



# Biology

Education in the biological sciences involves the study of life from the simplest forms of plants and animals to the highly complex structure of the human being. Biology also includes the study of how organisms are structured as well as how they function and relate to each other.

The undergraduate concentration programs are intended to be part of the broad intellectual experience of a general liberal education; they also may provide basic training for graduate and professional school. The curriculum is rep-

resented by a range of disciplines from animal and plant biology to physiology, ecology, and evolution.

The bachelor's degree offers concentration programs in Biology, General Biology, Cellular and Molecular Biology, Plant Biology, or Microbiology. Listed below are some characteristic skills developed by biology majors as well as representative occupations of graduates with a degree in the biological sciences.

## SKILLS & ABILITIES

A biology major provides students with research, investigative, analytical and quantitative skills. Students concentrating in the biological sciences develop the ability to formulate concepts that allow them to solve practical problems and to find better ways of meeting world needs.

These skills may be applied to job responsibilities in the sciences, business, government, and education, among

other occupational groups. For example, the ability to conduct investigations and perform analyses may be employed differently on a daily basis by a college administrator, director of biomedical communications, genetic engineer, curator of a natural history museum, or teacher. The following list presents some examples of the skills developed and used by students in the biological sciences.

### Investigation

- Inspecting specimens
- Assessing risks
- Defining expected/potential results
- Identifying problems
- Cataloging information

### Research

- Defining problems
- Organizing ideas/information
- Conducting studies
- Designing experiments
- Recording observations
- Using computers for computation/simulation

### Quantitative

- Preparing statistical reports
- Utilizing statistical tests to predict outcomes
- Determining probabilities
- Applying scientific concepts to problems
- Interpreting results
- Utilizing laboratory equipment

### Analysis

- Evaluating effects of phenomena
- Making projections from data
- Examining components of problems/ideas
- Reasoning logically
- Categorizing data

## OCCUPATIONAL OPPORTUNITIES

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The biological sciences provide the basis for many types of careers. Students may choose to pursue career paths in business, medicine, government or the environment. Ad-vanced study, field, or laboratory experience may be re-quired for careers in the biological sciences or health professions. Based on follow-up surveys of Michigan

graduates as well as national data, the occupations listed below indicate a variety of functional responsibilities for the student of the biological sciences. For some occupa-tions listed below additional skills or related training are desirable. Additional graduate study is expected for those occupations preceded by a • on the following list.

<b>Public Sector/ Government</b>	<b>Environmental</b>	<b>Business/Industry</b>	<b>Medicine/Public Health</b>
Environmental protection specialist	Park naturalist	•Biochemist	•Toxicologist
•Public health officer	Ecologist	Pharmaceutical sales representative	•Veterinarian
Hunger policy analyst	•Marine biologist	•Industrial hygienist	Biological researcher
Water quality inspector	•Botanist	Genetic engineer	•Biostatistician
Aquarist	•Zoologist	•Bioengineer	•Bacteriologist
Park ranger	•Ichthyologist	Trainer	•Physician
•Food and drug inspector	Fundraiser, environ-mental organization	•Molecular biologist	Medical illustrator
•Parasitologist	Entomologist	Food technician	•Epidemiologist
•City recycling manager	Conservationist	Retail manager, pet store	•Genetic engineer
•Administrator, nuclear waste program	Science magazine editor	Pest control consultant	•Health policy consultant
Teacher	Wildlife photographer	Technical writer	•Data analyst
•Professor	Curator, botanical gardens	Web designer	•Administrator, HMO
•College administrator		Programmer / Analyst	•Medical librarian

## CURRICULUM REQUIREMENTS

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The concentration programs consist of 33 hours beyond the prerequisites (which include introductory biology, chemistry, physics and mathematics). Genetics, biochem-istry, and evolution are required courses in the concen-

tration and the remaining hours may be selected from two core areas of biology. The department also partici-pates in interdepartmental concentration programs in Anthropology-Zoology, Biophysics, and Microbiology.

## FOR MORE INFORMATION

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For information about choosing a career, about graduate/professional school, internships, or job descriptions; and for library resources:

The Career Center  
3200 Student Activities Building  
(734) 764-7460  
[www.careercenter.umich.edu](http://www.careercenter.umich.edu)

For information about the concentration and degree requirements:

Department of Biology  
1111 Natural Science Building  
(734) 764-2446  
[www.biology.lsa.umich.edu](http://www.biology.lsa.umich.edu)

LS&A Academic Advising Center  
1255 Angell Hall  
(734) 764-0332