

Contact

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Admission Requirements

(In years as established by the college)

A high school diploma with the following specific courses:

- 4 English
- 1 Biology (*recommended*)
- 2 Algebra I & II
- 1 Geometry
- 1/2 Trigonometry
- 2 Lab Science (*chemistry & physics*)
- 2 History/Social Studies
- Academic electives (*to equal at least 17 total credits*)

To ensure current mathematical skills, students should take a mathematics course during their senior year of high school.

Major Requirements

- 47 credits Biological & Chemical Engineering
- 6 credits Engineering (other)
- 6 credits Technical Electives
- 50 credits Sciences and Mathematics
- 18 credits General Education Requirements
- 3 credits College Composition

Areas of speciality:

Biological processing
 Biomaterials

130 Minimum total credit hours required for graduation

College of Engineering

Program Description

Biological engineers are those people who apply information from the biological, physical, and engineering sciences to solve challenges and create designs involving various types of biological systems. Biological engineers work in Maine, throughout New England and the world with other scientists and engineers to solve problems. The basic curriculum, combined with electives in engineering, the humanities and social sciences, and in the life sciences, and culminating with a two-semester engineering design experience, provides a broad base of knowledge for engineering practice in today's society. Students may, in consultation with their academic advisor, focus their technical elective courses in bioprocessing or biomaterials. Biological engineering students are eligible to enroll in the minor of Biomedical Engineering administered by the College of Engineering at the University of Maine.

Students who are engaged in engineering related summer jobs under the direction of the program's cooperative (co-op) coordinator can earn three credits toward their technical elective credits through the cooperative education program, following an approved work experience sequence in the field of study.

The program offers scholarships for outstanding students majoring in Biological Engineering. In addition, students are eligible for other scholarships through the College of Engineering and the University of Maine.

Career Opportunities

Employment opportunities for biological engineers are as diverse as the biologically-based industries themselves. Biological engineers find employment as design or sales engineers in industries such as biomedical, biological processing, food, pharmaceutical; in federal government entities such as EPA, FDA, FFA, NIH, USDA or similar state agencies; in biological waste utilization industries; in government, industry, or state experimental facilities as research engineers; or in colleges and universities as teachers or instructors. Expanding engineering opportunities are available in the evolving fields of biomedical and biotechnology and the engineering of their related systems. With the expanding world population, a rising emphasis on biotechnology and an increasing demand for engineers with a basic biological sciences understanding, Biological Engineers will continue to be in great demand.

General Education Requirements*

- ENG 101 College Composition
- 18 credits Human Values & Social Context area (*a single course may satisfy more than 1 sub-category, but a total of 18 credits must be completed*)
 - Western Cultural Tradition
 - Social Context & Institutions
 - Cultural Diversity & International Perspectives
 - Population & the Environment
 - Artistic & Creative Expression
- 2 courses Designated Writing Intensive (*1 must be within the major*)
- 2 courses Biological or Physical Sciences (*must include at least 1 laboratory course*)
- 1 course Ethics (*emphasis on discussion of ethical issues in 1 course or series of courses*)
- 6 credits Mathematics (*including statistics & some computer science, only 3 credits in computer science can count toward this requirement*)

General Education Requirements* (continued)

1 capstone An approved experience in which the student integrates the components of his or her undergraduate training to perform at a professional level. The capstone experience is usually completed during the senior year in consultation with the student's academic advisor.

**All UMaine students must complete these general education requirements, which are counted in the total credit hours required for graduation and may be contained in the Major Requirements previously listed.*

Specialized Information

Under the New England Regional Student Program, administered through the New England Board of Higher Education, the Bachelor of Science degree in Biological Engineering is open to applicants who reside in Connecticut, Massachusetts, New Hampshire, Rhode Island or Vermont for reduced tuition (in-state tuition plus 50 percent)

Graduate Study

The undergraduate program prepares students for graduate work as well as immediate employment. The degree of Master of Science (Biological Engineering) is offered with or without thesis in several option areas. Several assistantships are available.

Academic Programs 2008-2009

Please refer to the web site (<http://factsheets.umaine.edu/>) for the most updated version of the fact sheets.

This fact sheet is intended for informational purposes only and is subject to change.