part-time

degree programs

“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
A Step-by-Step Guide: 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 we offer on a part-time, evening basis, visit http://continuinged.uml.edu/degrees/index.htm.

✓ Mail the application with the $20 application fee -to:
  University of Massachusetts Lowell
  Admissions/Continuing Studies and Corporate 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 official transcripts* directly to 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 (http://continuinged.uml.edu)

✓ Once your application and transcripts have been received, you will receive a confirmation letter from Admissions/Continuing Studies and Corporate Education.

RECOMMENDED:

✓ Attend Open House/Orientation (http://continuinged.uml.edu).

✓ Speak with an academic 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. (http://continuinged.uml.edu - click on “Registration & Financial Info - Tuition & Fees”)

✓ 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 UMass Lowell North, Monday through Thursday from 8:30 a.m. to 8:00pm and on Friday from 8:30am to 5:00 p.m.
Are you considering taking a degree program part-time, online, or during evening hours? Our faculty advisors 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 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. For information on admissions into a degree program, please see below.

Since undertaking a degree program requires careful planning and scheduling of classes, students are encouraged to meet with an Academic Faculty and Student Support Specialist prior to registering for courses. Academic Faculty 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 an 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 Division of Continuing Studies and Corporate Education.

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. Continuing Studies operates on a rolling admissions basis and each application is reviewed when the student’s file is complete. 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 $20 degree application fee;
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 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 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. Academic Counselors and 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 which 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 which 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 which 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 which 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-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 which 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 regulations 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 AND CORPORATE 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. Full notation of approved courses (including those failed) is made upon the permanent record of Continuing Studies and Corporate Education students.

**ADMISSION INTO A GRADUATE CERTIFICATE OR DEGREE PROGRAM**

Students interested in applying into Graduate degree or certificate programs should contact the Graduate School 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 total of 12 credits 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 the Division of Continuing Studies and Corporate Education with the application.
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 which 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 Division of Continuing Studies and Corporate Education at 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 which 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 which are unacceptable to the transfer institution for its own associate’s or bachelor’s programs or which 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 which were taken more than ten years prior to the date when a student applies for transfer when, in the opinion of Department Chairpersons and Program Coordinators, the knowledge attained in such courses is deemed to be out of date and/or in need of verification. Competencies which 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 which 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 which 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 which are permitted within the specifications for minimum degree requirements, transferred courses which 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 which 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
   Enrollment Services/Continuing Studies and Corporate Education
   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 Continuing Studies 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:

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>English Composition/Writing</td>
<td>6 cr</td>
</tr>
<tr>
<td>Behavioral and Social Sciences</td>
<td>9 cr</td>
</tr>
<tr>
<td>Humanities and Fine Arts</td>
<td>9 cr</td>
</tr>
<tr>
<td>Natural or Physical Science</td>
<td>8 cr</td>
</tr>
<tr>
<td>Mathematics</td>
<td>3 cr</td>
</tr>
</tbody>
</table>

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.

GENERAL EDUCATION/UNIVERSITY CORE REQUIREMENTS
Depending upon the date of original enrollment in Continuing Studies at the University of Massachusetts Lowell, each student is responsible for satisfying either the General Education Requirements or the University Core Requirements.

Students who enrolled in an associate’s or bachelor’s degree program during or after the Fall 1994 semester should refer to the General Education Requirements below for guidance on course selection.
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.

GENERAL EDUCATION REQUIREMENTS
For students who enrolled in an associate’s or bachelor’s degree program during or after Fall 1994.

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:

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<thead>
<tr>
<th>Code</th>
<th>Description</th>
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<tbody>
<tr>
<td>AE</td>
<td>Aesthetics</td>
</tr>
<tr>
<td>BS</td>
<td>Behavioral and Social Sciences</td>
</tr>
<tr>
<td>BSA</td>
<td>BS or AE</td>
</tr>
<tr>
<td>BSV</td>
<td>BS or VC</td>
</tr>
<tr>
<td>CW</td>
<td>College Writing</td>
</tr>
</tbody>
</table>
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.

**GENERAL EDUCATION 2000 PROGRAM**
Students following the General Education 2000 Program should see the website at http://www.uml.edu/gened/.

**GRADUATION**
Note: Please see page 67 for information regarding the completion of certificate programs.

**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 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 made in person at Continuing Studies, or by calling (978) 934-2474.
UNIVERSITY HONORS
The University awards degrees with three levels of distinction upon those graduating students who have exhibited exceptional scholastic records. To graduate with honors, a student must have achieved a minimum grade-point average of 3.00 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 student’s cumulative average for both associate’s and bachelor’s degrees must fall within the ranges set forth by each college.

COMMENCEMENT FEES
A fee of $75.00 is required of graduating students and is payable on or before registration for the final semester in which the student qualifies for the degree. The fee covers the cost of the student’s eligibility review, the diploma, invitations, and the cap and gown for the graduation ceremony. All students are required to pay the graduation fee regardless of attendance at the graduation ceremony.

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 available at: http://continuinged.uml.edu/policies/graduation.htm

✓ March:
  ➢ Complete graduation interview for Spring and Summer Graduates
  ➢ Information available at: http://continuinged.uml.edu/policies/graduation.htm
  ➢ Complete Chancellor’s Medals application

✓ Beginning of April:
  ➢ Pay graduation fee and all outstanding financial obligations

✓ Mid April:
  ➢ Check the April issue of UML’s school newspaper The Connector for correct spelling of your name as it will appear on your diploma
  ➢ For corrections contact Enrollment Services/Continuing Studies and Corporate Education at (978) 934-2588

✓ Beginning of May:
  ➢ Commencement Information booklet mailed
  ➢ Pick up cap and gown and commencement tickets at bookstore as noted in Commencement Information booklet
  ➢ Alpha Sigma Lambda members pick up academic cord at the Faculty and Student Support Office, Southwick 202, UMass Lowell 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
Associate’s & Bachelor’s Degrees — Curriculum Outlines

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

All of the academic majors and options are listed within each College. Each curriculum outline consists of a suggested course 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.

- B.L.A. - Bachelor of Liberal Arts
- NEW! B.S. in Psychology
- A.S. in Information Technology
- B.S. in Information Technology
- NEW! B.S. in Information Technology: Business Minor
- Earn a Second B.S. in Information Technology
- B.S. in Criminal Justice
- B.S. in Criminal Justice: Paralegal Option
- B.S. in Mathematics
- B.S. in Applied Mathematics
- B.S. in Mathematics: Statistics Concentration
- B.S. in Mathematics: Teacher Concentration
- A.S. in Civil Engineering Technology
  - Surveying Option
- B.S. in Civil Engineering Technology
- B.S. in Civil Engineering Technology: Environmental Option
- A.S. in Electronic Engineering Technology
- B.S. in Electronic Engineering Technology
- A.S. in Mechanical Engineering Technology
- B.S. in Mechanical Engineering Technology
- B.S. in Mechanical Engineering Technology: Manufacturing Option
- B.S. in Mechanical Engineering Technology: Plastics Option
- A.S. in Management
- B.S.B.A. - Bachelor of Science in Business Administration
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 are available in Art History, English, History, Legal Studies, Psychology, and Women's Studies.

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.
### Bachelor of Liberal Arts

**Total Credits: 120**

This degree consists of 48-60 credits with concentrations in two liberal arts disciplines. Concentrations are available in Art History, English, History, Legal Studies, Psychology, and Women's Studies.

The minimum 48 credits must be equally divided in coursework 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.

