The State of Minnesota grants science teacher licensure for grades 5-8 general science, 9-12 Chemistry, 9-12 Earth Science, 9-12 Life Science, and 9-12 Physics. Students earning a degree in Earth Science Teaching or Physics Teaching from Minnesota State Mankato will qualify for two licenses (1) 5-8 general science and (2) 9-12 specialty. Students earning a degree in Chemistry Teaching will qualify only for the 9-12 Chemistry license.

Academic Map/Degree Plan at www.mnsu.edu/programs/#ALL

Policies/Information

The Earth Science Teaching, Life Science Teaching, and Physics Teaching majors require the 31 credit general core. All science teaching majors require a science emphasis that ranges from 27-35 credits of science and science teaching methods courses. In addition, the student must complete a 30 credit professional education component and the 3 credit Drug Education course.

The University Science Teaching Program must meet specific competencies to meet professional accreditation and licensure requirements. To stay within the required degree limits of 120 credit hours, students are strongly advised to select courses within the 44 credit general education program that meet both teaching program and general education needs. It is important for the student to meet with his or her advisor to assist with program planning.

A minor is not required for any of the science teaching programs; however, to broaden one's teaching opportunities, double majors are encouraged. For further details, the student should check with one of the science teaching advisors for an overview of available opportunities.

GPA Policy. Students obtaining a degree in science teaching must maintain a minimum cumulative GPA of 2.50 in the sciences. Students who are not science teaching majors should consult an advisor concerning possible additional course requirements.

Life Science Teaching Policies. Admission to Major is granted by the department. Admission requirements are 32 earned semester hours including BIOL 105, BIOL 106, BIOL 211, and CHEM 201 with a grade of "C" or better, completed General Education Goal Area 4 (Mathematics); completed General Education Goal Area 1, Part A (English Composition); and a minimum cumulative GPA of 2.2, with a cumulative GPA in Biology courses of 2.0. For Life Science Teaching majors, the combined GPA for BIOL 105, BIOL 106, BIOL 211, and CHEM 201 must be 2.4 or better.

A minimum GPA of 2.5 in the sciences and a "C" or better in all science courses is required for graduation with a BS Life Science Teaching degree.

P/N Grading Policy. Courses leading to a degree in science teaching may not be taken on a P/N basis except where P/N grading is mandatory.

Science Teaching ProgramS BS

SCIENCE TEACHING PROGRAMS BS

Science Teaching

Websites: cset.mnsu.edu/biology/ cset.mnsu.edu/chemistry/ cset.mnsu.edu/pa/ sbs.mnsu.edu/earthscience

Coordinators:
Thomas Brown, Physics
Phillip Larson, Earth Science
Bryce Hoppie, Geology
Beth Lobie, Biological Sciences
Jeffrey R. Pribyl, Chemistry

Required Minor: None.

Other Graduation Requirements

See the SECONDARY EDUCATION section for admission requirements to Professional Education, and course requirements.

See the SECONDARY EDUCATION section for additional information about admissions to Professional Education, and course requirements.

*Professional Education

Level 1
KSP 202 may be taken in either Level 1 or Level 2.
KSP 202 Technology Integration in the Classroom
KSP 220W Human Relations in a Multicultural Society
KSP 222 Introduction to the Learner and Learning

Level 2
KSP 202 may be taken in either Level 1 or Level 2.
KSP 330 Planning, Instruction, and Evaluation in the Classroom
KSP 440 Creating Learning Environments to Engage Children, Families, and Community
KSP 442 Reading, Literacy, and Differentiated Instruction in Inclusive Classrooms

Level 4
KSP 464 Professional Seminar
KSP 477 5-12 Student Teaching

Degree completion = 120 credits

CHEMISTRY 9-12 BS TEACHING

Required General Education

BIOL 105 General Biology I [4]
CHEM 201 General Chemistry I [5]
HLTH 240 Drug Education [3]
MATH 121 Calculus I [4]

Major Common Core

CHEM 202 General Chemistry II [5]
CHEM 305 Analytical Chemistry [4]
CHEM 316 Descriptive Main Group Chemistry [3]
CHEM 322 Organic Chemistry I [4]
CHEM 324 Organic Chemistry II [3]
CHEM 325 Physical Chemistry Laboratory I [1]
CHEM 340 Quant for Chem and Biochem I [1]
CHEM 341 Quant for Chem and Biochem II [1]
CHEM 360 Principles of Biochemistry [4]
CHEM 381W Introduction to Research [2]
CHEM 440 Physical Chemistry I [3]
CHEM 450 Physical Chemistry Laboratory I [1]
CHEM 479 Teaching Physical Science [4]
CHEM 495 Senior Seminar [1]
PHYS 211 Principles of Physics I [4]
PHYS 212 Principles of Physics II [4]

Other Graduation Requirements

See the SECONDARY EDUCATION section for admission requirements to Professional Education and a list of required professional education courses.

