



What can I do with a Major in...

Biology

What is Biology?

The word **biology** is derived from the Greek words bios meaning life and logos meaning study and is defined as the science of life and living organisms. An organism is a living entity consisting of one cell e.g. bacteria, or several cells e.g. animals, plants and fungi. Aspects of biological science range from the study of molecular mechanisms in cells, to the classification and behavior of organisms, how species evolve and interaction between ecosystems.

What is Biology at U of L?

The Department of Biology, in the College of Arts and Sciences, in addition to the undergraduate programs offers work leading to the degrees of Master of Science in Biology and Doctor of Philosophy in Environmental Biology. Programs generally include a broad base of fundamentals in Biology, and each student has the opportunity for direction by specialists in aquatic ecology, behavioral ecology, cellular biology, plant and animal ecology, entomology, genetics, ichthyology, insect development, invertebrate ecology, microbiology, molecular biology, ornithology, plant physiology, plant growth and development, phycology, systematics and evolution of plants and animals, vertebrate physiology and community and ecosystem ecology of large rivers, small streams and wetlands.

Degrees in Biology at U of L:

Bachelor of Arts in Biology

The B.A. Biology degree is a liberal arts degree designed for those students who desire a broad education in a variety of disciplines. This degree requires foreign language and more social science and/or humanities than the B.S. degree. There are also more hours of free electives that can be used to tailor a program to fit individual needs, desires, and interests. The total number of credit hours required for the B.A. degree is 121 of which a minimum of 38 hours are biology major courses. (No more than 40 hours in Biology may be included in this major.)

Bachelor of Science in Biology

The B.S. Biology degree is an intense scientific degree program with three different specialty tracks available. This program requires has fewer hours in social science and/or humanities than the B.A. degree and there are fewer free electives available within the 121 hour program. The B.S. degree is strongly recommended for those students planning to apply for post-baccalaureate professional study.

Graduate Studies in Biology

The graduate program of the department offers the M.S. and Ph.D. Degrees in Biology. A broad range of courses are taught in most biological disciplines, although the Department is focused in two major directions. The Divisions of Molecular, Cellular, and Developmental Biology (MCD) and Evolution, Ecology and Behavioral Biology (EEB) incorporate current areas of special interest in environmental microbiology, population and microbial genetics, developmental biology, plant and animal physiology, metabolism, phycology, plant and animal ecology, behavioral ecology, invertebrate zoology, entomology, and community and ecosystem ecology of large rivers, small streams, and wetlands.



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The M.S. Program is sufficiently flexible to meet virtually any professional need and consists of both thesis and nonthesis tracks as well as an Education track for those students seeking teacher certification. The Ph.D. Program is unique in that all students are required to complete a flexible core program in Biology. This program includes one course from each of the following areas: statistics, genetics, physiology/biochemistry, evolution/systematics, and ecology, as well as a wide choice of electives in environmental biology. Research for the Ph.D. Dissertation or the M.S. Thesis may be conducted under the supervision of any member of the department's faculty who is also a member of the University's Graduate Faculty.

Students seeking the Ph.D. Degree in Biology traditionally have a master's degree or its equivalent; however, students may enter the program with only the baccalaureate degree. Generally, the first year or two is spent in course work, research is begun by the second year, and the thesis/dissertation completed in the final year. On average, students take 2 1/2 years to earn the M.S. and 5 years to earn the Ph.D.

Occupational Overview

Research and study of principles of plant and animal life including but not limited to origin, relationship, development, anatomy, and functions.

Employment Requirements

A bachelor's degree is the minimum formal education required. However, many employers also require graduate school. For example, they may require a master's degree, and some require a Ph.D., M.D., or J.D. (law degree).

Career Opportunities in Biology:

Aquarium and Museum Worker
Medical Illustrator
Barrier Beach Manager
Microbiologist
Aquaculture Farmer
Pharmaceutical Sales Person
Botanist
Zoologist
Coastal Researcher Worker
Salt Marsh Manager
Ecologist
Technical Writer
Environmental Health Specialist
State Parks and Recreation
Fisheries Conservationist
Toxicologist
Genetic Engineering Research
Wildlife Biologist
Health Officer
Water Quality Technician
Marine Biologist
Wildlife Resources Agent

Employers/Industries and Success Strategies:



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Botany: Botanical gardens and arboretums - Colleges and universities - Industries and laboratories involved in production of food, textiles, chemical, and forestry products - Medical and private research laboratories - Pharmaceutical industry - State and federal government: Departments of Agriculture, Interior, and Health

Suggested Strategy: Conduct undergraduate research with professors. Join related professional organizations. Take courses in organic chemistry, biochemistry, and physics. Obtain a Ph.D. for teaching and advanced positions in research and management. Complete a related internship with an organization in the area of your interest.

