - Science with Experimental Learning Lab	1 10

FIFTH YEAR

FIRST SEMESTER

92.234	Differential Equations	3
92.301	Intro. to Applied Mathematics I	3
----	Elective**	3 9

SECOND SEMESTER

----	Mathematics Elective (300 level or above)	3
----	General Education - Social Studies (SS)	3
----	Elective**	3 9

SIXTH YEAR

FIRST SEMESTER

92.---	_____ Analysis†	3
----	Elective*	3
----	Concentration Elective*	3 9

SECOND SEMESTER

92.---	_____ Analysis†	3
----	Math Elective (300 level or above)	3
----	Elective**	3
92.375	Senior Seminar I (see Program Coordinator)	1 10

SEVENTH YEAR

FIRST SEMESTER

92.362	Numerical Analysis	3
----	Math Elective (300 level or above)	3
----	Elective**	3 9

SECOND SEMESTER

92.475	Senior Seminar II (see Program Coordinator)	3
92.450	Mathematical Modeling	3
----	Elective**	3 9

*The purpose of concentration electives is to allow students, with the assistance of their advisor, to take advantage of the many state-of-the-art courses available at the University: science, information technology, engineering, decision science, actuarial science, operations research, mathematical biology, bioinformatics, economics, computer science, etc. A student may take a maximum of 15 credits of math courses (92 prefix) as concentration electives. 92.283 and 92.363 cannot be used as math electives.

**Electives may be chosen from any courses from the University. However, no more than 60 mathematics credits (beyond 92.120 and 92.123) can be counted toward graduation. All mathematics courses have prefix 92.

†Analysis requirements: One basic analysis course (92.305, 92.411, 92.501, 92.503) and one additional analysis course not used to fulfill another requirement (92.301, 92.305, 92.306, 92.322, 92.362, 92.411, 92.412, 92.413, 92.420, 92.421, 92.442, 92.450).

††Students may receive credit for both 92.385 and 92.386.

Many 500-level mathematics courses are within the grasp of upper level undergraduate students. Refer to the day school schedule of classes for graduate course listings. Many graduate courses are offered in the late afternoon/early evening time frame.

BACHELOR OF SCIENCE IN MATHEMATICS: STATISTICS CONCENTRATION

YEARS 1-7: SUGGESTED PROGRAM OF STUDY

TOTAL CREDITS: 129

The following course outline, which lists 3 courses each semester, is only a suggested course load. First-year students should not take more than 1 or 2 courses their first semester. Subsequent course loads may be determined by the student's own personal time constraints.

For students entering the program in or after September 2005.

FIRST YEAR

FIRST SEMESTER

92.120	Precalculus Mathematics I	3
42.101	College Writing I	3
49.201	Economics I	3
	(Microeconomics)	9
	General Education - Social Sciences (SS)	

SECOND SEMESTER

92.123	Precalculus Mathematics II	3
42.102	College Writing II	3
----	General Education - Social Sciences (SS)	3
		9

SECOND YEAR

FIRST SEMESTER

92.125	Calculus A	3
42.226	Technical and Scientific Communication	3
99.131	Technical Physics I	3
		9

SECOND SEMESTER

92.126	Calculus B	3
----	General Education - Arts & Humanities (AH)	3
99.132	Technical Physics II	3
		9

THIRD YEAR

FIRST SEMESTER

92.225	Calculus C	3
----	Elective**	3
----	General Education - Arts, Humanities & Diversity (AHD)	3
		9

SECOND SEMESTER

92.226	Calculus D	3
92.321	Discrete Structures I	3
92.385	Applied Statistics	3
		9

FOURTH YEAR

FIRST SEMESTER

92.221	Linear Algebra I	3
----	Computing Requirement (see Program Coordinator)	3
----	GenEd - Science with Experimental Learning	3
----	GenEd - Science with Experimental Learning Lab	1
		10

SECOND SEMESTER

92.222	Linear Algebra II	3
----	General Education - Arts, Humanities & Ethics (AHE)	3
----	GenEd - Science with Experimental Learning	3
----	GenEd - Science with Experimental Learning Lab	1
		10

FIFTH YEAR

FIRST SEMESTER

92.234	Differential Equations	3
----	Elective**	3
----	Elective**	3
		9

SECOND SEMESTER

92.386	Probability and Statistics I	3
----	General Education - Social Sciences (SS)	3
----	Concentration Elective*	3
		9

SIXTH YEAR

FIRST SEMESTER

92.---	_____ Analysis†	3
----	Elective**	3
92.593	Experimental Design	3
		9

SECOND SEMESTER

92.---	_____ Analysis†	3
92.591	Linear Models/Regression	3
----	Elective**	3
92.375	Senior Seminar I (see Program Coordinator)	1
		10

SEVENTH YEAR

FIRST SEMESTER

----	Concentration Elective*	3
----	Concentration Elective*	3
----	Elective**	3
		9

SECOND SEMESTER

92.475	Senior Seminar II (see Program Coordinator)	3
----	Concentration Elective*	3
----	Elective**	3
		9

*The purpose of concentration electives is to allow students, with the assistance of their advisor, to take advantage of the many state-of-the-art courses available at the University: science, information technology engineering, decision science, actuarial science, operations research, mathematical biology, bioinformatics, economics, computer science, etc. A student may take a maximum of 15 credits of math courses (92 prefix) as concentration electives. 92.283 and 92.363 cannot be used as math electives.

**Electives may be chosen from any courses from the University. However, no more than 60 mathematics credits (beyond 92.120 and 92.123) can be counted toward graduation. All mathematics courses have prefix 92.---

†Analysis requirements: One basic analysis course (92.305, 92.411, 92.501, 92.503) and one additional analysis course not used to fulfill another requirement (92.301, 92.305, 92.306, 92.322, 92.362, 92.411, 92.412, 92.413, 92.420, 92.421, 92.442, 92.450).

Many 500-level mathematics courses are within the grasp of upper level undergraduate students. Refer to the day school schedule of classes for graduate course listings. Many graduate courses are offered in the late afternoon/early evening time frame.

BACHELOR OF SCIENCE IN MATHEMATICS: TEACHER CONCENTRATION

YEARS 1-7: SUGGESTED PROGRAM OF STUDY

TOTAL CREDITS: 129

The following course outline, which lists 3 courses each semester, is only a suggested course load. First-year students should not take more than 1 or 2 courses their first semester. Subsequent course loads may be determined by the student's own personal time constraints.

For students entering the program in or after September 2005.

