Program Overview: Bachelor of Science, Biological Sciences

Biology Concentration; Cellular, Molecular, and Developmental Biology Concentration and Ecology, Evolution, and Organismal Biology Concentration.

About This Major . . .

Our program meets the needs of those interested in pursuing careers in the medical and veterinary fields, research careers in a variety of fields ranging from molecular biology to wildlife biology, or laboratory or field technicians. We have a highly talented faculty with a strong commitment to undergraduate education.

The Bachelor of Science, Biological Sciences, provides state-of-the-art laboratories, three laboratories dedicated to undergraduate research, and access to extensive collections of plants, mammals, birds, insects, and reptiles. Many undergraduates work with faculty mentors on collaborative research projects in cell biology, molecular genetics, plant systematics and ecology, as well as tropical ecology in Ecuador and marine biology in the coastal northwest. For those interested in wildlife and ecology, we offer field based courses and field based research. The Colorado National Monument, the Colorado River, and the San Juan Mountains are some of the areas for fieldwork. There are also a variety of internship and independent study opportunities. The St. Mary's Saccomanno Research Institute/Colorado Mesa University Summer Internship Program in Biological Research (SIPBR), is a competitive paid 10-week summer research program under the supervision of faculty mentors. There are also a variety of clubs such as the Tri-Beta Biology club, Fish and Wildlife club, and the GEMS (Graduate Education and Medical Sciences) club. Our students win awards presenting their research at Tri-Beta conferences.

All CMU baccalaureate graduates are expected to demonstrate proficiency in critical thinking, communication fluency, quantitative fluency, and specialized knowledge/applied learning.

Biology graduates will be able to demonstrate:

1. a broad, comprehensive knowledge of the main areas of biology (including evolution, ecology, cell biology, and genetics) and the ability to apply this knowledge to address new questions.

2. the ability to use science as a way of thinking and problem solving. They will be able to make key observations, ask questions, formulate hypotheses, design experiments, collect and analyze data, draw logical conclusions, and explain and defend those conclusions to others.

3. the ability to critically search, read, evaluate, and discuss primary literature.

Program Highlights:

Undergraduate Research
There are opportunities to work on research projects with faculty supervision.

Follow Their Lead
Land a job as a crime lab technician or wildlife biologist, or pursue medical research, or veterinary careers. There are many career possibilities with a Biological Sciences Degree from CMU.

Get Smarter
Consider a PhD, MD or DVM. A Biological Sciences Degree is a great launching point for further education.

Get Involved
Join the Biology Club, Fish and Wildlife Club, Medical Sciences Club, and Honors Program.

Get Experience
Enroll in an internship with the National Parks Service or assist in a medical clinic. There are many opportunities to gain real-world experiences.

Program Requirements

A student must follow CMU graduation requirements by completing 120 semester credit hours, including 40 credits of coursework at the 300+ level. See the "Undergraduate Graduation Requirements" in the catalog for additional graduation information. Students should work closely with a faculty advisor when selecting and scheduling courses prior to registration. In general, CMU's programs of study are based on two curriculum groups:

1. Essential Learning

CMU's Essential Learning program provides the foundation of skills and information that cuts across all fields of study and the support for advanced concepts that students will later encounter in their majors. Before moving into work at the 300+ level, students complete the Maverick Milestone and its co-requirement, Essential Speech. This pair of courses is a capstone experience where students integrate what they have learned from their foundation courses by making connections among diverse areas of knowledge. The capstone is also an opportunity for students to work with disparate ideas, a critical skill expected of all CMU graduates that will aid them in solving the complex and unscripted problems they will encounter in their personal, professional, and civic lives.

2. What You Will Study in This Major. . .

Foundational Courses

These courses provide you with necessary chemistry background to prepare you for more advanced study:

- BIOL 105/ 105L Attributes of Living Systems
- CHEM 131/131L General Chemistry I
- CHEM 132/132L General Chemistry II
- STAT 200 Probability and Statistics or higher level math

Biology Core

All students also complete these advanced courses which focus on fundamental knowledge in Biology, sophisticated reading and evaluation of primary scientific literature, and a capstone course that allows you to demonstrate what you have learned with a written thesis report:

- BIOL 208/208L Ecology and Evolution
- BIOL 301/301L Principles of Genetics
- BIOL 483 Senior Thesis

Electives

These electives supplement or complement your choices in Biology, depending upon your career goals:

- BIOL 387 Structured Research
- BIOL 487 Advanced Research
- BIOL 496 Topics: Specialty courses are offered nearly every semester. Recent Topics have included primate biology, would healing, and Neuroscience.
- BIOL 499 Internship

Specialty Courses

You can choose from the courses below that align with your chosen concentration, personal goals and interests:

Category I:
Cellular, Developmental and Molecular

- Cell Biology
- Developmental Biology
- Immunology
- Molecular Genetics
- Pharmacology
- Biochemistry
- Lab Investigations in Cellular and Molecular Biology
- Forensic Molecular Biology

Category 2:
Organismal

- Plant Identification
- Insect Biology
- Marine Biology
- Invertebrate Zoology
- Microbiology
- Mammalogy
- Ornithology
- Herpetology
- Animal Behavior
- Mycology

Category 3:
Anatomical and Physiological

- Human Anatomy and Physiology
- General Physiology
- Gross Human Anatomy
- Plant Physiology
- Plant Anatomy
- Endocrinology

Category 4:
Ecology and Evolution

- Evolution
- Epidemiology
- Plant Systematics
- Taxonomy of Grasses
- Plant-Animal Interaction
- Advanced Ecological Methods
- Desert Ecology
- Aquatic Biology
- Tropical Ecosystems
- Wildlife Management

For more information about this major, go to: http://www.coloradomesa.edu/biology/degrees.html or contact the Academic Department Head for Biological Sciences, 228D Wubben Hall, 970.248.1015.