The Department of Ecology at Montana State University offers undergraduate majors a broad range of specializations in basic to applied biological and ecological sciences. Courses offered include plant and animal ecology, conservation biology, quantitative biology, terrestrial and aquatic resources and management, and conservation genetics. Undergraduate majors work toward a Bachelor of Science degree in biological sciences in one of four options.

**CURRICULUM OPTIONS**

**Fish and Wildlife Ecology and Management Option**
The Fish and Wildlife Ecology and Management Option is a professional degree program offered for those students who have an interest in employment in these fields. Study leading toward a bachelor’s degree emphasizes basic principles of animal ecology, with considerable work in related fields.

**Conservation Biology and Ecology Option**
The Conservation Biology and Ecology Option teaches students the many ways natural and human-related processes affect biological diversity as well as how to relate this knowledge to its societal context. The program of study trains students comprehensively in ecology and conservation biology, provides extensive coursework in the scientific method and statistical analysis, and is highly interdisciplinary, reflecting the broad scope of conservation biology.

**Organismal Biology Option**
The Organismal Biology Option provides a rigorous program of study in plant or animal biology at the whole-organism, species, population and community levels, while allowing students flexibility in selecting biology courses that best meet their interests and objectives. It accomplishes this by requiring students to select 20 required credits in biology in consultation with their advisor to achieve a personalized curriculum.

**Biology Teaching Option**
The Biology Teaching Option is designed for students who wish to become licensed to teach biology in grades 5-12. Coursework is similar to the Organismal Biology Option and includes professional preparation courses through the Teacher Education Program. Upon completion of the degree, students are eligible for licensure in the State of Montana.
EDUCATIONAL FACILITIES

Teaching and research laboratories provide access to and training in contemporary field and laboratory technologies and methodologies. Field courses use the varied ecosystems present within easy driving distance from campus, ranging from high plains to alpine environments, as one of the best outdoor laboratories in the nation. Certain summer courses also use the natural setting of Yellowstone National Park for field-oriented education.

The MSU Library provides an outstanding service in making an extensive collection of materials available to students. The library is a selective depository for federal, state and Canadian government documents and offers the world’s most comprehensive collection of trout and salmonid materials. The library has been a pioneer in providing computer-based access to federal databases on a wide range of topics.

RESEARCH OPPORTUNITIES

In the Department of Ecology, students are strongly encouraged to gain research experience. This can be done by enrolling in undergraduate research courses in which the student works closely with a faculty member for at least a semester. Another approach is through summer employment on research projects, on campus or with state or federal agencies, as a paid or volunteer worker. Some examples of recent or current department research programs include:

- Ecology of rivers and streams
- Fire, climate, and vegetation interactions
- Population studies of managed or threatened and endangered species
- Inter-specific relationships between native mammals and fisheries
- Behavioral and environmental factors influencing invasive hybridization of native trout
- Plant-pollinator interactions
- Whitebark pine refugia
- Effects of climate upon the population ecology of large mammals
- Ecology and habitat management of waterfowl
- Ecology and conservation of bats
- Bird population studies in relation to land use changes
- Ecological factors limiting numbers and distribution of African wild dogs
- Inter-specific competition between carnivores
- Ecology of warm- and cold-water fisheries
- Management of whirling disease
- Ecological physiology of fishes
- Abundance and habitat selection of black bears

For additional information:
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Grad student Kurt Heim downloads data used to examine movements of Yellowstone cutthroat trout.