FIRST YEAR

FIRST SEMESTER

92.120	Precalculus Mathematics I	3
42.101	College Writing I	3
49.201	Economics I	3
	(Microeconomics)	9
	General Education -	
	Social Sciences (SS)	

SECOND SEMESTER

92.123	Precalculus Mathematics II	3
42.102	College Writing II	3
---	General Education -	3
	Social Sciences (SS)	9

SECOND YEAR

FIRST SEMESTER

92.125	Calculus A	3
42.226	Technical and Scientific	3
	Communication	
99.131	Technical Physics I	3
		9

SECOND SEMESTER

92.126	Calculus B	3
---	General Education -	3
	Arts & Humanities (AH)	
99.132	Technical Physics II	3
		9

THIRD YEAR

FIRST SEMESTER

92.225	Calculus C	3
---	Elective**	3
---	General Education - Arts,	3
	Humanities & Diversity (AHD)	9

SECOND SEMESTER

92.226	Calculus D	3
92.321	Discrete Structures I	3
92.385	Applied Statistics† or	3
92.386	Probability and Statistics I†	9

FOURTH YEAR

FIRST SEMESTER

92.221	Linear Algebra I	3
---	Computing Requirement	3
	(see Program Coordinator)	
---	GenEd - Science with	3
	Experimental Learning	
---	GenEd - Science with	1
	Experimental Learning Lab	10

SECOND SEMESTER

92.222	Linear Algebra II	3
---	General Education - Arts,	3
	Humanities & Ethics (AHE)	
---	GenEd - Science with	3
	Experimental Learning	
---	GenEd - Science with	1
	Experimental Learning Lab	10

FIFTH YEAR

FIRST SEMESTER

92.234	Differential Equations	3
---	Concentration Elective*	3
---	Elective**	3
		9

SECOND SEMESTER

---	Mathematics Elective	3
	(300 level or above)*	
---	General Education -	3
	Social Sciences (SS)	
---	Concentration Elective*	3
		9

SIXTH YEAR

FIRST SEMESTER

92.420/520	Mathematical Problem	3
	Solving	
---	Elective**	3
---	Concentration Elective*	3
		9

SECOND SEMESTER

92.503	Mathematical Analysis	3
---	Math Elective	3
	(300 level or above)*	
---	Elective**	3
92.375	Senior Seminar I (see	1
	Program Coordinator)	10

SEVENTH YEAR

FIRST SEMESTER

---	Mathematics Elective	3
---	Elective**	3
---	Elective**	3
		9

SECOND SEMESTER

92.475	Senior Seminar II (see	3
	Program Coordinator)	
---	Concentration Elective*	3
---	Elective**	3
		9

*Concentration Electives can be in Mathematics or another approved department. 92.283 and 92.363 cannot be used as math electives. See an advisor from the Graduate School of Education for approval of education courses. Select at least two courses from the following for Math/Concentration Electives: 92.410/510 Computers and Calculators in the Classroom, 92.413/513 Number Theory, 92.421/521 Abstract Algebra, 92.427/527 Geometry, or 92.435/535 History of Mathematical Sciences. No more than 60 math credits can be counted towards the degree.

Note: This concentration does not give students certification to teach mathematics. The requirements for certification to teach vary from state to state. The licensure to teach mathematics usually involves three parts: a Bachelor's Degree in Mathematics or the equivalent, courses in education and state exams. Therefore, students considering a teaching career are strongly advised to see their departmental advisor and to contact the UML Graduate School of Education. They have information on the credentialing requirements for many states, and they also have information on the Massachusetts Tests for Educator Licensure (MTEL). The courses required in the Teacher Option prepare students to take and pass these exams.

**Electives may be chosen from any courses from the University. However, no more than 60 mathematics credits (beyond 92.120 and 92.123) can be counted toward graduation. All mathematics courses have prefix 92. - -
†Students may receive credit for both 92.385 and 92.386.

Many 500-level mathematics courses are within the grasp of upper level undergraduate students. Refer to the day school schedule of classes for graduate course listings. Many graduate courses are offered in the late afternoon/early evening time frame.

degree programs

Information Technology

Students who graduate with a degree in Information Technology are able to manage networks, write software, build web pages and multimedia presentations, or create and manage databases, depending on the areas they choose to study. The curriculum strikes a balance between theoretical and applied uses of Information Technology and is taught by faculty who are cutting-edge practitioners as well as educators. This degree provides students with the flexibility to integrate previous college and work experience with a program tailored to the student's particular areas of interest. Concentrations are formulated around areas such as programming, networking, database design and management, graphic design, or multimedia, and combined with general education to enable students to complete their degree as quickly as possible with the knowledge they need for their careers.

The major in Information Technology gives students the opportunity to learn the skills necessary to manage the stream of information particular to their area of interest using the ever-changing computer technology essential for success in the 21st Century. Many students come to the University to pursue certificates in UNIX, Information Technology, Multimedia Applications, Website Design and Development or Data/Telecommunications. They can then apply the courses taken to fulfill the certificate program towards a degree in Information Technology.

ASSOCIATE OF SCIENCE IN INFORMATION TECHNOLOGY - Available on campus or online

YEARS 1-4: SUGGESTED PROGRAM OF STUDY

TOTAL CREDITS: 60

The following course outline is only a suggested course load. Please note that UMass Lowell's online courses are offered during three semesters per year: Fall, Spring and Summer. Based on student experiences, we do not recommend registering for more than 3 online courses per semester.

For students entering the program in or after September 2005.

FIRST YEAR

FIRST SEMESTER

90.160	Introduction to Information Systems	3
42.101	College Writing I	3
90.112	Concepts in Algebra I*	<u>3</u>
		9

SECOND SEMESTER

90.202	Microsoft Office	3
42.102	College Writing II	3
90.119	Concepts in Algebra II or	<u>3</u>
92.120	Precalculus Mathematics I*	9

SECOND YEAR

FIRST SEMESTER

--- --	Concentration Elective	3
42.224	Business Writing or	3
42.226	Technical and Scientific Communication	
90.267	C Programming OR	<u>3</u>
90.211	Intro to Programming w/C I (followed by 90.212 Intro to Programming w/C II)**	9

SECOND SEMESTER

--- --	Concentration Elective	3
--- --	Information Technology Elective	3
--- --	Information Technology Elective	<u>3</u>
		9

THIRD YEAR

FIRST SEMESTER

--- --	Information Technology Elective	3
49.201	Economics I (Microeconomics)	3
--- --	Concentration Elective	<u>3</u>
		9

SECOND SEMESTER

--- --	Information Technology Elective	3
49.202	Economics II (Macroeconomics)	3
--- --	General Education - Arts, Humanities & Diversity AHD	<u>3</u>
		9

FOURTH YEAR

FIRST SEMESTER

92.283	Introduction to Statistics	3
--- --	General Education Arts & Humanities (AH)	3
--- --	Information Technology Elective	<u>3</u>
		9

*Cannot get credit for both 90.120 and 90.112/90.119 sequence. Note: 90.112/119 available only on campus.

**Cannot get credit for both 90.267 and 90.211/90.212 sequence.

Concentration Electives

The student must choose a sequence of three related (non-computer) courses to fulfill the concentration electives. Students should consult with their academic advisor regarding possible concentrations to fulfill this requirement.

The following courses are examples of courses that may be used towards the concentration elective and are available on campus or online. Student should select three courses in the same subject area (see first two digits of course number) or consult with an advisor for guidance in course selections.