<table>
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<tr>
<th>Semester</th>
<th>First Semester</th>
<th>Second Semester</th>
<th>Third Semester</th>
<th>Fourth Year</th>
<th>Fifth Year</th>
<th>Sixth Year</th>
<th>Seventh Year</th>
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<tbody>
<tr>
<td><strong>First Year</strong></td>
<td>42.101 College Writing I - GenEd</td>
<td>42.102 College Writing II - GenEd</td>
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<td>- - - Social Sciences Course - GenEd</td>
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<td><strong>Second Year</strong></td>
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<td>- - - Competency Requirement</td>
<td>- - - Science w/Lab Course - GenEd</td>
<td>- - - Concentration I Elective</td>
<td>- - - Concentration I Elective</td>
<td>- - - Art/Humanities Course - GenEd</td>
<td>- - - Free Elective</td>
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<td><strong>Sixth Year</strong></td>
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<td>- - - 300/400 Concentration II Elective</td>
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<td><strong>Seventh Year</strong></td>
<td>- - - Free Elective</td>
<td>- - - Free Elective</td>
<td>- - - Free Elective</td>
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BACHELOR OF ARTS IN PSYCHOLOGY
(ON CAMPUS OR ONLINE PROGRAM)
YEARS 1-7: SUGGESTED COURSE 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 on or after September 2005.

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<thead>
<tr>
<th>Year</th>
<th>Semester</th>
<th>Courses</th>
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<td>FIRST SEMESTER</td>
<td>42.101 College Writing I (Gen. Ed.) 3</td>
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<td></td>
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<td>92. - - General Education - Mathematics (92.151/111/183 or 92.283</td>
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<tr>
<td></td>
<td></td>
<td>recommended) 6</td>
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<td>47.101 General Psychology 3</td>
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<td></td>
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<td>- - - General Education - Social Science (SS) 6</td>
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<td>THIRD SEMESTER</td>
<td>- - - Beginning Language I 3</td>
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<td></td>
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<td>42.102 College Writing II (Gen. Ed.) 6</td>
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<td>- - - General Education - Science w/lab 4</td>
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<td>- - - General Education - Arts/Humanities (AH) 7</td>
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<td>SECOND SEMESTER</td>
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<td>- - - Beginning Language II 3</td>
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<td>THIRD SEMESTER</td>
<td>47.269 Research I: Basics 3</td>
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<tr>
<td></td>
<td></td>
<td>47.232 Psychology of Personality or Abnormal Psychology 6</td>
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<td>- - - General Education - Science w/lab 4</td>
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<td>SECOND SEMESTER</td>
<td>- - - Intermediate Language I 3</td>
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<td>47.209 Social Psychology or 47.255 Community Psychology 6</td>
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<td>THIRD SEMESTER</td>
<td>47. - - Experimental Psychology Elective** 3</td>
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| FOURTH YEAR |            |                                                                         |
|             | FIRST SEMESTER | - - - General Education - Arts/Humanities (AH) 6                        |
|             | SECOND SEMESTER| 47.369 Research II: Statistics 3                                        |
|             |                | 3 - - - General Education - Arts/Humanities (AH) 6                      |
|             | THIRD SEMESTER | 47.300/400 Psych. Elective 3                                            |
|             |                | - - - General Education - Social Science (SS) 6                         |
|             | FIFTH YEAR     | - - - Free Elective 3                                                  |
|             |                | 47.375 Research III: Laboratory 3                                       |
|             | SECOND SEMESTER| 47.300/400 Psych. Elective 3                                            |
|             |                | - - - Psych. or Free Elective 3                                         |
|             | THIRD SEMESTER | - - - Free Elective 3                                                  |
|             |                | - - - Free Elective 3                                                  |
|             | SIXTH YEAR     | 47. - - Advanced Seminar 3                                             |
|             |                | - - - 300/400 Psych. or Free Elective 3                                |
|             | SECOND SEMESTER| - - - 300/400 Free Elective 3                                           |
|             |                | - - - Free Elective 3                                                  |
|             | THIRD SEMESTER | - - - Free Elective 3                                                  |
|             |                | 47. - - Advanced Psych. Elective** 3                                   |
|             |                | 2                                                                         |
BACHELOR OF ARTS IN PSYCHOLOGY
(ON CAMPUS OR ONLINE PROGRAM)

Continued

SEVENTH YEAR
FIRST SEMESTER
-.- - - Psych. or Free Elective 3
-.- - - 300/400 Free Elective 3

SECOND SEMESTER
-.- - - Free Elective 3
-.- - - Free Elective 3

*Consult the Schedule of Classes booklet regarding all GenEd requirements. Courses in the General Education categories of Diversity and Ethics should be selected in conjunction with a faculty advisor. Please see below for additional requirements.

GENERAL REQUIREMENTS
(For freshmen entering Fall 2003 and subsequently)
A major in psychology consists of 36-45 credits with at least 15 credits at the 300 level or higher. Students transferring to the college and wishing to major in psychology must make individual arrangements with the department chairperson regarding satisfaction of major course requirements.

Psychology Major
Each of the following 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

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

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

Two 300/400 level Psychology courses:
47.300/400
47.300/400

One Advanced Seminar:
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

***One 400 level or higher psychology elective:

Seminar
Practicum (w/permission of instructor)
Directed Study (w/permission of Dept. Chair)
Tutorial (w/permission of Dept. Chair)
Graduate Level Course (Seniors w/instructor’s perm.)

Suggested Courses:
47.480 Integrative Seminar in Developmental Disabilities I
47.481 Integrative Seminar in Developmental Disabilities II
47.482 Integrative Seminar III
47.485 Peer Tutoring: Psychology
47.486 Community Service Learning
47.491 Directed Study: Psychology
47.495 Advanced Tutorial in Psychology
47.496 Practicum in Psychology

If the student chooses to complete his/her degree with 45 credits, the remaining courses in the major may be any of the course offerings in Psychology, provided at least 15 credits of the 45 credit total are at or above the 300 level. Note to transfer students: Only 6 credits of Dynamics classes may be used toward the major.
ASSOCIATE OF SCIENCE IN INFORMATION TECHNOLOGY (ON CAMPUS OR ONLINE PROGRAM)
YEARS 1-4: SUGGESTED COURSE 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 on or after September 2005.

FIRST YEAR
FIRST SEMESTER
90.160 Introduction to Information Systems 3
42.101 College Writing I (Gen. Ed) 3
90.112 Concepts in Algebra I* 3

SECOND SEMESTER
90.202 Introduction to Personal Computers & Microsoft Office 3
42.102 College Writing II (Gen. Ed.) 3
90.119 Concepts in Algebra II or 3
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 3
90.267 C Programming OR 3
90.211 Intro to Programming w/C I 9
(followed by 90.212 Intro to Programming w/C II)**

SECOND SEMESTER
- - - - Concentration Elective †† 3
- - - - Information Technology Elective† 3
- - - - Information Technology Elective† 3

THIRD YEAR
FIRST SEMESTER
- - - - Information Technology Elective† 3
49.201 Economics I (Microeconomics) 3
- - - - Concentration Elective †† 3

SECOND SEMESTER
- - - - Information Technology Elective† 3
49.202 Economics II (Macroeconomics) 3
- - - - Gen. Ed. - Arts, Humanities & Diversity (AHD) 3

FOURTH YEAR
FIRST SEMESTER
92.183 Introduction to Statistics 3
- - - - General Education 3
- - - - Information Technology Elective† 3

*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.

†Information Technology Electives may be chosen from any computer courses with a prefix of 90, 91, or 94.

††The student must choose a sequence of three (3) related (non-computer) courses to fulfill the concentration electives. Students should consult with their academic advisor regarding possible concentrations to fulfill this requirement.

Concentration Electives
The following courses are examples of courses that may be used towards this requirement 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.

31.201 Community Health
36.414 Infectious Disease
43.108 World History II
43.206 American Economic History
43.274 Native American History
43.308 Crime and Social Control
46.101 Introduction to American Politics
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

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 specialization 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.

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.

