

BIOLOGICAL SCIENCES

Charles H. Janson, Associate Dean for the Biological Sciences

The Division of Biological Sciences has undergraduate and graduate programs representing the full range of the biological sciences. The Division offers Bachelor's degrees in

- Biology (with a broad array of formal concentrations described in more detail below),
- Medical Laboratory Science,
- Microbiology including microbial ecology,
- Wildlife Biology (a cooperative program administered by the College of Forestry and Conservation), and
- Biochemistry (an interdepartmental degree administered by the Chemistry Department).

The Division also advises students in pre-health sciences and offers a series of summer field courses at the University's Flathead Lake Biological Station (<http://flbs.umt.edu>) a year-round academic center for the ecological sciences, located 85 miles north of Missoula near Kalispell and Glacier National Park. The Division is one of the leading research units in the University. Research programs in the Division provide abundant opportunities for students to enhance their educational experience by participating in mentored research. Several sources of funding are available to support undergraduate student research, and the Division participates in the University of Montana Conference on Undergraduate Research each spring.

Graduate degrees offered by the Division of Biological Sciences include Master of Science and Doctor of Philosophy degrees in

- Cellular, Molecular and Microbial Biology (CMMB),
- Organismal Biology and Ecology (OBE), and
- Systems Ecology (SE).

The Division also participates in the graduate (M.S. and Ph.D.) program in Wildlife Biology, administered by the College of Forestry and Conservation and in the Ph.D. program in Biochemistry and Biophysics, administered by the Chemistry Department. Information on graduate study and program requirements is available from the Graduate School or the Division of Biological Sciences.

The Division offers a Bachelor of Science degree in **Biology** that provides a solid foundation in core areas of the biological sciences and in supporting physical sciences and mathematics. Several concentrations are provided within the B.S. biology degree:

- **Cellular and molecular biology:** For students interested in the cellular and molecular aspects of biology, and for students interested in health-related professions.
- **Ecology and organismal biology:** For students interested in the biology of organisms (plants and animals), populations or communities, and for students interested in veterinary school.
- **Field ecology:** For students interested in field-based ecology. Students with this option spend one or two summers taking field courses at the Flathead Lake Biological Station.
- **Genetics and evolution:** For students interested in all aspects of genetics, as well as evolutionary biology, and for students interested in health-related professions.

- **Human biological sciences:** Provides a strong background in the biological sciences for students interested in pursuing further study in a health sciences professional program.

The Division also offers a Bachelor of Arts degree in **Biology** with the following concentrations:

- **Natural history:** For students who would like to combine basic natural history and biological sciences with another field such as art, journalism, or creative writing.
- **Biological Education and General Sciences Broadfield:** Two separate options designed for students interested in a career teaching biology or all sciences at the secondary (middle or high school) level.

The Division also offers a Bachelor of Science degree in **Microbiology**. Microbiology is the study of microorganisms, including bacteria, yeasts, molds, viruses, protozoa and other microscopic parasites. The Bachelor's degree in Microbiology is offered as a general degree or with a concentration in microbial ecology. The general concentration emphasizes microbial structure, function, and interactions and relationships with humans. The microbial ecology concentration emphasizes microbial structure, function, and interactions and relationships with the environment and other organisms.

The Division also offers a Bachelor of Science degree in **Medical Laboratory Science** (Michael Minnick, Professor of Microbiology, Advisor). Medical Laboratory Science (<http://hs.umt.edu/medtech>) or clinical laboratory science is a combined study of chemistry, physiology and microbiology. A medical laboratory scientist performs chemical, microscopic, and microbiological procedures used in the diagnosis, study and treatment of human disease. Medical laboratory scientists are in high demand in hospitals, clinical labs, research institutions and government health departments. Certification is required for clinical practice.

To become certified, a student, after satisfying the minimum course requirements, completes a clinical practicum of at least 12 consecutive months in a school of medical laboratory science accredited by the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS). After completing a clinical practicum and passing the American Society for Clinical Pathology (ASCP) Board of Certification examination, the student is certified as a Medical Laboratory Scientist [MLS(ASCP)].

The University of Montana has two coursework tracks for the Medical Laboratory Science B.S. degree. The 3+1 track includes the practicum at one of our affiliated programs as part of the degree, while the practicum is not included in the 4+1 track.

Degree requirements for all three majors and courses are described below (see the College of Forestry and Conservation for information about Wildlife Biology and the Biochemistry Program in the College of Humanities and Sciences for information about Biochemistry).

The Division of Biological Sciences is committed to providing coursework and experiences for non-science majors. The world faces many problems and opportunities that include significant biological components. Courses for non-science majors have the goal of fostering understanding of the process of science and enhancing biological knowledge as it relates to environmental, medical, social, and other issues. A number of introductory courses are open both to majors and non-majors. In addition, the Division offers courses designed specifically for non-majors: Microbiology for Health Sciences, Introductory Ecology, Survey of Montana Wildlife and Habitats, and others.

Undergraduate

- Biology B.A. (<http://catalog.umt.edu/past-catalogs/2017-2018/colleges-schools-programs/humanities-sciences/biological-sciences/ba>)
- Biology B.A., Biological Education Concentration (<http://catalog.umt.edu/past-catalogs/2017-2018/colleges-schools-programs/humanities-sciences/biological-sciences/ba-biological-education>)
- Biology B.A., Natural History Concentration (<http://catalog.umt.edu/past-catalogs/2017-2018/colleges-schools-programs/humanities-sciences/biological-sciences/ba-natural-history>)
- Biology B.S., Cellular & Molecular Biology Concentration (<http://catalog.umt.edu/past-catalogs/2017-2018/colleges-schools-programs/humanities-sciences/biological-sciences/bs-cellular-molecular-biology>)
- Biology B.S., Ecology and Organismal Biology Concentration (<http://catalog.umt.edu/past-catalogs/2017-2018/colleges-schools-programs/humanities-sciences/biological-sciences/bs-ecology-organismal-biology>)
- Biology B.S., Field Ecology Concentration (<http://catalog.umt.edu/past-catalogs/2017-2018/colleges-schools-programs/humanities-sciences/biological-sciences/bs-field-ecology>)
- Biology B.S., Genetics and Evolution Concentration (<http://catalog.umt.edu/past-catalogs/2017-2018/colleges-schools-programs/humanities-sciences/biological-sciences/bs-genetics-evolution>)
- Biology B.S., Human Biological Sciences (<http://catalog.umt.edu/past-catalogs/2017-2018/colleges-schools-programs/humanities-sciences/biological-sciences/bs-human-biological-sciences>)
- Medical Laboratory Science B.S. (<http://catalog.umt.edu/past-catalogs/2017-2018/colleges-schools-programs/humanities-sciences/biological-sciences/bs-medical-laboratory-science>)
- Microbiology B.S. (<http://catalog.umt.edu/past-catalogs/2017-2018/colleges-schools-programs/humanities-sciences/biological-sciences/bs-microbiology>)
- Microbiology B.S., Microbial Ecology Concentration (<http://catalog.umt.edu/past-catalogs/2017-2018/colleges-schools-programs/humanities-sciences/biological-sciences/bs-microbiology-ecology>)

Undergraduate Minors

- Biology (<http://catalog.umt.edu/past-catalogs/2017-2018/colleges-schools-programs/humanities-sciences/biological-sciences/minor-biology>)
- Microbiology (<http://catalog.umt.edu/past-catalogs/2017-2018/colleges-schools-programs/humanities-sciences/biological-sciences/minor-microbiology>)