

College of Natural Sciences, Forestry & Agriculture

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
- 2 Algebra I & II
- 1 Geometry
- 2 Lab Science (*including chemistry or 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

- 35 credits Biochemistry, Microbiology & Molecular Biology
- 3 credits College Composition
- 18 credits Humanities & Social Sciences
- 61 credits Sciences & Mathematics
- 3 credits Electives

120 Minimum total credit hours required for graduation

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.

Program Description

Molecular Biology has evolved in recent years as a response to the increased ability to study organisms at the molecular genetic level. This discipline involves the systematic study of the molecular and structural basis for the organization, transmission and expression of genetic information, in addition to the general study of macromolecular systems involved in the structure and function of cellular components. Recent years have seen explosive advances in the study of DNA and molecular genetics including gene cloning, sequencing and mapping. Developments in recombinant DNA technologies have opened up entirely new areas of study and provided powerful techniques in genetic engineering that are revolutionizing the pharmaceutical, health and agricultural industries and have spawned new industries in biotechnology.

In the past, students have gained experience by participating in an internship such as: Intern, Kellogg Company; Scientist Intern, Sandoz Crop Protection Corporation; Science Aide, Food and Drug Administration; Public Health Services; Department of Health and Human Services; Intern, Jackson Laboratories.

Career Opportunities

Students in Molecular and Cellular Biology generally have decided upon a career in science or medicine. Many pursue advanced degrees leading to careers as physicians or research scientists. Science careers are possible in both the private sector—working for pharmaceutical companies, universities or research institutes; or in the public sector—working for state universities, technical labs or state and federal agencies.

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*)
- 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.*

Graduate Study

The Department of Biochemistry, Microbiology and Molecular Biology offers a Master of Science degree and a Master of Professional Studies degree in Biochemistry or Microbiology. The department also offers a Doctor of Philosophy degree in Biochemistry and Molecular Biology or in Microbiology.