Information Technology
ASSOCIATE OF SCIENCE IN INFORMATION TECHNOLOGY
(ON CAMPUS OR ONLINE PROGRAM)

Continued

47.477 Seminar: Contemporary Trends - Addictions
47.360 Human Development II
47.363 Introduction to Developmental Disabilities
48.351 Sociology of Health and Health Care
60.201 Accounting/Financial
62.201 Marketing Principles
63.301 Management Information Systems
69.275 Total Quality Management
69.281 Purchasing Principles

Information Technology Electives

The following courses are examples of courses available on campus and online:
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
90.233 Multimedia Authoring Software: Macromedia Director
90.236 Instructional Design for Interactive Media
90.238 Website Development: FrontPage/Windows
90.239 Multimedia Scripting with Director’s Lingo
90.247 Advanced Web Authoring: Flash
90.249 Developing IT Training for the Web
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
## B.S. IN INFORMATION TECHNOLOGY
### YEARS 1-7: SUGGESTED COURSE OF STUDY
### TOTAL CREDITS: 123

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.

For students entering the program on or after September 2005.

### FIRST YEAR
#### FIRST SEMESTER
- **90.160 Introduction to Information Systems** 3
- **42.101 College Writing I (Gen. Ed.)** 3
- **90.112 Concepts in Algebra I** 3

#### SECOND SEMESTER
- **90.202 Introduction to Personal Computers & Microsoft Office** 3
- **42.102 College Writing II (Gen. Ed.)** 3
- **90.119 Concepts in Algebra II or 92.120 Precalculus Mathematics** 3

### SECOND YEAR
#### FIRST SEMESTER
- **- - - Concentration Elective †† 3**
- **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)** 9

#### SECOND SEMESTER
- **- - - Concentration Elective †† 3**
- **- - - Information Technology Elective †** 3
- **- - - Information Technology Elective †** 3

### THIRD YEAR
#### FIRST SEMESTER
- **- - - Information Technology Elective †** 3
- **49.201 Economics I (Microeconomics) (SS)** 3
- **- - - Concentration Elective †† 3**

#### SECOND SEMESTER
- **- - - Information Technology Elective †** 3
- **49.202 Economics II (Macroeconomics) (SS)** 3
- **- - - General Education - Arts, Humanities & Diversity (AHD)** 9

### FOURTH YEAR
#### FIRST SEMESTER
- **92.183 Introduction to Statistics** 3
- **- - - General Education - Arts & Humanities (AH)** 3
- **- - - Information Technology Elective †** 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 - 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 90.480 Project-Based Information Systems** 3
- **- - - Information Technology Elective †** 3
- **- - - Information Technology Elective †** 3
- **- - - Information Technology Elective †** 3
- **- - - Concentration Elective †† 3**
- **- - - Concentration Elective †† 3**

*Cannot get credit for both 92.120 and 90.112/90.119 sequence.

**Cannot get 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, 91, or 92.

†† The student must choose a sequence of six (6) related (non-computer) courses to fulfill the concentration electives.
# Bachelor of Science in Information Technology (On Campus or Online Program)

## Years 1-7: Suggested Course 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 on or after September 2005.

## First Year

### First Semester

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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>90.160</td>
<td>Introduction to Information Systems</td>
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</tr>
<tr>
<td>42.101</td>
<td>College Writing I (Gen. Ed.)</td>
<td>3</td>
</tr>
<tr>
<td>90.112</td>
<td>Concepts in Algebra I*</td>
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### Second Semester

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<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>90.202</td>
<td>Introduction to Personal Computers &amp; Microsoft Office</td>
<td>3</td>
</tr>
<tr>
<td>42.102</td>
<td>College Writing II (Gen. Ed.)</td>
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<tr>
<td>90.119</td>
<td>Concepts in Algebra II or Precalculus Mathematics*</td>
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## Second Year

### First Semester

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### Second Semester

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<td>Concentration Elective††</td>
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<td>Information Technology Elective†</td>
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<td>Information Technology Elective†</td>
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## Third Year

### First Semester

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### Second Semester

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<td>Information Technology Elective†</td>
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## Fourth Year

### First Semester

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### Additional Semesters

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

<table>
<thead>
<tr>
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<th>Course Title</th>
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<tbody>
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<td>Project-Based</td>
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</tr>
<tr>
<td></td>
<td>Information Systems</td>
<td>3</td>
</tr>
</tbody>
</table>

### Concentration Electives

The following courses are examples of courses that may be used towards this requirement 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.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>31.201</td>
<td>Community Health</td>
<td>3</td>
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<tr>
<td>36.414</td>
<td>Infectious Disease</td>
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<tr>
<td>43.108</td>
<td>World History I</td>
<td>3</td>
</tr>
<tr>
<td>43.206</td>
<td>American Economic History</td>
<td>3</td>
</tr>
<tr>
<td>43.274</td>
<td>Native American History</td>
<td>3</td>
</tr>
<tr>
<td>43.308</td>
<td>Crime and Social Control</td>
<td>3</td>
</tr>
<tr>
<td>46.101</td>
<td>Introduction to American Politics</td>
<td>3</td>
</tr>
<tr>
<td>47.101</td>
<td>General Psychology</td>
<td>3</td>
</tr>
<tr>
<td>47.260</td>
<td>Child and Adolescent Development I</td>
<td>3</td>
</tr>
<tr>
<td>47.272</td>
<td>Abnormal Psychology</td>
<td>3</td>
</tr>
<tr>
<td>47.312</td>
<td>Learning and Behavior</td>
<td>3</td>
</tr>
<tr>
<td>47.335</td>
<td>Psychology and Women</td>
<td>3</td>
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<tr>
<td>47.351</td>
<td>Human Sexuality</td>
<td>3</td>
</tr>
<tr>
<td>47.477</td>
<td>Seminar: Contemporary Trends - Addictions</td>
<td>3</td>
</tr>
<tr>
<td>47.360</td>
<td>Human Development II</td>
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</tr>
<tr>
<td>47.363</td>
<td>Introduction to Developmental Disabilities</td>
<td>3</td>
</tr>
<tr>
<td>48.351</td>
<td>Sociology of Health and Health Care</td>
<td>3</td>
</tr>
<tr>
<td>60.201</td>
<td>Accounting/Financial</td>
<td>3</td>
</tr>
<tr>
<td>62.201</td>
<td>Marketing Principles</td>
<td>3</td>
</tr>
<tr>
<td>63.301</td>
<td>Management Information Systems</td>
<td>3</td>
</tr>
<tr>
<td>69.275</td>
<td>Total Quality Management</td>
<td>3</td>
</tr>
</tbody>
</table>

*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.

†Information Technology Electives may be chosen from any computer courses with a prefix of 90, 91, or 94.

††The student must choose a sequence of six (6) 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 available on campus and online:

- 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
- 90.233 Multimedia Authoring Software: Macromedia Director
- 90.236 Instructional Design for Interactive Media
- 90.238 Website Development: FrontPage/Windows
- 90.239 Multimedia Scripting with Director's Lingo
- 90.247 Advanced Web Authoring: Flash
- 90.249 Developing IT Training for the Web
- 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
B.S. IN INFORMATION TECHNOLOGY: BUSINESS MINOR (ONLINE PROGRAM)
YEARS 1-7: SUGGESTED COURSE 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 on or after September 2005.

FIRST YEAR
FIRST SEMESTER
90.160 Introduction to Information Systems 3
42.101 College Writing I (Gen. Ed.) 3

SECOND SEMESTER
90.202 Introduction to Personal Computers & Microsoft Office (Students who can document proficiency in Microsoft Office may substitute an Information Technology elective) 3
42.102 College Writing II (Gen. Ed.) 3
92.120 Precalculus Mathematics I 3

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** 9

SECOND YEAR
FIRST SEMESTER
- - - - Information Technology Elective** 3
- - - - General Education - Arts, Humanities & Diversity (AHD) 3
- - - - Information Technology Elective** 3

SECOND SEMESTER
49.201 Economics I (Microeconomics) 3
- - - - Information Technology Elective** 3
60.201 Accounting/Financial† 3

THIRD SEMESTER
49.202 Economics II (Macroeconomics) 3
62.201 Marketing Principles† 3
- - - - Information Technology Elective** 3

THIRD YEAR
FIRST SEMESTER
92.183 Introduction to Statistics 3
61.301 Business Finance† 3
- - - - General Education - Arts & Humanities (AH) 3

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 3 with Experimental Learning 3
- - - - General Education - Science 3 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

*Cannot get 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, 91, or 92.