- 43.108 World History II
- 43.206 American Economic History
- 43.274 Native American History
- 43.308 Crime and Social Control
- 47.101 General Psychology
- 47.260 Child and Adolescent Development I
- 47.272 Abnormal Psychology
- 47.312 Learning and Behavior
- 47.335 Psychology and Women
- 47.351 Human Sexuality
- 47.360 Adult Development and Aging
- 47.363 Introduction to Disabilities Studies
- 48.351 Sociology of Health and Health Care
- 60.201 Accounting/Financial
- 62.201 Marketing Principles
- 63.301 Management Information Systems

Information Technology Electives

Information Technology electives may be chosen from any computer courses with a prefix of 90.--- or 91.---

The following courses are examples of courses available on campus and online. A more comprehensive list is available in each semester's course bulletin or on our website:

- 90.220 Visual Basic
- 90.224 Advanced Visual Basic
- 90.230 Introduction to Multimedia
- 90.231 Graphics for Multimedia and the WWW
- 90.232 Desktop Video Production
- 90.236 Instructional Design for Interactive Media
- 90.238 Website Development: Microsoft® Expression® Web
- 90.247 Advanced Web Authoring: Adobe® Flash®
- 90.250 E-Commerce on the Web
- 90.268 C++ Programming
- 90.269 Advanced C++ Programming
- 90.270 Visual C++
- 90.291 Introduction to HTML
- 90.297 Introduction to Java Programming
- 90.301 Java Programming
- 90.302 JavaScript
- 90.303 Advanced Java Programming
- 90.305 Introduction to Perl
- 90.311 Introduction to UNIX
- 90.312 UNIX Shell Programming
- 90.340 Introduction to the Application & Development of Intranets
- 90.341 Intranet Applications for the Organization
- 90.342 Web-Enabled Database Development
- 90.360 Introduction to Data Structures
- 90.364 Problem Solving with C
- 90.461 LAN/WAN Technologies
- 90.462 TCP/IP & Network Architecture
- 90.464 Network Management
- 90.474 Relational Database Concepts
- 90.480 Project-Based Information Systems (6 credits)
- 91.113 Exploring the Internet

BACHELOR OF SCIENCE IN INFORMATION TECHNOLOGY - Available on campus or online

YEARS 1-7: SUGGESTED PROGRAM OF STUDY

TOTAL CREDITS: 120

The following course outline is only a suggested course load. Please note that UMass Lowell's online courses are offered during three semesters per year: Fall, Spring and Summer. Based on student experiences, we do not recommend registering for more than 3 online courses per semester.

For students entering the program in or after September 2005.

FIRST YEAR

FIRST SEMESTER

90.160	Introduction to Information Systems	3
42.101	College Writing I	3
90.112	Concepts in Algebra I*	<u>3</u>
		9

SECOND SEMESTER

90.202	Microsoft Office	3
42.102	College Writing II	3
90.119	Concepts in Algebra II or	<u>3</u>
92.120	Precalculus Mathematics*	9

SECOND YEAR

FIRST SEMESTER

----	Concentration Elective	3
42.224	Business Writing OR	3
42.226	Technical and Scientific Communication	
90.267	C Programming OR	<u>3</u>
90.211	Intro to Programming w/C I (followed by 90.212 Intro to Programming w/ C II)**	9

SECOND SEMESTER

----	Concentration Elective	3
----	Information Technology Elective	3
----	Information Technology Elective	<u>3</u>
		9

THIRD YEAR

FIRST SEMESTER

----	Information Technology Elective	3
49.201	Economics I (Microeconomics) (SS)	3
----	Concentration Elective	<u>3</u>
		9

SECOND SEMESTER

----	Information Technology Elective	3
49.202	Economics II (Macroeconomics) (SS)	3
----	General Education - Arts, Humanities & Diversity AHD	<u>3</u>
		9

FOURTH YEAR

FIRST SEMESTER

92.283	Introduction to Statistics	3
----	General Education - Arts & Humanities (AH)	3
----	Information Technology Elective	<u>3</u>
		9

ADDITIONAL SEMESTERS

In order to receive a Bachelor of Science Degree, the student must complete the preceding Associate's Degree requirements, plus the following:

----	General Education - Arts & Humanities (AH)	3
----	General Education - Social Sciences (SS)	3
----	General Education - Ethics	3
----	General Education - Science with Experimental Learning	3
----	General Education - Science with Experimental Learning	3
----	General Education - Science with Technology	3
----	Elective	3
----	Elective	3
----	Elective	3
92.321	Discrete Structures I	3
90.477	Information Systems I	3
90.478	Information Systems II or	3
90.480	Project-Based Information Systems (Note: 90.477/478 are not available online)	6
----	Information Technology Elective	3
----	Information Technology Elective	3
----	Information Technology Elective	3
----	Information Technology Elective	3
----	Concentration Elective	3
----	Concentration Elective	3
----	Concentration Elective	3

*Cannot get credit for both 92.120 and 90.112/90.119 sequence. Note: 90.112/119 are not available online.

**Cannot get credit for both 90.267 and 90.211/90.212 sequence.

Concentration Electives

The student must choose a sequence of six related (non-computer) courses to fulfill the concentration electives. Students should consult with their academic advisor regarding possible concentrations to fulfill this requirement. The following courses are examples of courses that may be used towards this requirement and are available on campus or online. A more comprehensive list is available in each semester's course bulletin or on our website. Student should select six courses in the same subject area (see first two digits of course number) or consult with an advisor for guidance in course selections.

43.108	World History II
43.206	American Economic History
43.274	Native American History
43.308	Crime and Social Control
47.101	General Psychology
47.260	Child and Adolescent Development I
47.272	Abnormal Psychology
47.312	Learning and Behavior
47.335	Psychology and Women
47.351	Human Sexuality
47.360	Adult Development and Aging
47.363	Introduction to Disabilities Studies
60.201	Accounting/Financial
62.201	Marketing Principles
63.301	Management Information Systems

BACHELOR OF SCIENCE IN INFORMATION TECHNOLOGY***Continued***Information Technology Electives

Information Technology electives may be chosen from any computer courses with a prefix of 90.-- or 91.--. The following courses are examples of courses available on campus and online. A more comprehensive list of Information Technology electives is available in each semester's course bulletin or on our website.

