Division of Science

Chair
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Division of Science Mission

The mission of the Division of Science is (1) to instill the knowledge and critical and creative thinking skills needed by students in today's society, and (2) to serve the University, the academic community of scientists, and the general public. This is accomplished by offering distinctive programs in which students are mentored by faculty in a collaborative environment that integrates teaching and research through scientific inquiry.

Division of Science Objectives

The Division of Science is composed of the disciplines of Chemistry, Geosciences, Physics, Radiologic Technology, and Science Education. While much variation in degree requirements exists among the programs within the Division, all have the following common objectives: proficiency in a recognized field of science and broad liberal training for effective citizenship. Majors within the Division provide the student with a sound basic education within one of the sciences and the opportunity to elect courses in Mathematics, the Arts, and the Humanities. Pre-professional programs offer the option of preliminary coursework at Minot State before transferring to a professional school.

Chemistry

Chemistry is a rewarding subject of study in itself. Science may be the chief mode by which we perceive ourselves, and the world, in terms of what constitutes a "modern society." Chemistry draws heavily on all of the sciences and it contributes in many ways to all the other sciences. Chemistry is the servant science because it supplies descriptions and understanding of many kinds of matter that are studied in other sciences. The objectives of the faculty in chemistry include:

a. the provision of high-quality undergraduate education to students seeking a career in the chemical industry, to those wishing to pursue a graduate degree in chemistry, to those wishing to teach chemistry at the secondary level, and to those pursuing careers in areas requiring substantial background in chemistry such as medicine and forensic sciences;
b. the introduction of the philosophy and fundamentals of chemistry to students who are satisfying General Education requirements;
c. the broadening of scientific literacy;
d. the training of majors to be scientists by providing opportunities for students to be involved in scientific research.

Students desiring the best preparation for graduate work and professional careers should pursue the BA degree.

Geosciences

The Geosciences are among the most important fields of study in our highly technological world. It brings together a study of our energy resources, mineral deposits, land utilization, water resources, the atmosphere, planetary exploration, and the universe into one complex and interrelated discipline. Earth scientists are constantly examining each of these areas relative to mankind's present and future needs in an attempt to maintain the quality of life on this planet Earth.

The primary objectives of the geosciences curriculum are:

a. To prepare students as professional geologists for jobs with the petroleum industries, regulatory agencies, civil service positions, professional consulting, and for the continuation of studies in graduate school.
b. To prepare motivated, innovative, competent, and professional earth science teachers.
c. To give non-geoscience science majors a stimulating and comprehensive background in the earth sciences to prepare them to fulfill their role as knowledgeable and informed citizens who will direct the future growth of this country.

Radiologic Technology

The Radiologic Technology program is designed to prepare graduates with the knowledge, clinical experience, and critical thinking skills needed for a successful career in the healthcare system as radiologic technologists. Working with radiologists, radiologic technologists (radiographers) use their knowledge of physics and human anatomy to create medical images to diagnose disease or injury. Various types of imaging instruments may be used by radiographers.

The Radiologic Technology program involves two to three years of coursework at Minot State University followed by two years of clinical experience at a medical center with an accredited training program in radiologic technology. To work as radiologic technologists, students will have to pass the American Registry of Radiologic Technology (ARRT) national registry exam. The objectives of the BS major in Radiologic Technology are:

a. To prepare students with the background needed in the sciences and other disciplines for a career as radiologic technologists, and
b. To prepare students for admission to an accredited clinical education program, which will provide students with the necessary clinical experiences and prepare them for the ARRT exam.

Science Education

The Bachelor of Science Education in Composite Science Education at Minot State University will prepare you to teach Biology, Chemistry, Earth Science, and Physics/Astronomy, and then you will choose to focus on one of these science disciplines (Biology, Chemistry, or Geology) by taking degree-specific electives. With a composite science education degree, you are more likely to find a job in almost any school district in North Dakota, both Class A and B schools and school districts across the United States and Canada. The demand for science, technology, engineering, and mathematics (STEM) teachers is so great that many communities are demanding science teachers that can teach multiple science disciplines on the secondary level. After graduating, you will be licensed to teach science from grades 5-12.

University Teacher Education Policies

Refer to Teacher Education and Policies (http://catalog.minotstateu.edu/undergraduate/teachereducationpoliciesandprocedures/) section of the catalog for details regarding Teacher Education at Minot State University. These pages will explain admission, retention, and exit requirements of the program for biology, chemistry, earth science, physical science, and physics majors in Teacher Education.

Division Teacher Education Requirements

In addition to University-wide teacher education retention policies listed above, science majors in the BSEd degree program must:

1. Upon entering Minot State University, the Administrative Assistant in the Division of Science will assign an advisor within the student's content major to coordinate course work through graduation.

2. Each BSEd major needs to contact the Science Education Coordinator starting their second year to sequence their Science Education courses for graduation.

3. Apply to the Division of Science to be recommended for Admission to Teacher Education through your content major advisor.

The admission application must contain the following:

- Minimum GPAs:
  a. The Teacher Education Unit must be able to verify satisfactory grade point averages through previous semesters in the following areas:
     - Minimum 2.50 GPA on the Communications portion of General Education requirements (ENGL 110 College Composition I, ENGL 120 College Composition II, COMM 110 Fundamentals of Public Speaking) with no grade lower than "C."
     - Minimum Cumulative GPA of at least 2.75
  b. Minimum GPA in teaching majors and teaching minors (if applicable) of at least 2.5.
     - Students who have met all other requirements for Admission to Teacher Education and do not hold an overall GPA of 2.75 but do demonstrate a 3.00 GPA in their last 45 semester hours of study may petition for TEAC's special review for admission to Teacher Education. Students granted admission by TEAC under this provision must demonstrate an overall GPA of 2.75 before Student Teaching. Students who do not meet the cumulative GPA are also allowed to file an appeal to TEAC and submit a GPA calculation that counts only courses required for the full four-year degree (including general education courses).
     - Must be enrolled in or have completed ED 260L.
     - Satisfactory basic skills demonstrated by the Core Academic Skills for Educators Test (CASE) scores. Candidates must achieve a minimum composite score of 466 as well as meet the minimum scores for each test area (Reading (149), Writing (153), and Mathematics (143)).
     - Must submit a background clearance check or verify that a background clearance is required for a job or volunteer position.

The advisor(s) and department chair(s), upon verifying all the required information in TK20, sign the verification form, and the student can upload the verification form into TK20.

MinotStateU.edu/teu/documents/Admission/admission-to-teacher-ed-signature-form.pdf (https://www.minotstateu.edu/teu/documents/Admission/admission-to-teacher-ed-signature-form.pdf)