†Students need permission of College of Management Coordinator for these Business Minor Concentration Elective courses.
SECOND B.S. IN INFORMATION TECHNOLOGY
SUGGESTED COURSE 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 in Information Technology by taking 10 additional IT courses in designated areas.

REQUIRED COURSES
90.477 Information Systems I 3
AND
90.478 Information Systems II 3
OR
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. Please contact our Faculty and Student Support Center at (978) 934-2474 for assistance.

Note: Many of the IT electives were previously offered under the department code 92. Please note the course number taken with its equivalent course code on the course completion worksheet.
THE UNIVERSITY OF MASSACHUSETTS LOWELL OFFERS A BACHELOR OF SCIENCE DEGREE IN CRIMINAL JUSTICE. THIS PROGRAM OFFERS A STRONG CONCENTRATION IN PROFESSIONAL COURSES WHILE SIMULTANE ously 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 ACHIEVING 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 COURSE 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
44.101 The Criminal Justice System 3
- - - - Skills Requirement I 3
9
SECOND SEMESTER
42.102 College Writing II 3
41.234 Criminal Law 3
- - - - Skills Requirement II 3
9
SECOND YEAR
FIRST SEMESTER
- - - - General Education - Behavioral & Social Sciences 3
92.183 General Education - Mathematics (Introduction to Statistics) OR
92.283 Statistics for Behavioral Sciences (recommended) 6
SECOND SEMESTER
- - - - General Education - Behavioral & Social Sciences 3
- - - - General Education - Science* 6
THIRD YEAR
FIRST SEMESTER
44.221 Criminology 3
44.- - Criminal Justice Elective 3
- - - - Criminal Justice Collateral 3
9
SECOND SEMESTER
44.- - Criminal Justice Elective 3
- - - - Skills Requirement IV 3
- - - - General Education - Science* 3
9
FOURTH YEAR
FIRST SEMESTER
- - - - Skills Requirement III 3
- - - - General Education - Literature 3
44.390 Introduction to Criminal Justice Research 3
9
SECOND SEMESTER
- - - - General Education - Historical Studies 3
- - Free Elective 3
44.370 Criminal Justice Management 3
9
FIFTH YEAR
FIRST SEMESTER
44.- - Criminal Justice Elective 3
- - - - Criminal Justice Collateral 3
- - - - General Education - Aesthetics 3
SECOND SEMESTER
44.300/400 Criminal Justice Elective 3
44.- - Criminal Justice Elective 3
- - - - Criminal Justice Collateral 3
9
SIXTH YEAR
FIRST SEMESTER
- - - - Free Elective 3
44.300/400 Criminal Justice Elective 3
- - - - Criminal Justice Collateral 3
9
SECOND SEMESTER
- - - - General Education - Science* 3
44.371 Criminal Justice Planning and Evaluation 3
- - - - Criminal Justice Collateral 3
9
SEVENTH YEAR
FIRST SEMESTER
- - - - Criminal Justice Collateral 3
- - - - General Education - Values, Concepts, and Choice 3
- - - - Free Elective 3
9
SECOND SEMESTER
- - - - Free Elective 3
- - - - Free Elective 3
- - - - Free Elective 3
9

*SCIENCE: THREE COURSES, NINE CREDITS MINIMUM, WITH AT LEAST TWO COURSES THAT INCLUDE SOME FORM OF EXPERIMENTAL LEARNING.

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 course level or above.
COLLABORATION 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. Courses used to fulfill the professional skills requirement may be used toward fulfillment of this requirement. 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
92.183 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: 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. Computer programming and statistics, proficiency to be demonstrated by passing a minimum of four courses (9 credits in the Mathematics Department) from the following approved list:

44.201 Computer Applications in Criminal Justice or equivalent, PLUS
91.113 Exploring the Internet or another approved course (see Advisor or Department Chair)

Then the student completes the requirement by taking the following:

92.183 Introduction to Statistics OR
92.283 Statistics for Behavioral Sciences
AND ONE OF:
92.363 Introduction to Data Analysis
43.335 Quantitative Methods

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.

There are three main areas of tracks which 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
44.335 Juvenile Justice
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

A 2.0 cumulative average overall and a 2.2 average in the major are necessary for graduation.
BACHELOR OF SCIENCE IN CRIMINAL JUSTICE: PARALEGAL OPTION
YEARS 1-7: SUGGESTED COURSE 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
41.103 Introduction to Paralegal Studies 3
42.101 College Writing I 3
44.101 The Criminal Justice System 2

SECOND SEMESTER
44.301 Computer Applications for the Legal Profession 3
42.102 College Writing II 3
- - - - General Education - Science* 3

SECOND YEAR
FIRST SEMESTER
- - - - General Education - Mathematics 3
- - - - General Education - Behavioral and Social Sciences 3
46.230 Law and the Legal System 3

SECOND SEMESTER
- - - - General Education - Behavioral and Social Sciences 3
- - - - Skills Requirement 3
44.234 Criminal Law 3

THIRD YEAR
FIRST SEMESTER
- - - - Collateral Elective 3
- - - - Skills Requirement 3
- - - - General Education - Science* 3

SECOND SEMESTER
- - - - Skills Requirement 3
- - - - General Education - Literature 3
- - - - Collateral Elective 3

FOURTH YEAR
FIRST SEMESTER
41.390 Litigation 3
41.387 Legal Research Methods 3
- - - - Collateral Elective 3

SECOND SEMESTER
- - - - Paralegal Elective 3
- - - - Collateral Elective 3
- - - - Collateral Elective 3

FIFTH YEAR
FIRST SEMESTER
41.376 Family Law 3
- - - - General Education - Historical Studies 3
41.370 Real Estate Law 3

SECOND SEMESTER
- - - - General Education - Science* 3
- - - - Free Elective 3
41.363 Corporate and Property Law 3

SIXTH YEAR
FIRST SEMESTER
- - - - Paralegal Elective 3
- - - - Paralegal Elective 3
- - - - General Education - Values, Concepts, and Choice 3

SECOND SEMESTER
- - - - Free Elective 3
- - - - Paralegal Elective 3
- - - - Collateral Elective 3

SEVENTH YEAR
FIRST SEMESTER
44.497 Paralegal Practicum/Internship 3
- - - - Collateral Elective 3

SECOND SEMESTER
41.379 Law, Logic, and Ethics 3
- - - - Free Elective 3

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

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
92.183 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

b. Required Courses:
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
41.367 Family Law
41.387 Legal Research Methods
44.497 Paralegal Practicum/Internship

*Not updated to Gen Ed 2000
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:

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 list of courses. 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
- 46.371 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
- 92.183 Introduction to Statistics
- 92.363 Introduction to Data Analysis

A 2.0 cumulative average overall and a 2.2 average in the major are necessary for graduation.
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 which 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.

The Mathematical Sciences Department of the University offers three bachelors 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.

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.

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 twenty-first century. Many students come to the University to receive certificates in UNIX, Fundamentals of Information Technology, Multimedia Applications, Website Design and Development, or Data/Telecommunications. They can then pursue a degree in Information Technology by applying the courses taken to fulfill the certificate program requirements.

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.

For additional information on the different career opportunities available with the Bachelor’s degree in Mathematics, visit http://www.uml.edu/dept/math/programs/undergrad/emp_inf.htm.
BACHELOR OF SCIENCE IN MATHEMATICS
YEARS 1-7: SUGGESTED COURSE 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 on or after September 2005.