- 90.220 Visual Basic
- 90.224 Advanced Visual Basic
- 90.230 Introduction to Multimedia
- 90.231 Graphics for Multimedia and the WWW
- 90.232 Desktop Video Production
- 90.236 Instructional Design for Interactive Media
- 90.238 Website Development: Microsoft® Expression® Web
- 90.247 Advanced Web Authoring: Adobe® Flash®
- 90.250 E-Commerce on the Web
- 90.268 C++ Programming
- 90.269 Advanced C++ Programming
- 90.270 Visual C++
- 90.291 Introduction to HTML
- 90.297 Introduction to Java Programming
- 90.301 Java Programming
- 90.302 JavaScript
- 90.303 Advanced Java Programming
- 90.305 Introduction to Perl
- 90.311 Introduction to UNIX
- 90.312 UNIX Shell Programming
- 90.342 Web-Enabled Database Development
- 90.360 Introduction to Data Structures
- 90.364 Problem Solving with C
- 90.461 LAN/WAN Technologies
- 90.462 TCP/IP & Network Architecture
- 90.464 Network Management
- 90.474 Relational Database Concepts
- 90.480 Project-Based Information Systems (6 credits)
- 91.113 Exploring the Internet

**BACHELOR OF SCIENCE IN INFORMATION TECHNOLOGY:
BUSINESS MINOR** - Available on campus or online

YEARS 1-7: SUGGESTED PROGRAM OF STUDY

TOTAL CREDITS: 120

The following course outline is only a suggested course load. Please note that UMass Lowell's online courses are offered during three semesters per year: Fall, Spring and Summer. Based on student experiences, we do not recommend registering for more than 3 online courses per semester.

For students entering the program in or after September 2005.

FIRST YEAR

FIRST SEMESTER

90.160	Introduction to Information Systems	3
42.101	College Writing I	<u>3</u> 6

SECOND SEMESTER

90.202	Microsoft Office (Students who can document proficiency in Microsoft Office may substitute an Information Technology elective)	3
42.102	College Writing II	3
92.120	Precalculus Mathematics I	<u>3</u> 9

THIRD SEMESTER

42.224	Business Writing OR	3
42.226	Technical and Scientific Communication	3
90.267	C Programming OR	3
90.211	Intro to Programming w/ C I (followed by 90.212 Intro to Programming w/ C II)*	3
----	Information Technology Elective**	<u>3</u> 9

SECOND YEAR

FIRST SEMESTER

----	Information Technology Elective**	3
----	General Education - Arts, Humanities & Diversity (AHD)	3
----	Information Technology Elective**	<u>3</u> 9

SECOND SEMESTER

49.201	Economics I* (Microeconomics)	3
----	Information Technology Elective**	3
60.201	Accounting/Financial†	<u>3</u> 9

THIRD SEMESTER

49.202	Economics II (Macroeconomics)	3
62.201	Marketing Principles†	3
----	Information Technology Elective**	<u>3</u> 9

THIRD YEAR

FIRST SEMESTER

92.283	Introduction to Statistics	3
61.301	Business Finance†	3
----	General Education - Arts & Humanities (AH)	<u>3</u> 9

ADDITIONAL SEMESTERS

In order to receive a Bachelor of Science Degree, the student must complete the preceding Associate's Degree requirements, plus the following:

----	General Education - Social Sciences (SS)	3
----	General Education - Social Sciences (SS)	3
92.321	Discrete Structures I	3
90.480	Project-Based Information Systems	6
----	General Education - Social Sciences & Ethics	3
----	General Education - Arts & Humanities (AH)	3
----	General Education - Science with Experimental Learning	3
----	General Education - Science with Experimental Learning	3
----	Information Technology Elective**	3
----	Information Technology Elective**	3
----	Information Technology Elective**	3
----	Information Technology Elective**	3
63.301	Management Information Systems†	3
66.301	Organizational Behavior†	3
6-.3/4-	College of Management 300/400 Elective†	3
----	General Elective	3
----	General Elective	3
----	General Elective	3
----	General Elective	3

BUSINESS MINOR

49.201	Economics I	3
60.201	Accounting/Financial	3
62.201	Marketing Principles	3
61.301	Business Finance	3
63.301	Management Information Systems	3
66.301	Organizational Behavior	3
6-.-.-	College of Management 300/400 Elective†	3

Requires junior standing and any pre-requisites particular to the course.

*Cannot receive credit for both 90.267 and 90.211/90.212 sequence.

**Information Technology Electives may be chosen from any computer courses with a prefix of 90.-.- or 91.-.-

†Students need permission of College of Management Coordinator for these Business Minor Concentration elective courses.

SECOND DEGREE OPTION: THE BACHELOR OF SCIENCE IN INFORMATION TECHNOLOGY - Available on campus or online

SUGGESTED PROGRAM OF STUDY - TOTAL CREDITS: 30

Interested in changing careers? If you already have a Bachelor's Degree and would like to pursue a second degree in Information Technology, UMass Lowell has a special program for you. Students can pursue a Second Bachelor's Degree in Information Technology by taking 10 additional IT courses in designated areas. These courses must all be taken at UMass Lowell. Please note the second degree must have a different nomenclature from the previous degree. A comprehensive list of courses available to fulfill the requirements of this program can be found in each semester's course bulletin or on our website.

REQUIRED COURSES

90.477	Information Systems I AND	3
90.478	Information Systems II OR	3
90.480	Project-Based Information Systems	6

ELECTIVES

The following courses must be at the 200 level or above:

90.-.-	Information Technology Elective	3
90.-.-	Information Technology Elective	3
90.-.-	Information Technology Elective	3
90.-.-	Information Technology Elective	3
90.-.-	Information Technology Elective	3

The following courses must be at the 300 level or above:

90.-.-	Information Technology Elective	3
90.-.-	Information Technology Elective	3
90.-.-	Information Technology Elective	3

Visit our website to download the course completion worksheet for this program.

degree programs

The Francis College of Engineering

THE FRANCIS COLLEGE OF ENGINEERING OFFERS THE FOLLOWING CONTINUING STUDIES UNDERGRADUATE PROGRAMS:

ASSOCIATE'S AND BACHELOR'S DEGREE PROGRAMS:

Civil Engineering Technology, A.S., B.S.
 Civil Engineering Technology -
 Surveying Option, A.S.
 Electronic Engineering Technology, A.S., B.S.
 Mechanical Engineering
 Technology, A.S., B.S.

CERTIFICATE PROGRAMS:

Computer-Assisted Manufacturing
 Computer Engineering Technology
 Electronics Technology
 Land Surveying
 Manufacturing Technology
 Plastics Engineering Technology

FOR MORE INFORMATION ON CERTIFICATE PROGRAM DESCRIPTIONS AND REQUIREMENTS, SEE THE CERTIFICATE PROGRAMS SECTION IN THIS CATALOG OR VISIT OUR WEBSITE AT [HTTP://CONTINUINGED.UML.EDU](http://CONTINUINGED.UML.EDU)

About Engineering Technology at UMass Lowell

The mission of the Engineering Technology Department is to focus on the applied aspects of science and engineering, which will prepare graduates for practice and implementation of new and existing technology in the complex industrial world. Engineering Technology is that part of the technology field that requires the application of scientific and engineering knowledge and methods combined with technical skills in support of engineering activities; it lies in the occupation spectrum between the craftsman and the engineer, at the end of the spectrum closest to the engineer. Engineering Technology programs are primarily concerned with producing graduates to work with and manage machines, materials, processes, people and money for industrial firms.

The curriculum in Engineering Technology places less emphasis on abstract mathematics and general scientific principles and greater stress on the applications of these tools to the solution of practical problems. The technology disciplines emphasize specific technical areas leading to development of specific skills that can be applied immediately. The B.S. programs are designed as terminal degree programs for part-time Continuing Studies students. Advancement to a graduate program may require additional coursework.

