Master of Science in Science Education

The Master of Science in Science Education (MSSE) degree program is delivered primarily online with popular campus summer course offerings that utilize the diverse environment of Montana to teach scientific principles and provide models of field-based instruction. Courses are designed and offered across all science subjects to improve content knowledge and provide innovative teaching strategies. Unique characteristics make this program appealing to both traditional and non-traditional science educators.

ADMISSION
Applicants should have a bachelor's degree in science, science education, elementary/middle/secondary education, or a related area. Candidates should also have completed at least two years of successful science teaching in elementary, middle, high school, or any other appropriate informal educational setting (such as a museum, parks service, or community college). There is a 3.0 GPA minimum requirement; students below this minimum may attend as non-degree students to earn admission.

PROGRAM REQUIREMENTS
Thirty semester credits are required for the degree: 14 core education credits, 12 science credits (may be chosen from a broad selection of science coursework), and 4 elective credits (either science or education). Students typically will complete the degree in two or three years. The Graduate School allows up to six years to finish the degree.
COURSE OFFERINGS

**Biology - Online**
- Terrestrial Ecology of Plains and Prairies
- Biology of Riparian Zones and Wetlands
- Anatomy & Physiology
- Teaching Evolution
- Ecology and Conservation of the World’s Marine Ecosystems

**Biology - On Campus**
- Terrestrial Ecology of the Northern Rocky Mountains
- Animal Biodiversity in Yellowstone National Park
- Birds of Prey of the Greater Yellowstone Ecosystem
- Wildlife Ecology of the Northern Rocky Mountains
- Alpine Ecology
- Advanced Ecology
- Land Use Issues in the Greater Yellowstone Ecosystem
- Ecology of Trout Streams
- Examining Line in Extreme Environments

**Chemistry and Biochemistry - Online**
- Atoms First-Primer for AP/IB Chemistry
- Chemistry of the Environment - Water, Air, Earth
- Exploring Biochemistry
- Exploring Organic Chemistry
- Special Topics in Chemistry: Kinetics, Equilibrium, & Thermodynamics

**Chemistry and Biochemistry - On Campus**
- Science Lab Safety and Risk Management
- Critical Concepts in Chemistry
- Integrating Computers into Laboratory Instruction

**Civil Engineering - Online**
- Snow and Avalanche Physics for Science Teachers

**Computer Science - On Campus**
- Computer Science in the Classroom
- Computational Thinking for Teachers

**Earth Science - Online**
- Fundamentals of Oceanography
- Geology of the Moon
- Historical Geology
- Hydrology of Streams and Lakes
- K-14 Earth System Science
- Middle School Earth System Science
- Weather and Climate for Teachers
- Understanding Climate Change

**Earth Science - On Campus**
- Northern Rocky Mountain Geology
- Geology of Glacier National Park
- Geology Seminar
- Dinosaur Paleontology I & II
- Geology of the Yellowstone Volcanic Center

**Education - Online**
- Assessment and Evaluation in Education
- Master Teaching Strategies for Science Teachers
- Construction of Curriculum
- Technology in the Science Classroom
- Contemporary Issues in Science Education
- Implementing Action Research in Teaching and Learning
- Foundations of Action Research in Science Teaching and Learning
- Inquiry through Science and Engineering Practices
- Web Tools for Teachers
- Integrating Literature into the Science Classroom
- Science across Cultures
- Capstone Data Analysis

**Education - On Campus**
- Professional Capstone Paper and Symposium in Science Education

**Electrical Engineering - On Campus**
- Solar Cell Basics for Science Teachers

**Health and Human Development - Online**
- Teaching Adolescent Nutrition
- Nutrition for Fitness and Performance

**Geography - Online**
- Global Warming, Climate Change, and our Environment

**Land Resources and Environmental Sciences - On Campus**
- Thermal Biology in Yellowstone National Park
- Ecology of Invasive Plants
- Lake Ecology

**Microbiology - Online**
- Infection and Immunity
- Microbial Genetics
- Special Topics in Microbiology

**Microbiology - On Campus**
- Cell and Molecular Biology
- Project Microbe

**Plant Sciences - On Campus**
- Flowering Plants of the Northern Rocky Mountains
- Plants, People, and Health
- Biomimicry

**Physics - On Campus**
- Physics by Inquiry I, II and III
- Teaching Electronics & Magnetism Using Research-based Curriculum
- Teaching Mechanics