<table>
<thead>
<tr>
<th>FIRST YEAR</th>
<th></th>
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<tbody>
<tr>
<td>FIRST SEMESTER</td>
<td>92.120 Precalculus Mathematics I 3</td>
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<tr>
<td></td>
<td>42.101 College Writing I 3</td>
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<td></td>
<td>49.201 Economics I (Microeconomics) - 3</td>
<td>General Education - Social Sciences (SS) 9</td>
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<tr>
<td>SECOND SEMESTER</td>
<td>92.123 Precalculus Mathematics II 3</td>
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<tr>
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<td>42.102 College Writing II 3</td>
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<td>- - - General Education - Social Sciences (SS) 2</td>
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<td></td>
<td>General Education - Social Sciences (SS) 9</td>
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<tr>
<td>SECOND YEAR</td>
<td>92.125 Calculus A 3</td>
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<td>42.226 Technical and Scientific Communication 3</td>
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<td>99.131 Technical Physics I 3</td>
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<td>THIRD YEAR</td>
<td>92.225 Calculus C 3</td>
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<td>- - - Elective** 3</td>
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<td>- - - General Education - Arts, Humanities &amp; Diversity (AHD) 3</td>
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<td>SECOND SEMESTER</td>
<td>92.226 Calculus D 3</td>
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<td>92.321 Discrete Structures I 3</td>
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<tr>
<td></td>
<td>92.385 Applied Statistics†† or 2.386 Probability and Statistics II†† 9</td>
<td></td>
</tr>
</tbody>
</table>

| FOURTH YEAR         |                     |                     |
| FIRST SEMESTER      | 92.221 Linear Algebra I 3 |                     |
|                     | - - - Computing Requirement (see Program Coordinator) 3 |                     |
|                     | - - - Gen. Ed.- Science with Experimental Learning 3 |                     |
|                     | - - - Gen. Ed.- Science with Experimental Learning Lab 10 |                     |
| SECOND SEMESTER     | 92.222 Linear Algebra II 3 |                     |
|                     | - - - General Education - Arts, Humanities & Ethics (AHE) 3 |                     |
|                     | - - - Gen. Ed.- Science with Experimental Learning 3 |                     |
|                     | - - - Gen. Ed.- Science with Experimental Learning Lab 10 |                     |

| FIFTH YEAR          |                     |                     |
| FIRST SEMESTER      | 92.234 Differential Equations 3 |                     |
|                     | - - - Elective** 3                 |                     |
|                     | - - - Elective** 3                 |                     |
|                     | - - - General Education - Social Sciences (SS) 9 |                     |

| SIXTH YEAR          |                     |                     |
| FIRST SEMESTER      | 92.- - - Analysis† 3 |                     |
|                     | - - - Elective** 3                 |                     |
|                     | - - - Concentration Elective* 3    |                     |

| SEVENTH YEAR        |                     |                     |
| FIRST SEMESTER      | 92.- - - Analysis† 3 |                     |
|                     | - - - Elective** 3                 |                     |
|                     | - - - Concentration Elective* 3    |                     |

| *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. 92.183 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 COURSE 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 on 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
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
SECOND YEAR
FIRST SEMESTER
92.125 Calculus A 3
42.226 Technical and Scientific Communication 3
99.131 Technical Physics I 3
SECOND SEMESTER
92.126 Calculus B 3
- - - - General Education - Arts & Humanities (AH) 3
99.132 Technical Physics II 3
THIRD YEAR
FIRST SEMESTER
92.225 Calculus C 3
- - - - Elective** 3
- - - - General Education - Arts, Humanities & Diversity (AHD) 3
SECOND SEMESTER
92.226 Calculus D 3
92.321 Discrete Structures I 3
92.385 Applied Statistics†† or Probability and Statistics II †† 3
FOURTH YEAR
FIRST SEMESTER
92.221 Linear Algebra I 3
- - - - Computing Requirement (see Program Coordinator) 3
- - - - Gen. Ed.- Science with Experimental Learning 3
- - - - Gen. Ed.- Science with Experimental Learning 1
SECOND SEMESTER
92.222 Linear Algebra II 3
- - - - General Education - Arts, Humanities & Ethics (AHE) 3
- - - - Gen. Ed.- Science with Experimental Learning 3
- - - - Gen. Ed.- Science with Experimental Learning Lab 10
FIFTH YEAR
FIRST SEMESTER
92.234 Differential Equations 3
92.301 Intro. to Applied Mathematics I 3
- - - - Elective** 3
SECOND SEMESTER
- - - - Mathematics Elective 3
- - - - General Education - Social Studies (SS) 3
- - - - Elective** 3
SIXTH YEAR
FIRST SEMESTER
92. - - - - - - - Analysis† 3
- - - - Elective* 3
- - - - Concentration Elective* 3
SECOND SEMESTER
92. - - - - - - - Analysis† 3
- - - - Math Elective (300-level or above) 3
- - - - Elective** 3
92.375 Senior Seminar I (see Program Coordinator) 10
SEVENTH YEAR
FIRST SEMESTER
92. 362 Numerical Analysis 3
- - - - Math Elective (300-level or above) 3
- - - - Elective** 3
SECOND SEMESTER
92.475 Senior Seminar II (see Program Coordinator) 3
92.450 Mathematical Modeling 3
- - - - Elective** 3
*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. 92.183 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 Course 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 on 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) | 9 |
|           | SECOND YEAR   | FIRST SEMESTER | 92.125 Calculus A | 3 |
|           |               | 42.226 Technical and Scientific Communication | 3 |
|           |               | 99.131 Technical Physics I       | 3 |
|           |               | SECOND SEMESTER | 92.126 Calculus B | 3 |
|           |               | General Education - Arts & Humanities (AH) | 3 |
|           |               | 99.132 Technical Physics II      | 3 |
|           | THIRD YEAR    | FIRST SEMESTER | 92.225 Calculus C | 3 |
|           |               | General Education - Arts, Humanities & Diversity (AHD) | 3 |
|           |               | SECOND SEMESTER | 92.226 Calculus D | 3 |
|           |               | 92.321 Discrete Structures I     | 3 |
|           |               | 92.385 Applied Statistics        | 3 |
|           | FOURTH YEAR   | FIRST SEMESTER | 92.221 Linear Algebra I | 3 |
|           |               | Computing Requirement (see Program Coordinator) | 3 |
|           |               | Gen. Ed. - Science with Experimental Learning | 3 |
|           |               | Gen. Ed. - Science with Experimental Learning Lab | 10 |
|           | SECOND SEMESTER | 92.222 Linear Algebra II | 3 |
|           |               | General Education - Arts, Humanities & Ethics (AHE) | 3 |
|           |               | Gen. Ed. - Science with Experimental Learning | 3 |
|           |               | Gen. Ed. - Science with Experimental Learning Lab | 10 |
|           | FIFTH YEAR    | FIRST SEMESTER | 92.234 Differential Equations | 3 |
|           |               | Elective** | 3 |
|           |               | Elective** | 3 |
|           | SECOND SEMESTER | 92.386 Probability and Statistics I | 3 |
|           |               | General Education - Social Sciences (SS) | 3 |
|           |               | Concentration Elective* | 3 |
|           | SIXTH YEAR    | FIRST SEMESTER | 92.305 Analysis† | 3 |
|           |               | Elective** | 3 |
|           |               | Experimental Design | 3 |
|           |               | SECOND SEMESTER | 92.305 Analysis† | 3 |
|           |               | Linear Models/Regression | 3 |
|           |               | Elective** | 3 |
|           |               | Senior Seminar I (see Program Coordinator) | 10 |
|           | SEVENTH YEAR  |               |               | |
|           |               |               |               | |

*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. 92.183 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 COURSE 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 on or after September 2005.