Civil Engineering Technology

The Civil Engineering Technology curriculum is designed to provide students with a balanced foundation in physical and mathematical sciences, various fields in civil engineering technology, computer usage, social sciences and the humanities. The subject matter covered in this program is generally similar to that covered in the Civil Engineering curriculum but with less emphasis on theory and greater concentration on application.

The graduates from this program are generally employed as technologists and entry-level professionals in fields such as construction and design of buildings, industrial facilities, roadways, tunnels, bridges, environmental projects, land development, substructure investigations and material testing.

ASSOCIATE OF SCIENCE IN CIVIL ENGINEERING TECHNOLOGY

YEARS 1-4: SUGGESTED PROGRAM OF STUDY

TOTAL CREDITS: 68

Building and maintaining the critical infrastructure of today's society demands both technical insight and hands-on experience. Students pursuing the Civil Engineering Technology program gain a solid background in structural engineering, material properties, soils, infrastructure and environmental factors.

For students entering the program in or after September 2009.

FIRST YEAR

FIRST SEMESTER

- 92.120 Precalculus Mathematics I
- 23.101 Engineering Graphics
- 42.101 College Writing I

SECOND SEMESTER

- 92.123 Precalculus Mathematics II
- 15.113 Computer-Aided Design and Drafting (CAD)
- 42.102 College Writing II

SECOND YEAR

FIRST SEMESTER

- 15.123 Surveying I
- 92.125 Calculus A
- 99.131 Technical Physics I

SECOND SEMESTER

- 15.124 Surveying II
- 92.126 Calculus B
- 99.132 Technical Physics II

THIRD YEAR

FIRST SEMESTER

- 15.237 Statics
- 15.246 Fluid Mechanics/Hydraulics
- 23.226 Technical Communication for Engineering Technology

SECOND SEMESTER

- 15.239 Strength of Materials
- 15.247 Hydraulics Laboratory
- 47.101 General Psychology (SS)

FOURTH YEAR

FIRST SEMESTER

- 43.- - General Education - Arts & Humanities (AHD)
- 15.251 Structural Analysis I
- 15.253 Reinforced Concrete I

SECOND SEMESTER

- 15.257 Highway Elements
- 15.242 Steel Design I
- 15.224 Materials/Structural Lab

BACHELOR OF SCIENCE IN CIVIL ENGINEERING TECHNOLOGY

YEARS 1-8: SUGGESTED PROGRAM OF STUDY

TOTAL CREDITS: 124

Students in the Civil Engineering Technology Bachelor's Degree program gain a solid background in structural engineering, material properties, soils, infrastructure and environmental factors. Graduates of the program may be employed as technologists and entry-level professionals in fields such as construction and design of buildings, industrial facilities, roadways, tunnels, bridges, environmental projects, land development, substructure investigations and material testing.

For students entering the program in or after September 2009.

FIRST YEAR

FIRST SEMESTER

- 92.120 Precalculus Mathematics I
- 23.101 Engineering Graphics
- 42.101 College Writing I

SECOND SEMESTER

- 92.123 Precalculus Mathematics II
- 15.113 Computer-Aided Design and Drafting (CAD)
- 42.102 College Writing II

SECOND YEAR

FIRST SEMESTER

- 15.123 Surveying I
- 92.125 Calculus A
- 99.131 Technical Physics I

SECOND SEMESTER

- 15.124 Surveying II
- 92.126 Calculus B
- 99.132 Technical Physics II

THIRD YEAR

FIRST SEMESTER

- 15.237 Statics
- 15.246 Fluid Mechanics/Hydraulics
- 23.226 Technical Communication for Engineering Technology

SECOND SEMESTER

- 15.239 Strength of Materials
- 15.247 Hydraulics Laboratory
- 47.101 General Psychology

FOURTH YEAR

FIRST SEMESTER

- 43.- - - General Education - Arts & Humanities (AHD)
- 15.251 Structural Analysis I
- 15.253 Reinforced Concrete I

SECOND SEMESTER

- 15.257 Highway Elements
- 15.242 Steel Design I
- 15.224 Materials/Structural Lab

FIFTH YEAR

FIRST SEMESTER

- 15.131 Environmental Chemistry I
- 15.254 Soil Mechanics I

SECOND SEMESTER

- 15.- - - CET Elective
- 15.394 Soil Mechanics Laboratory

SIXTH YEAR

FIRST SEMESTER

- 15.355 Water Distribution Systems
- 15.315 Land Development Desktop
- 15.396 Groundwater Resources

SECOND SEMESTER

- 15.- - - CET Elective
- 15.238 Dynamics
- 15.263 Wastewater Operations Lab I

SEVENTH YEAR

FIRST SEMESTER

- 49.201 Economics I (Microeconomics) (SS)
- 15.261 Wastewater Treatment Plant Operations I
- 23.262 Engineering Data Analysis

SECOND SEMESTER

- 15.- - - CET Elective
- 48.- - - General Education - Social Sciences (SS) (D or E)
- 15.353 Forensic Engineering

EIGHTH YEAR

FIRST SEMESTER

- 23.414 Engineering Economics
- 45.- - - General Education - Arts & Humanities (AHE)

SECOND SEMESTER

- 15.470 Construction Project Management
- 42.- - - General Education - Arts & Humanities (AHD or E)

ELECTIVES

Students must choose three approved CET electives:

- 15.132 Environmental Chemistry II
- 15.262 Legal Aspects of Land Surveying
- 15.280 Industrial Waste Treatment
- 15.299 Surveying III
- 15.340 Hazardous Waste Management
- 15.352 Structural Analysis II
- 15.361 Wastewater Treatment Plant Operations II
- 15.383 Steel Design II
- 15.391 Reinforced Concrete Design II
- 15.392 Soil Mechanics II
- 15.420 Solid Waste Management
- 15.486 Transportation Elements

The Bachelor of Science Degree in Civil Engineering Technology is accredited by the Technology Accreditation Commission of ABET, Inc., 111 Market Place, Suite 1050, Baltimore, MD, 410-347-7700.

degree programs

ASSOCIATE OF SCIENCE IN CIVIL ENGINEERING TECHNOLOGY: SURVEYING OPTION

YEARS 1-4: SUGGESTED PROGRAM OF STUDY

TOTAL CREDITS: 64

Students in the Civil Engineering Technology program gain a solid background in structural engineering, material properties, soils, infrastructure and environmental factors. The Associate's Degree in Civil Engineering Technology with the Surveying Option focuses on the application of surveying information to civil engineering projects such as water resources, sanitary sewers and property subdivision. Graduates are generally employed as entry-level professionals in fields such as construction and design of buildings, industrial facilities, roadways, tunnels, bridges, environmental projects and land development.

For students entering the program in or after September 2005.

