

Bioengineering

Bachelor of Science Degree

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 Pre-Calculus
- 2 Lab Science (chemistry and 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.

Did You Know?

- The curriculum has been carefully crafted to provide undergraduates with an education that will serve as a platform for a career in bioengineering either after directly entering the workforce or, more commonly, after completing an advanced degree.
- The program is unique in its focus on instrumentation and techniques employed to probe biological systems and processes, in addition to the challenges and methodologies associated with manipulating biological systems employing synthetic materials.

College of Engineering

Program Description

UMaine offers a unique program of study that provides a high-quality undergraduate education in the instrumentation and techniques employed to probe biological systems and processes, the challenges and methodologies associated with manipulating biological systems employing synthetic materials, and current and future applications of bioengineering. The size of the program provides students with extensive individual interactions with faculty members. The department facilitates summer internships in leading research and diagnostics laboratories throughout New England, typically in students' junior and senior years. In addition, students are encouraged to undertake undergraduate research experiences in the laboratories of the department faculty. The program is accredited by the Accreditation Board for Engineering Technology (ABET).

Specialized Information

The UMaine bioengineering faculty members are all highly active and accomplished researchers. Current research projects include the development of nanoprobe for the detection and imaging of cancer, creation of model cellular membranes for the study of membrane-protein interactions, molecular biosensors for detecting pathogens and toxins, improvements in tissue-implant compatibility, creation of transportation fuels from natural materials via bio-conversion technologies, new methods for bioprocess design analysis, risk assessment for environmental and human health, and the monitoring and quality assurance in food products. Undergraduates are encouraged to participate in projects such as these to gain hands-on experience in the field, either for course credit or as paid employment.

Associated Honor Societies and Student Organizations

Majors are encouraged to join the Bioengineering Student Group. UMaine also has chapters of the Society of Women Engineers and Tau Beta Pi, the national engineering honor society.

NEBHE Program

Applicants to this program who reside in Connecticut, Massachusetts, New Hampshire, Rhode Island or Vermont are eligible for reduced tuition (in-state plus 50 percent) under the New England Regional Student Program, administered through the New England Board of Higher Education (nebhe.org).

Career and Graduate Opportunities

The bioengineering degree is suitable for entry-level engineering careers and as preparation for graduate-level study in the engineering or science disciplines. The degree serves as an excellent foundation for acceptance into medical school.

Representative Courses

CHB 111 Introduction to Chemical and Biological Engineering
CHB 112 Introduction to Chemical and Biological Engineering II
BLE 201 Fundamentals of Biological Engineering
BLE 202 Transport Processes in Biological Systems
CHB 361 Chemical and Biological Engineering Laboratory I
CHB 363 Chemical and Biological Engineering Laboratory II

BLE 401 Applications of Biological Engineering
BLE 402 Biomaterials and the Cellular Interface
BLE 403 Instrumentation in Biological Engineering
CHB 477 Elements of Chemical and Biological Engineering Design
CHB 479 Chemical and Biological Engineering Design Projects
CHB 493 Chemical and Biological Engineering Seminar

UMaine Graduate Programs

Master of Science in Biological Engineering

About UMaine

The University of Maine, founded in Orono in 1865, is the state's premier public university. It is among the most comprehensive higher education institutions in the Northeast and attracts students from across the U.S. and more than 60 countries. It currently enrolls 12,000 total undergraduate and graduate students who can directly participate in groundbreaking research working with world-class scholars. Students are offered 88 bachelor's degree programs, 64 master's degree programs, 25 doctoral programs and one of the oldest and most prestigious honors programs in the U.S. The university promotes environmental stewardship on its campus, with substantial efforts aimed at conserving energy, recycling and adhering to green building standards in new construction. For more information about UMaine, go online (umaine.edu). Equal opportunity information also is available online (umaine.edu/eo).

How do I apply?

Visit go.umaine.edu for an application as well as information about academics and life at UMaine.



Academic Programs 2011-12

The latest versions of the UMaine fact sheets are online (factsheets.umaine.edu). This fact sheet is intended for informational purposes only and is subject to change.