### FIRST YEAR

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<th>Semester</th>
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<th>Course Title</th>
<th>Credits</th>
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<tr>
<td><strong>FIRST SEMESTER</strong></td>
<td>92.120</td>
<td>Precalculus Mathematics I</td>
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<td>42.101</td>
<td>College Writing I</td>
<td>3</td>
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<tr>
<td></td>
<td>49.201</td>
<td>Economics I (Microeconomics)</td>
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<td><strong>SECOND SEMESTER</strong></td>
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<td>42.102</td>
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### SECOND YEAR

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<td><strong>FIRST SEMESTER</strong></td>
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<td>42.226</td>
<td>Technical and Scientific Communication</td>
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<td>99.131</td>
<td>Technical Physics I</td>
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<td><strong>SECOND SEMESTER</strong></td>
<td>92.126</td>
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<td>99.132</td>
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### THIRD YEAR

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<td><strong>FIRST SEMESTER</strong></td>
<td>92.225</td>
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<td><strong>SECOND SEMESTER</strong></td>
<td>92.292</td>
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### FOURTH YEAR

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<td><strong>FIRST SEMESTER</strong></td>
<td>92.211</td>
<td>Linear Algebra I</td>
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<td>Computing Requirement (see Program Coordinator)</td>
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<td>Gen. Ed.- Science with Experimental Learning Lab</td>
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### FIFTH YEAR

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<td><strong>FIRST SEMESTER</strong></td>
<td>92.234</td>
<td>Differential Equations</td>
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<td>Concentration Elective*</td>
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<td>Elective**</td>
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<td><strong>SECOND SEMESTER</strong></td>
<td>92.235</td>
<td>Mathematics Elective (300-level or above)*</td>
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<td>General Education - Social Sciences (SS)</td>
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### SIXTH YEAR

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<td><strong>FIRST SEMESTER</strong></td>
<td>92.420/520</td>
<td>Mathematical Problem Solving</td>
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<td>Elective**</td>
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<tr>
<td></td>
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<td>Concentration Elective*</td>
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<td><strong>SECOND SEMESTER</strong></td>
<td>92.503</td>
<td>Mathematical Analysis</td>
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<td>Math Elective</td>
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<td></td>
<td>(300-level or above)*</td>
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<td>92.375</td>
<td>Senior Seminar I (see Program Coordinator)</td>
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<td>Concentration Elective*</td>
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### SEVENTH YEAR

<table>
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<td><strong>FIRST SEMESTER</strong></td>
<td>92.475</td>
<td>Senior Seminar II (see Program Coordinator)</td>
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<td>Elective**</td>
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</table>

*Concentration Electives can be in Mathematics or another approved department. 92.183 and 92.363 cannot be used as math electives. See an advisor from the College 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 College 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 92.358 and 92.356.

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.
Engineering Technology

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. Engineering technicians or technologists may work in such areas as product sales and distribution, operation service and maintenance, manufacturing and production, and routine design.

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 upon entry into a career.

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.
# A.S. IN CIVIL ENGINEERING TECHNOLOGY

**YEARS 1-4: SUGGESTED COURSE OF STUDY**

TOTAL CREDITS: 65

## FIRST YEAR

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<th>Course Name</th>
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<tr>
<td><strong>FIRST SEMESTER</strong></td>
<td>92.120 Precalculus Mathematics I 3</td>
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<tr>
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<td>23.101 Engineering Graphics 2</td>
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<td><strong>SECOND SEMESTER</strong></td>
<td>92.123 Precalculus Mathematics II 3</td>
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<td>15.113 Computer-Aided Design and Drafting (CAD) 2</td>
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<td>42.101 College Writing I 3</td>
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## SECOND YEAR

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<td>15.123 Surveying I 4</td>
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<td>92.125 Calculus A 3</td>
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<td>99.131 Technical Physics I 2</td>
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<td><strong>SECOND SEMESTER</strong></td>
<td>15.124 Surveying II 4</td>
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<td>92.126 Calculus B 3</td>
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<td>15.237 Statics 3</td>
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## THIRD YEAR

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<td><strong>FIRST SEMESTER</strong></td>
<td>99.132 Technical Physics II 3</td>
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<td>15.246 Fluid Mechanics/Hydraulics 3</td>
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<td>42.102 College Writing II 3</td>
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<td><strong>SECOND SEMESTER</strong></td>
<td>15.239 Strength of Materials 3</td>
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<td>15.247 Hydraulics Laboratory 1</td>
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<td>42.226 Technical and Scientific Communication 3</td>
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## FOURTH YEAR

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<td>- - - General Education - 3</td>
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<td>Historical Studies</td>
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<td>15.251 Structural Analysis I 3</td>
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<td>15.253 Reinforced Concrete I 3</td>
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<td><strong>SECOND SEMESTER</strong></td>
<td>15.257 Highway Elements 3</td>
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<td>15.242 Steel Design I 3</td>
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<td>15.224 Materials/Structural Lab 1</td>
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# B.S. in Civil Engineering Technology

**Years 1-8: Suggested Course of Study**

**Total Credits: 124**

<table>
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### B.S. in Civil Engineering Technology: Environmental Option

**Years 1-8: Suggested Course of Study**

**Total Credits: 130**

#### First Year

**First Semester**

- 92.120 Precalculus Mathematics I 3
- 23.101 Engineering Graphics 2

**Second Semester**

- 92.123 Precalculus Mathematics II 3
- 42.101 College Writing I 3

#### Second Year

**First Semester**

- 15.123 Surveying I 4
- 92.125 Calculus A 3
- 99.131 Technical Physics I 2

**Second Semester**

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

#### Third Year

**First Semester**

- 99.132 Technical Physics II 3
- 15.246 Fluid Mechanics/Hydraulics 3
- 42.102 College Writing II 3

**Second Semester**

- 15.239 Strength of Materials 3
- 15.247 Hydraulics Laboratory 1

#### Fourth Year

**First Semester**

- 15.131 Environmental Chemistry I 3
- 90.211 Introduction to Programming with C - I 9

**Second Semester**

- 15.132 Environmental Chemistry II 3
- 15.280 Industrial Waste Treatment 3
- 15.394 Soil Mechanics Laboratory 1

#### Fifth Year

**First Semester**

- 15.251 Structural Analysis I 3
- 15.253 Reinforced Concrete I 3

**Second Semester**

- 15.257 Highway Elements 3
- 15.242 Steel Design I 3
- 15.224 Materials/Structural Lab 1

#### Sixth Year

**First Semester**

- 15.356 Water Treatment 3
- 15.340 Hazardous Waste Management 9

**Second Semester**

- 15.358 Wastewater Treatment 3
- 15.396 Groundwater Resources 3
- 15.263 Wastewater Operations Lab I 7

#### Seventh Year

**First Semester**

- 49.201 Economics I (Microeconomics) 3
- 92.386 Statistics for Science and Engineering 9

**Second Semester**

- 15.378 Air Quality Management 3
- 47.101 General Psychology 3

**Third Semester**

- 41.367 Environmental Law and Regulations 3

**Fourth Semester**

- 41.367 Environmental Law and Regulations 3

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This table represents a suggested course of study for the B.S. in Civil Engineering Technology with an Environmental Option. The total credits required for this program are 130.
# A.S. IN CIVIL ENGINEERING TECHNOLOGY: SURVEYING OPTION
## YEARS 1-4: SUGGESTED COURSE OF STUDY
### TOTAL CREDITS: 64

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**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.

### A.S. IN ELECTRONIC ENGINEERING TECHNOLOGY

**YEARS 1-4: SUGGESTED COURSE OF STUDY**

**TOTAL CREDITS: 64**

For students entering the program on or after September 2005.