FIRST YEAR

FIRST SEMESTER

92.120	Precalculus Mathematics I	3
23.101	Engineering Graphics	2
		5

SECOND SEMESTER

92.123	Precalculus Mathematics II	3
15.113	Computer-Aided Design and Drafting (CAD)	2
42.101	College Writing I	3
		8

SECOND YEAR

FIRST SEMESTER

15.123	Surveying I	4
92.125	Calculus A	3
99.131	Technical Physics I	3
		10

SECOND SEMESTER

15.124	Surveying II	4
92.126	Calculus B	3
15.237	Statics	3
		10

THIRD YEAR

FIRST SEMESTER

99.132	Technical Physics II	3
15.246	Hydraulics	3
42.102	College Writing II	3
		9

SECOND SEMESTER

15.239	Strength of Materials	3
43.- -	General Education - Arts & Humanities (AH)	3
42.226	Technical and Scientific Communication	3
		9

FOURTH YEAR

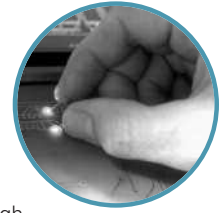
FIRST SEMESTER

15.254	Soil Mechanics I	3
15.299	Surveying III	3
15.262	Legal Aspects of Land Surveying	3
		9

SECOND SEMESTER

15.257	Highway Elements	3
15.224	Materials/Structural Lab	1
		4

Electronic Engineering Technology



The Electronic Engineering Technology program has, over the years, adjusted to area students and the high technology industry. It can accommodate virtually all types of students, from those who wish to minimize the calculus content and terminate with the Associate's Degree to those who wish to specialize by taking fairly high-level technical electives and eventually obtain the baccalaureate degree.

ASSOCIATE OF SCIENCE IN ELECTRONIC ENGINEERING TECHNOLOGY

YEARS 1-4: SUGGESTED PROGRAM OF STUDY

TOTAL CREDITS: 64

Students in the Electronic Engineering Technology Associate's Degree program learn about the fundamentals of circuit design, voltage, semiconductor devices, theory vs. simulation, transistors, microprocessors and more. The program helps prepare students for employment in a variety of fields including consumer electronics, telecommunications and semiconductors – wherever there is a need for the design, testing and manufacturing of hardware and software for all things electrical.

For students entering the program in or after September 2009.

FIRST YEAR

FIRST SEMESTER

- 42.101 College Writing I
- 92.120 Precalculus Mathematics I
- 43. --- General Education -
Arts & Humanities (AHD)

SECOND SEMESTER

- 42.102 College Writing II
- 92.123 Precalculus Mathematics II
- 90.267 C Programming

SECOND YEAR

FIRST SEMESTER

- 17.213 Circuits I
- 92.125 Calculus A
- 42.226 Technical Communication for
Engineering Technology

SECOND SEMESTER

- 17.214 Circuits II and Laboratory
- 92.126 Calculus B
- 99.131 Technical Physics I

THIRD YEAR

FIRST SEMESTER

- 17.215 Circuits III and Laboratory
- 17.355 Electronics I and Laboratory
- 99.132 Technical Physics II

SECOND SEMESTER

- 17.216 Circuits IV
- 17.356 Electronics II and
Laboratory
- 17.354 PSPICE Simulation

FOURTH YEAR

FIRST SEMESTER

- 47.101 General Psychology (SS)
- 17.357 Electronics III & Laboratory
- 17.383 Microprocessors A

SECOND SEMESTER

- 17.361 Project Laboratory A
- 17.358 Electronics IV and
Laboratory
- 17.384 Microprocessors B

Students enrolling in this program should purchase an electronic calculator capable of handling logarithmic and trigonometric functions. The use of the calculator will be an integral part of courses 17.213 and 17.214, where proficiency will be developed.

Competency in the use of the calculator will be assumed in all subsequent E.E.T. courses.

Proper approval for a 173- -/4- - course is automatically assumed if all prerequisites are satisfied.

BACHELOR OF SCIENCE IN ELECTRONIC ENGINEERING TECHNOLOGY

YEARS 1-8: SUGGESTED PROGRAM OF STUDY

TOTAL CREDITS: 127

The Bachelor of Science Degree in Electronic Engineering Technology is designed to prepare graduates for employment in a variety of fields, including consumer electronics, telecommunications and semiconductors – wherever there is a need for the design, testing and manufacturing of hardware and software for all things electrical. The curriculum focuses on the application of electronics principles and critical thinking to the solution of practical problems. Students learn to use math and computers to solve circuit problems, they learn about equipment testing, and they learn how to apply the technologies they learn and the fundamentals of electronics to address real-world problems. The program also prepares highly motivated students who are interested in continuing their studies to pursue an advanced degree in Electrical Engineering at UMass Lowell (visit the University's Graduate Admissions website for details).

For students entering the program in or after September 2009.

FIRST YEAR

FIRST SEMESTER

42.101 College Writing I
92.120 Precalculus Mathematics I
43.- - - General Education -
Arts & Humanities (AHD)

SECOND SEMESTER

42.102 College Writing II
92.123 Precalculus Mathematics II
90.267 C Programming

SECOND YEAR

FIRST SEMESTER

17.213 Circuits I
92.125 Calculus A
23.226 Technical Communication for
Engineering Technology

SECOND SEMESTER

17.214 Circuits II and Laboratory
92.126 Calculus B
99.131 Technical Physics I

THIRD YEAR

FIRST SEMESTER

17.215 Circuits III and Laboratory
17.355 Electronics I and Laboratory
99.132 Technical Physics II

SECOND SEMESTER

17.216 Circuits IV
17.356 Electronics II and Laboratory
17.354 PSPICE Simulation

FOURTH YEAR

FIRST SEMESTER

47.101 General Psychology (SS)
17.357 Electronics III and Laboratory
17.383 Microprocessors A

Proper approval for a 17.3- -/4- - course is automatically assumed if all prerequisites are satisfied.

SECOND SEMESTER

17.361 Project Laboratory A
17.358 Electronics IV and Laboratory
17.384 Microprocessors B

FIFTH YEAR

FIRST SEMESTER

17.341 Logic Design I and Lab
17.353 Digital Electronics
92.225 Calculus C

SECOND SEMESTER

17.365 Applied Linear Devices
90.268 C++ Programming
92.226 Calculus D

SIXTH YEAR

FIRST SEMESTER

17.342 Logic Design II and Lab
92.234 Differential Equations
99.133 Technical Physics III

SECOND SEMESTER

17.360 Mathematics and
Statistics/E.E.T.
17.368 Data Conversion and Lab
17.376 Electromagnetic Theory I

SEVENTH YEAR

FIRST SEMESTER

17.350 Control Systems
17.3/4- E.E.T. Elective
42.- - - General Education -
Arts & Humanities (AH)

SECOND SEMESTER

17.3/4- E.E.T. Elective
45.- - - General Education - Arts &
Humanities (AHE)
48.- - - General Education -
Social Sciences (SS) (D or E)

EIGHTH YEAR

FIRST SEMESTER

49.201 Economics I (SS)
(Microeconomics)
17.391 Project Laboratory B

SECOND SEMESTER

17.3/4- E.E.T. Elective
17.392 Project Laboratory C

ELECTIVES

Students must choose three approved EET electives:

17.403 Foundations of Microwave
Design
17.427 Digital Signal Processing
17.459 Power Conversion I
17.469 Control Systems II
17.477 Electromagnetic Theory II

Students who want to take more computer courses may complete the EET degree by filling the EET technical electives with computer courses. See the EET advisor for details.