Bioinformatics: Biotechnology industry - Government research laboratories - Pharmaceutical companies - Universities/colleges

Suggested Strategy: Double major or minor in computer science. Develop in-depth programming and relational database skills. Learn molecular biology packages, web design, and programming skills. Complete an internship in your area of interest.

Microbiology: Agricultural experiment stations - Colleges and universities - Environmental and pollution control agencies - Food, chemical, pharmaceutical, and cosmetic companies - Government research laboratories and service agencies - Hospitals and public health facilities - Private research foundations

Suggested Strategy: Obtain a Ph.D. for teaching and advanced research and management positions. Develop additional competencies in chemistry, mathematics, and physics. Take courses related to your field of interest or consider an advanced degree to specialize. Find a related internship with an organization in the area of your interest. Complete an undergraduate research project with a professor. Develop strong skills using laboratory equipment and computers.

Systematic Biology: Botanical gardens and arboretums - Colleges, universities, and agricultural colleges - Federal agencies - Hospitals - Museums - Private research foundations - Public health laboratories - Zoos and aquariums

Suggested Strategy: Earn a Ph.D. for college and university teaching and advanced research and management positions. Get involved with undergraduate research with professors. Complete an internship with an organization in the area of your interest.

Zoology: Clinics and hospitals - Colleges and universities - Museums - Pharmaceutical, agricultural service industries - Research organizations - Veterinary hospitals - Wildlife preserves and parks - Zoos, aquariums, and other collections of animals

Suggested Strategy: Obtain experience working with animals and various related laboratory equipment. Develop a broad background in biology and other related subjects such as chemistry, physics, mathematics, and statistics. Complete a related internship with an organization in the area of your interest. A zoological background is good preparation for a career in veterinary science or medicine, but an advanced degree is also required to practice.

Related Links in the Biology Discipline:

Professional Association Links

The European Federation of Biophysics Organisation
The American Society for Cell Biology
American Association of Zoo Keepers

American Aquarium and Zoo Association

The American Institute of Biological Sciences
International Biometric Society
The Company of Biologists Limited
US Geological Survey - Biological Resources

Career Planning Links

Careers in Genetic Counseling
What is an Animal Behaviorist?
<http://www.animalbehavior.org/ABS/Guides/Careers.pdf>



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OR

http://www.animalbehavior.org/ABS/Education/careers_brochure.html

Science Careers Web Health Management Careers

Careers in Forensic Science

Careers in Genetic Counseling

Medical/Health Exploration

Center for Health Careers

Healthcare Career Resource Center: Site includes short history of medical careers, healthcare career information, and information on schools & scholarships

Biological and Medical Scientists Occupational Outlook Handbook, U.S. Dept of Labor

Careers in Biology from Emporia State University

Ideas for Volunteer/Internship/ Co-op

Hire Bio

Hire Health

Med zilla

Nature jobs

Tiny Tech Jobs

The SciWeb Biotechnology Career Center

Clinical Science Careers

The American Academy of Forensic Sciences

BioMedScientist Jobs

CDC jobs

Pre-Med Internship Opportunities

Careers with the Agricultural Research Service

Life Sciences World

Bio Space

BIOTECH Career Center

Sciencejobs.com: the best jobs from the leaders in bioscience

Biology Jobs and other science jobs

Biology Job Search Links

Bio View - company information and daily industry news, biotechnology & pharmaceutical employment site, job listings

Science Careers and job hunting

Maritime Employment Opportunities

Internship Hotspots

Publish & Perish: Guide to On-line Employment and Career Links for the Biomedical Student

Biology Jobs U.S. Dept of Health & Human Services www.hhs.gov/jobs

National Institute of Health

For internships go to <http://www.training.nih.gov>

Salary/Outlook Info

INFORMATIONAL WEBSITES:



<http://online.onetcenter.org>



<http://www.bls.gov/oco/>