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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 17.3/4- course is automatically assumed if all prerequisites are satisfied.
### B.S. IN ELECTRONIC ENGINEERING TECHNOLOGY

**YEARS 1-8: SUGGESTED COURSE OF STUDY**

**TOTAL CREDITS: 126**

*For students entering the program on or after September 2005.*

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<td>17.214 Circuits II and Laboratory</td>
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**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:

- Register for Project Laboratory;
- Write an outline for the project intended to be used for credit;
- Write a report on the project;
- Give a presentation; AND
- 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.

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 17213 and 17214, 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.
A.S. IN MECHANICAL ENGINEERING TECHNOLOGY
YEARS 1-4: SUGGESTED COURSE OF STUDY
TOTAL CREDITS: 84

FIRST YEAR
FIRST SEMESTER
92.120 Precalculus Mathematics I 3
23.101 Engineering Graphics 2
42.101 College Writing I 3
SECOND SEMESTER
92.123 Precalculus Mathematics II 3
23.102 Engineering Design & Graphics 3
42.102 College Writing II 3

SECOND YEAR
FIRST SEMESTER
92.125 Calculus A 3
99.131 Technical Physics I 3
42.226 Technical and Scientific Communication 3
SECOND SEMESTER
92.126 Calculus B 3
99.132 Technical Physics II 3
23.295 Materials Science 3

THIRD YEAR
FIRST SEMESTER
23.200 Computer Aided Drafting (CADraft) 3
23.221 Statics 3
23.241 Elements of Thermodynamics I 3
SECOND SEMESTER
17.130 Electrical Basics and Lab 2
23.222 Dynamics 3
23.223 Mechanics of Materials 3

FOURTH YEAR
FIRST SEMESTER
23.242 Applied Fluid Mechanics 3
23.202 Thermo/Fluids Laboratory 2
SECOND SEMESTER
17.131 Electronic Basics and Lab 2
- - - General Education - 3
23.302 Mechanics/Materials Lab 2

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.
B.S. IN MECHANICAL ENGINEERING TECHNOLOGY
YEARS 1-8: SUGGESTED COURSE OF STUDY
TOTAL CREDITS: 125

FIRST YEAR
FIRST SEMESTER
92.120 Precalculus Mathematics I 3
23.101 Engineering Graphics 2
42.101 College Writing I 3

SECOND SEMESTER
92.123 Precalculus Mathematics II 3
23.102 Engineering Design & Graphics 3
42.102 College Writing II 3

SECOND YEAR
FIRST SEMESTER
92.125 Calculus A 3
99.131 Technical Physics I 3
42.226 Technical and Scientific Communication 3

SECOND SEMESTER
92.126 Calculus B 3
99.132 Technical Physics II 3
23.295 Materials Science 3

THIRD YEAR
FIRST SEMESTER
23.200 Computer Aided Drafting (CADrf) 3
23.221 Statics 3
23.241 Elements of Thermodynamics 3

SECOND SEMESTER
17.130 Electrical Basics and Laboratory 2
23.222 Dynamics 3
23.223 Mechanics of Materials 3

FOURTH YEAR
FIRST SEMESTER
23.242 Applied Fluid Mechanics 3
23.202 Thermo/Fluids Laboratory 2

SECOND SEMESTER
17.131 Electronic Basics and Lab. 2
17.132 Digital Basics and Laboratory 2
90.211 Introduction to Programming with C - I 3
23.302 Mechanics/Materials Lab. 2

FIFTH YEAR
FIRST SEMESTER
23.3.- Mechanical Engineering Technology Elective 3
92.225 Calculus C 3
84.111 General Chemistry I 3

SECOND SEMESTER
17.132 Digital Basics and Laboratory 2
90.211 Introduction to Programming with C - I 3
23.354 Problems in Mechanical Engineering Technology 3

SIXTH YEAR
FIRST SEMESTER
23.320 Machine Design 3
84.113 General Chemistry Lab I 1
23.262 Engineering Data Analysis 3

SECOND SEMESTER
--- General Education - Aesthetics 3
23.243 Elements of Thermodynamics II 3
--- General Education - Values, Concepts, and Choice 3

SEVENTH YEAR
FIRST SEMESTER
49.201 Economics I (Microeconomics) 3
23.475 Heat Transfer 3
--- General Education - Literature 3

SECOND SEMESTER
47.101 General Psychology 3
23.480 Computer-Aided Design (CADes) 3
23.301 Manufacturing Technology Laboratory 2

EIGHTH YEAR
FIRST SEMESTER
23.414 Engineering Economics 3
23.402 Engineering Measurement Laboratory 2

SECOND SEMESTER
23.484 Intro Pro-E 3
23.3.- M.E.T. Elective 3

SIXTH YEAR
FIRST SEMESTER
23.320 Machine Design 3
84.113 General Chemistry Lab I 1
23.262 Engineering Data Analysis 3

SECOND SEMESTER
--- General Education - Aesthetics 3
23.243 Elements of Thermodynamics II 3
--- General Education - Values, Concepts, and Choice 3
### B.S. IN MECHANICAL ENGINEERING TECHNOLOGY: MANUFACTURING OPTION

**YEARS 1-8: SUGGESTED COURSE OF STUDY**

**TOTAL CREDITS: 125**

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<td>23.101</td>
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<td>2</td>
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<td></td>
<td>42.101</td>
<td>College Writing I</td>
<td>3</td>
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<tr>
<td><strong>SECOND SEMESTER</strong></td>
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<td>92.123</td>
<td>Precalculus Mathematics II</td>
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<td>23.102</td>
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<td>42.226</td>
<td>Technical and Scientific Communication</td>
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<td>99.132</td>
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<td>23.295</td>
<td>Materials Science</td>
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<td><strong>THIRD YEAR</strong></td>
<td><strong>FIRST SEMESTER</strong></td>
<td>23.200</td>
<td>Computer Aided Drafting (CADrf)</td>
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<td>Statics</td>
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<td>23.241</td>
<td>Elements of Thermodynamics I</td>
<td>3</td>
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<td><strong>SECOND SEMESTER</strong></td>
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<td>17.130</td>
<td>Electrical Basics &amp; Laboratory</td>
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<td>Dynamics</td>
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<td>Mechanics of Materials</td>
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<td><strong>FOURTH YEAR</strong></td>
<td><strong>FIRST SEMESTER</strong></td>
<td>23.242</td>
<td>Applied Fluid Mechanics</td>
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<td>23.202</td>
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<td>17.131</td>
<td>Electronic Basics and Lab.</td>
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<td>General Education - Historical Studies</td>
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<td>84.111</td>
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<td>Digital Basics and Laboratory</td>
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<td>23.262</td>
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<td>23.243</td>
<td>Elements of Thermodynamics II</td>
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<td>General Education - Values, Concepts, and Choice</td>
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<td><strong>SEVENTH YEAR</strong></td>
<td><strong>FIRST SEMESTER</strong></td>
<td>49.201</td>
<td>Economics I (Microeconomics)</td>
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<td>Computer-Aided Design (CADes)</td>
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<td>23.305</td>
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## B.S. IN MECHANICAL ENGINEERING TECHNOLOGY: PLASTICS OPTION

### YEARS 1-8: SUGGESTED COURSE OF STUDY

**TOTAL CREDITS: 130**

### FIRST YEAR

#### FIRST SEMESTER
- **Degree Programs:**
  - 42.101 College Writing I 3
  - 23.101 Engineering Graphics 2
  - 92.120 Precalculus Mathematics I 3

#### SECOND SEMESTER
- **Degree Programs:**
  - 42.102 College Writing II 3
  - 23.102 Engineering Design and Graphics 3
  - 92.123 Precalculus Mathematics II 3

### SECOND YEAR

#### FIRST SEMESTER
- **Degree Programs:**
  - 42.226 Tech. and Scientific Communication 3
  - 92.125 Calculus A 3
  - 99.131 Technical Physics I 2