INDUSTRIAL EXPERIENCE AND PROJECT LABORATORY

Appropriate industrial experience is very important for students in the Electronic Engineering Technology program. Students who have a few years industrial experience and have worked on a specific project in a high-technology company can use this experience as part of the Project Laboratory courses. To obtain credit for a Project Laboratory, the students must do the following:

- a. Register for Project Laboratory;
- b. Write an outline for the project intended to be used for credit;
- c. Write a report on the project;
- d. Give a presentation; AND
- e. Obtain a letter from their supervisor at work that they have contributed to the project.

Up to 4 credits can be received for industrial projects in two Project Laboratories.

GRADUATE STUDY

Students who want to earn a graduate degree at UMass Lowell can take three EET technical electives from among courses that are more mathematically intense and required to enter the graduate program. See the Electrical and Computer Engineering Graduate Advisor for details.

Mechanical Engineering Technology

The Mechanical Engineering Technology program at the University of Massachusetts Lowell has been developed to provide the student with a broad background in scientific and engineering technology and the technical skills needed to support engineering activities. The core of the MET curriculum provides a sound foundation in communications, mathematics, basic sciences, basic engineering technology skills and in the humanities. The program emphasis is on application of engineering technology skills rather than on rigorous theory. Technical courses typically concentrate in design, solid mechanics, thermo/fluids and manufacturing. Problem solving and teamwork procedures are stressed in the technical courses and in supplementary courses devoted to those skills.

The Mechanical Engineering Technology program offers students a spectrum of career opportunities in manufacturing, plant management, product testing and evaluation, quality assurance, and engineering-support operations. Currently employed individuals are provided opportunities to augment knowledge in areas that suit the requirements of their current industry or provide opportunity for advancement into another industry or occupational role.

ASSOCIATE OF SCIENCE IN MECHANICAL ENGINEERING TECHNOLOGY

YEARS 1-4: SUGGESTED PROGRAM OF STUDY

TOTAL CREDITS: 67

The Associate's Degree in Mechanical Engineering Technology offers students a broad foundation in engineering technology and the technical skills needed to support engineering activities, particularly in the design, testing and manufacture of products, systems and devices. Graduates of this program possess the skills necessary to specify, install, test, operate, maintain and document basic mechanical systems. Career opportunities include support operations in manufacturing, plant management, product testing, quality assurance and engineering.

For students entering the program in or after September 2009.

FIRST YEAR

FIRST SEMESTER

92.120 Precalculus Mathematics I
23.101 Engineering Graphics
42.101 College Writing I

SECOND SEMESTER

92.123 Precalculus Mathematics II
23.102 Engineering Design & Graphics
42.102 College Writing II

SECOND YEAR

FIRST SEMESTER

92.125 Calculus A
99.131 Technical Physics I
23.226 Technical Communication for Engineering Technology

SECOND SEMESTER

92.126 Calculus B
99.132 Technical Physics II
23.295 Materials Science

THIRD YEAR

FIRST SEMESTER

23.200 Computer Aided Drafting
23.221 Statics
23.241 Elements of Thermodynamics I

SECOND SEMESTER

17.130 Electrical Basics and Lab
23.222 Dynamics
23.223 Mechanics of Materials

FOURTH YEAR

FIRST SEMESTER

23.242 Applied Fluid Mechanics
23.202 Thermo/Fluids Laboratory
47.101 General Psychology (SS)

SECOND SEMESTER

17.131 Electronic Basics and Lab
43.- - - General Education - Arts & Humanities (AHD)
23.302 Mechanics/Materials Lab

BACHELOR OF SCIENCE IN MECHANICAL ENGINEERING TECHNOLOGY

YEARS 1-8: SUGGESTED PROGRAM OF STUDY

TOTAL CREDITS: 126

The Bachelor's Degree in Mechanical Engineering Technology offers students a broad background in engineering technology and the technical skills needed to support the design, testing and manufacture of products, systems and devices. Students in the Bachelor's Degree program are prepared to apply in-depth concepts to the analysis, development, implementation and oversight of mechanical systems and processes. Career opportunities for graduates of this program include support operations in manufacturing, plant management, product testing, quality assurance and engineering.

For students entering the program in or after September 2009.

FIRST YEAR

FIRST SEMESTER

92.120 Precalculus Mathematics I
23.101 Engineering Graphics
42.101 College Writing I

SECOND SEMESTER

92.123 Precalculus Mathematics II
23.102 Engineering Design & Graphics
42.102 College Writing II

SECOND YEAR

FIRST SEMESTER

92.125 Calculus A
99.131 Technical Physics I
23.226 Technical Communication for Engineering Technology

SECOND SEMESTER

92.126 Calculus B
99.132 Technical Physics II
23.295 Materials Science

THIRD YEAR

FIRST SEMESTER

23.200 Computer Aided Drafting
23.221 Statics
23.241 Elements of Thermodynamics I

SECOND SEMESTER

17.130 Electrical Basics and Laboratory
23.222 Dynamics
23.223 Mechanics of Materials

FOURTH YEAR

FIRST SEMESTER

23.242 Applied Fluid Mechanics
23.202 Thermo/Fluids Laboratory
47.101 General Psychology (SS)

SECOND SEMESTER

17.131 Electronic Basics and Lab.
43.- - - General Education - Arts & Humanities (AHD)
23.302 Mechanics/Materials Lab.

FIFTH YEAR

FIRST SEMESTER

23.305 Manufacturing Processes
92.225 Calculus C
84.111 General Chemistry I

SECOND SEMESTER

23.314 Manufacturing Productivity
- - - - - Technical Elective
23.354 Problems in Mechanical Engineering Technology

SIXTH YEAR

FIRST SEMESTER

23.320 Machine Design
84.113 General Chemistry Lab I
23.262 Engineering Data Analysis

SECOND SEMESTER

48.- - - General Education - Social Sciences (SS) (D or E)
23.243 Elements of Thermodynamics II
45.- - - General Education - Arts & Humanities (AHE)

SEVENTH YEAR

FIRST SEMESTER

49.201 Economics I (Microeconomics) (SS)
23.475 Heat Transfer
42.- - - General Education - Arts & Humanities (AH)

SECOND SEMESTER

23.480 Computer Aided Design
23.301 Manufacturing Technology Laboratory

EIGHTH YEAR

FIRST SEMESTER

23.414 Engineering Economics
23.402 Engineering Measurement Laboratory

SECOND SEMESTER

23.484 Intro Pro-E
- - - - - Technical Elective

ELECTIVES

Students must choose two approved technical electives:

23.419 Applied Computer Aided Manufacturing
90.211 Introduction to Programming with C-1
23.416 Statistical Quality Control
23.353 Forensic Engineering
23.211 LABVIEW Programming with Engineering Applications
23.485 Introduction to Solidworks

The Bachelor of Science Degree in Mechanical Engineering Technology is accredited by the Technology Accreditation Commission of ABET, Inc., 111 Market Place, Suite 1050, Baltimore, MD, 410-347-7700.

degree programs

degree programs

College of Management

The College of Management (COM) is fully accredited at the undergraduate and graduate levels by the Association to Advance Collegiate Schools of Business (AACSB) International and offers a program of study leading to the Bachelor of Science in Business Administration (BSBA). Following the AACSB philosophy, the College endeavors to create the intellectual climate required to offer a dynamic, high-quality undergraduate education in management through a challenging curriculum.