Required General Core (31 credits)

AST 101 Introduction to Astronomy [3]
BIOL 105 General Biology I [4]
BIOL 106 General Biology II [4]
CHEM 201 General Chemistry I [5]
GEOL 121 Physical Geology [4]
GEOL 310 Earth and Space Systems [3]
PHYS 211 Principles of Physics I [4]*
PHYS 212 Principles of Physics II [4]*
* PHYS 221, PHYS 222, PHYS 223, PHYS 232 AND PHYS 233 MAY SUBSTITUTE. THE ADDITIONAL CREDIT HOURS WILL REDUCE THE NUMBER OF CREDITS IN THE ADVANCED PHYSICS COURSES.

Required for All Science Teaching Program Majors

(Professional Education, 30 credits*)

See the SECONDARY EDUCATION section for additional information about admissions to Professional Education, and course requirements.

Required for all Science Teaching Programs unless otherwise noted.

Required General Education

HLTH 240 DRUG EDUCATION [3]
EARTH SCIENCE 5-12 BS TEACHING
Degree completion = 120 credits

Required General Education (3 credits)
Required General Science Core (31 credits)
Required Professional Education (30 credits)

Required for Major
AST 125L Observational Astronomy (3)
GEOG 217 Weather (4)
GEOG 315 Geomorphology (3)
GEOG 410 Climatic Environments (3)
GEOL 122 Earth History (4)
GEOL 201 Elements of Mineralogy (4)
CHEM 479 Teaching Physical Science (4)

Required for Major
GEOG 440 Field Studies (1-4)
GEOG 480 Seminar (1-4)
GEOG 499 Individual Study (1-3)
GEOL 499 Individual Study (1-5)

Required for Major [Electives, 9 credits]
[Must choose from at least two departments]
AST 102 Introduction to the Planets (3)
AST 104 Introduction to Experimental Astronomy (2)
GEOG 373 Introduction to Geographic Information Systems (4)
GEOG 330 Structural Geology (4)
GEOG 350 Environmental Geology (4)
GEOL 450 Hydrogeology (3)

Required Minor: None.

Other Graduation Requirements
See the SECONDARY EDUCATION section for admission requirements to Professional Education and a list of required professional education courses.

LIFE SCIENCE 5-12 BS TEACHING
Degree completion = 120 credits

Required Professional Education (30 credits)

Required General Education
AST 101 Introduction to Astronomy (3)
BIOL 105 General Biology I (4)
CHEM 201 General Chemistry I (5)
GEOL 121 Physical Geology (4)
HLTH 240 Drug Education (3)
PHYS 211 Principles of Physics I (4)

Math Requirement (choose 3-4 credits)
MATH 113 Trigonometry (3)
MATH 115 Precalculus Mathematics (4)

Major Common Core
BIOL 106 General Biology II (4)
BIOL 215 General Ecology (4)
BIOL 220 Human Anatomy (4)
BIOL 270 Microbiology (4)
BIOL 301 Evolution (2)
BIOL 485 Biology Teaching Methods and Materials (4)
GEOG 310 Earth and Space Systems (3)
PHYS 212 Principles of Physics II (4)

Independent Study (choose 1 credits)
At least one credit is required. Additional credits will be counted as electives.
BIOL 499 Individual Study (1-4)

Major Restricted Electives (choose 4 credits)
BIOL 408 Vertebrate Ecology (4)
BIOL 409 Advanced Field Ecology (4)

Major Unrestricted Electives
Choose at least 9 additional credits of 300-400 level Biology courses.

Other Graduation Requirements
See the SECONDARY EDUCATION section for admission requirements to Professional Education and a list of required professional education courses.

PHYSICS 5-12 BS TEACHING
Degree completion = 120 credits

Required General Education
AST 101 Introduction to Astronomy (3)
BIOL 105 General Biology I (4)
CHEM 201 General Chemistry I (5)
GEOL 121 Physical Geology (4)
HLTH 240 Drug Education (3)
KSP 220W Human Relations in a Multicultural Society (3)
MATH 121 Calculus I (4)

Major Common Core
PHYS 221, PHYS 222, PHYS 223, PHYS 232 and PHYS 233 may substitute for PHYS 211 and PHYS 212. The additional credit hours will reduce the number of credits on the advanced physics courses.
BIOL 106 General Biology II (4)
GEOL 310 Earth and Space Systems (3)
PHYS 211 Principles of Physics I (4)
PHYS 212 Principles of Physics II (4)
PHYS 335 Modern Physics I (3)
PHYS 336 Modern Physics II (3)
PHYS 465 Computer Applications in Physics (3)
PHYS 482 Teaching Methods and Materials in Physical Science (4)

Physics Electives (choose 8 credits)
This is reduced to 4 credits if PHYS 221, PHYS 222, PHYS 223, PHYS 232 and PHYS 233 have been taken in place of PHYS 211 and PHYS 212 in partial fulfillment of the General Science Core requirements. If PHYS 211 and PHYS 212 are completed successfully, PHYS 221, PHYS 222, PHYS 223, PHYS 232 and PHYS 233 may be used to fulfill the Physics Elective credits.

PHYS 300-499

Other Graduation Requirements
See the SECONDARY EDUCATION section for admission requirements to Professional Education and a list of required professional education courses.