#### SECOND SEMESTER
- **Degree Programs:**
  - 49.201 Economics I (Microeconomics) 3
  - 92.126 Calculus B 3
  - 99.132 Technical Physics II 2

### THIRD YEAR

#### FIRST SEMESTER
- **Degree Programs:**
  - 23.221 Statics 3
  - 27.371 Plastics Part Design 3
  - 94.121 Chemistry I 2

#### SECOND SEMESTER
- **Degree Programs:**
  - 23.222 Dynamics 3
  - 23.241 Thermodynamics 3
  - 84.122 Chemistry II 2

### FOURTH YEAR

#### FIRST SEMESTER
- **Degree Programs:**
  - 42.209 Historical Elective 3
  - 27.201 Plastics Material Science I 3
  - 94.221 Organic Chemistry I 3

#### SECOND SEMESTER
- **Degree Programs:**
  - 17.130 Electrical Basics and Laboratory 2
  - 27.202 Plastics Material Science II 3
  - 27.217 Plastics Processing Eng. Laboratory 1

### FIFTH YEAR

#### FIRST SEMESTER
- **Degree Programs:**
  - 23.202 Thermo/Fluids Lab 2
  - 23.242 Applied Fluid Mechanics 3
  - 92.225 Calculus C 3

#### SECOND SEMESTER
- **Degree Programs:**
  - 27.301 Additives for Polymeric Materials 3
  - 90.211 Intro to Programming with C I 3
  - 92.226 Calculus D 3

### SIXTH YEAR

#### FIRST SEMESTER
- **Degree Programs:**
  - 23.475 Heat Transfer 3
  - 27.401 Processing Technology I 3

#### SECOND SEMESTER
- **Degree Programs:**
  - 27.402 Processing Technology II 3

### SEVENTH YEAR

#### FIRST SEMESTER
- **Degree Programs:**
  - 27.211 Intro to Programming with C II 3
  - 27.216 Processing Technology II 3

#### SECOND SEMESTER
- **Degree Programs:**
  - 27.373 Plastics Mold Design I 3
  - 23.262 Engineering Data Analysis 3

### EIGHTH YEAR

#### FIRST SEMESTER
- **Degree Programs:**
  - 27.371 Plastics Product Design 3
  - 27.211 Intro to Programming with C I 3

#### SECOND SEMESTER
- **Degree Programs:**
  - 27.373 Plastics Mold Design I 3
  - 23.262 Engineering Data Analysis 3

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*Data last update: 7-12-1999, B.S. IN MECHANICAL ENGINEERING TECHNOLOGY: PLASTICS OPTION*

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*This document is provided for informational purposes only and may not reflect the most current or accurate degree programs available.*
UMass Lowell offers an Associate of Science in Management and a Bachelor of Science in Business Administration. Each degree offers working professionals an opportunity to develop their skills and become more competitive and confident in the business field. Graduates of the College of Management are offered a higher level of preparedness that differentiates them from competitors, because their quality education is from UMass Lowell, which is an AACSB accredited program. AACSB accreditation guarantees an extensive curriculum that excels because of its commitment to quality and continuous improvement.

Associate of Science in Management
Bachelor of Science in Business Administration

For more information on certificate program descriptions and requirements, see page 65 or visit our website at http://continuined.uml.edu.
# A.S. IN MANAGEMENT

## YEARS 1-4: SUGGESTED COURSE 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

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<td>92.120</td>
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<td>OR NON-COM Elective**</td>
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### SECOND SEMESTER

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<td>48.101</td>
<td>Introduction to Sociology</td>
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<td>92.122</td>
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## SECOND YEAR

### FIRST SEMESTER

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<tr>
<td>60.201</td>
<td>Accounting/Financial</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>9</td>
<td></td>
</tr>
</tbody>
</table>

### SECOND SEMESTER

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>46.-</td>
<td>Political Science Elective</td>
<td>3</td>
</tr>
<tr>
<td>49.202</td>
<td>Economics II</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>(Macroeconomics)</td>
<td></td>
</tr>
<tr>
<td>62.201</td>
<td>Marketing Principles</td>
<td>3</td>
</tr>
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## THIRD YEAR

### FIRST SEMESTER

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>49.211</td>
<td>Statistics</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>General Education - Arts</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>and Humanities Elective (AH)</td>
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</tr>
<tr>
<td>60.202</td>
<td>Accounting/Managerial</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>9</td>
<td></td>
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</table>

### SECOND SEMESTER

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>63.210</td>
<td>Operations Analysis</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>General Education - Arts</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>and Humanities Elective (AH)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>General Education - 4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Science with Experimental</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Learning</td>
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</tr>
</tbody>
</table>

## FOURTH YEAR

### FIRST SEMESTER

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>61.301</td>
<td>Business Finance</td>
<td>3</td>
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<tr>
<td>66.301</td>
<td>Organizational Behavior</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>General Education - 4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Science with Experimental</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Learning</td>
<td></td>
</tr>
</tbody>
</table>

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 which 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- or 400-level COM courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>60.201</td>
<td>Accounting/Financial</td>
<td></td>
</tr>
<tr>
<td>49.201</td>
<td>Economics I</td>
<td></td>
</tr>
<tr>
<td>49.211</td>
<td>Statistics I</td>
<td></td>
</tr>
<tr>
<td>92.122</td>
<td>Management Calculus</td>
<td></td>
</tr>
<tr>
<td>42.101</td>
<td>College Writing I</td>
<td></td>
</tr>
<tr>
<td>42.102</td>
<td>College Writing II</td>
<td></td>
</tr>
<tr>
<td>47.101</td>
<td>General Psychology</td>
<td></td>
</tr>
<tr>
<td>48.101</td>
<td>Introduction to Sociology</td>
<td></td>
</tr>
</tbody>
</table>

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.
# B.S. in Business Administration

## Years 1-7: Suggested Course 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* 3
- or NON-COM Elective**

#### Second Semester
- 42.102 College Writing II 3
- 48.101 Introduction to Sociology 3
- 92.122 Management Calculus 3

### Second Year

#### First Semester
- 43.--- History Elective (AH)† 3
- 49.201 Economics I (Microeconomics) 3
- 60.201 Accounting/Financial 3

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

### Third Year

#### First Semester
- 49.211 Statistics 3
- General Education - Elective (AH)† 3
- 60.202 Accounting/Managerial 3

#### Second Semester
- 63.210 Operations Analysis 3
- General Education - Elective (AH)† 3
- General Education - Science with Experimental Learning 4

### Fourth Year

#### First Semester
- 61.301 Business Finance 3
- 66.301 Organizational Behavior 3
- General Education - Science with Experimental Learning 4

#### Second Semester
- NON-COM Global Elective** 3
- 60.331 Cost Management Systems 3
- 63.301 Management Information Systems 3

### Fifth Year

#### First Semester
- NON-COM Elective** 3
- COM Elective (300/400 level) 3
- COM Elective (300/400 level) 3

#### Second Semester
- Operations Management 3
- NON-COM Elective** 3
- COM Elective (300/400 level) 3

### Sixth Year

#### First Semester
- NON-COM Elective** 3
- COM Elective (300/400 level) 3
- COM Elective (300/400 level) 3

#### Second Semester
- COM Elective (300/400 level) 3
- General Education - Science 3
- NON-COM Elective 3

### Seventh Year

#### First Semester
- COM Elective (300/400 level) 3
- Strategic Management 3
- COM OR NON-COM Elective 3

*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 which is considered by the University as an unrestricted elective.

***A NON-COM Global Elective is a course outside of the College of Management which 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” Gen. Ed. requirements will be determined by the College.

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

- 60.201 Accounting/Financial 3
- 49.201 Economics I 3
- 49.211 Statistics I 3
- 92.122 Management Calculus 3
- 42.101 College Writing I 3
- 42.102 College Writing II 3
- 47.101 General Psychology 3
- 48.101 Introduction to Sociology 3

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.