ASSOCIATE OF SCIENCE IN MANAGEMENT

YEARS 1-4: SUGGESTED PROGRAM OF STUDY

TOTAL CREDITS: 65

The following course outline, which lists 3 courses each semester, is only a suggested course load. First-year students should not take more than 1 or 2 courses their first semester. Subsequent course loads may be determined by the students' own personal time constraints.

FIRST YEAR

FIRST SEMESTER

42.101	College Writing I	3
47.101	General Psychology	3
92.120	Precalculus Mathematics I*	3
-- --	OR Non-COM Elective**	9

SECOND SEMESTER

42.102	College Writing II	3
48.101	Introduction to Sociology	3
92.122	Management Calculus	3
		9

SECOND YEAR

FIRST SEMESTER

43.---	History Elective	3
49.201	Economics I (Microeconomics)	3
60.201	Accounting/Financial	3
		9

SECOND SEMESTER

46.---	Political Science Elective	3
49.202	Economics II (Macroeconomics)	3
62.201	Marketing Principles	3
		9

THIRD YEAR

FIRST SEMESTER

49.211	Statistics	3
-- --	General Education - Arts & Humanities (AH)	3
60.202	Accounting/Managerial	3
		9

SECOND SEMESTER

63.210	Operations Analysis	3
-- --	General Education - Arts & Humanities (AH)	3
-- --	General Education - Science with Experimental Learning	4
		10

FOURTH YEAR

FIRST SEMESTER

61.301	Business Finance	3
66.301	Organizational Behavior	3
-- --	General Education - Science with Experimental Learning	4
		10

Please note: 61.301 and 66.301 must be taken as the last classes in the program.

*Students with a very strong mathematics background may elect to substitute a Non-COM (non-business) elective for 92.120 Precalculus. All students are required to take 92.122 Management Calculus.

**A Non-COM Elective is a course outside of the College of Management that is considered by the University as an unrestricted elective.

Note: All BSBA students must successfully complete the required COM filter courses listed below prior to taking any 300 level or 400 level COM courses:

60.201	Accounting/Financial
49.201	Economics I
49.211	Statistics I

92.122	Management Calculus
42.101	College Writing I
42.102	College Writing II
47.101	General Psychology
48.101	Introduction to Sociology

Note: Courses with a 67- -- prefix are not intended for students in the College of Management degree programs and will not transfer into the Associate of Science in Management or the Bachelor of Science in Business Administration degree programs.

BACHELOR OF SCIENCE IN BUSINESS ADMINISTRATION

YEARS 1-7: SUGGESTED PROGRAM OF STUDY

TOTAL CREDITS: 120

The following course outline, which lists 3 courses each semester, is only a suggested course load. First-year students should not take more than 1 or 2 courses their first semester. Subsequent course loads may be determined by the students' own personal time constraints.

FIRST YEAR

FIRST SEMESTER

42.101	College Writing I	3
47.101	General Psychology	3
92.120	Precalculus Mathematics I*	<u>3</u>
----	or Non-COM Elective**	9

SECOND SEMESTER

42.102	College Writing II	3
48.101	Introduction to Sociology	3
92.122	Management Calculus	<u>3</u>
		9

SECOND YEAR

FIRST SEMESTER

43.---	History Elective (AH)†	3
49.201	Economics I (Microeconomics)	3
60.201	Accounting/Financial	<u>3</u>
		9

SECOND SEMESTER

46.---	Political Science Elective	3
49.202	Economics II (Macroeconomics)	3
62.201	Marketing Principles	<u>3</u>
		9

THIRD YEAR

FIRST SEMESTER

49.211	Statistics	3
----	General Education - Arts & Humanities (AH)†	3
60.202	Accounting/Managerial	<u>3</u>
		9

SECOND SEMESTER

63.210	Operations Analysis	3
----	General Education - Arts & Humanities (AH)†	3
----	General Education - Science with Experimental Learning	<u>4</u>
		10

FOURTH YEAR

FIRST SEMESTER

61.301	Business Finance	3
66.301	Organizational Behavior	3
----	General Education - Science with Experimental Learning	<u>4</u>
		10

SECOND SEMESTER

----	Non-COM Global Elective***	3
60.331	Cost Management Systems	3
63.301	Management Information Systems	<u>3</u>
		9

FIFTH YEAR

FIRST SEMESTER

----	Non-COM Elective**	3
----	COM Elective (300/400 level)	3
----	COM Elective (300/400 level)	<u>3</u>
		9

SECOND SEMESTER

63.371	Operations Management	3
----	Non-COM Elective**	3
----	COM Elective (300/400 level)	<u>3</u>
		9

SIXTH YEAR

FIRST SEMESTER

----	Non-COM Elective**	3
----	COM Elective (300/400 level)	3
----	COM Elective (300/400 level)	<u>3</u>
		9

SECOND SEMESTER

----	COM Elective (300/400 level)	3
----	COM Elective (300/400 level)	3
----	General Education - Science	3
----	Non-COM Elective	<u>3</u>
		12

SEVENTH YEAR

FIRST SEMESTER

----	COM Elective (300/400 level)	3
66.490	Strategic Management	3
----	COM OR Non-COM Elective	<u>3</u>
		9

*Students with a very strong mathematics background may elect to substitute a Non-COM (non-business) elective for 92.120 Precalculus. All students are required to take 92.122 Management Calculus.

**A Non-COM Elective is a course outside of the College of Management that is considered by the University as an unrestricted elective.

***A Non-COM Global Elective is a course outside of the College of Management that has international content within the course. A list of selected courses may be obtained from the Management Coordinator.

†No more than two Arts and Humanities electives from one department. "D" and "E" GenEd requirements will be determined by the College of Management.

Note: All BSBA students must successfully complete the required COM filter courses listed below prior to taking any 300 level or 400 level COM courses:

60.201	Accounting/Financial
49.201	Economics I
49.211	Statistics I
92.122	Management Calculus
42.101	College Writing I
42.102	College Writing II
47.101	General Psychology
48.101	Introduction to Sociology

Note: Courses with a 67.--- prefix are not intended for students in the College of Management degree programs and will not transfer into the Associate of Science in Management or the Bachelor of Science in Business Administration degree programs.