

College of Science & Mathematics

Scott A. Wood

Minard 202, 701-231-7411, www.ndsu.edu/scimath

Opportunities in the college reflect the belief that an understanding of the methods and findings of science is best achieved through first-hand experience in the process of conducting, analyzing, and reporting research. Students are encouraged to participate in this process by working closely with faculty and other students in laboratory and field research, thus gaining direct knowledge of the power, limits, and problems in scientific inquiry. These opportunities for direct experience with the tools of the scientist are liberally available to the interested and motivated student.

Degree Programs

The College of Science and Mathematics provides undergraduate programs leading to a Bachelor of Science or Bachelor of Arts degree. Graduate programs at the master's and doctoral levels also are offered. For more complete details, see the Graduate Bulletin (<http://bulletin.ndsu.edu/past-bulletin-archive/2014-15/graduate>) online.

Degree Requirements

All majors are required to complete departmental and general education requirements. Available majors include the following:

- Behavioral Statistics
- Biochemistry and Molecular Biology
- Biological Sciences
- Biotechnology
- Botany
- Chemistry
- Computer Science
- Geology
- Mathematics
- Natural Resources Management
- Physics
- Psychology
- Statistics
- Zoology

Minors are available in most departments.

College Requirements

Courses to fulfill the major requirements in the college may not be taken pass/fail with the exception of courses that are only offered pass/fail. Only elective courses outside the major may be taken pass/fail.

Some departments require a grade of 'C' or higher in courses to count toward major requirements. This includes both NDSU and transferred coursework.

College General Education Requirements

College general education requirements for the two undergraduate degrees extend beyond the minimum university general education requirements (<http://www.ndsu.edu/registrar/gened>). The college requires an additional six credits in humanities and/or social sciences for the Bachelor of Science degree and an additional 12 credits for the Bachelor of Arts degree. This requirement may be fulfilled by any degree-eligible course having the following prefix: ADHM, ANTH, ARCH, ART, CJ, CLAS, COMM, ECON, ENGL, FREN, GEOG, GERM, HDFS, HIST, LA, LANG, MUSC, PHIL, POLS, PSYC, RELS, SOC, SPAN, THEA, WGS, or any course from the approved list of general education courses in humanities and social sciences (general education categories A and B). These credits must come from outside the department of the student's major. An adviser should be consulted for specific courses. Students also are encouraged to follow their own interests in choosing electives that go beyond the minimum requirements.

Bachelor of Arts Degree

B.A. degree requirements are the same as the B.S. degree with an additional six credits of humanities or social and behavioral sciences and the addition of two years of a modern foreign language. This means completion of the second year of college-level language or the equivalent. Refer to the Bachelor of Arts Requirement using a Second Language (<http://bulletin.ndsu.edu/past-bulletin-archive/2014-15/undergraduate/academic-policies/academic-major-degree-information>) section within the Academic Degree Information (<http://bulletin.ndsu.edu/past-bulletin-archive/2014-15/undergraduate/academic-policies/academic-major-degree-information>) section of the Academic Policies (<http://bulletin.ndsu.edu/past-bulletin-archive/2014-15/undergraduate/academic-policies>).

All degree candidates must apply for graduation through the Office of Registration and Records (<http://www.ndsu.edu/bulletin/offices/registrar>) according to university procedures and deadlines.

Specializations

Specializations are provided for career preparation in a range of areas.

Pre-Professional Programs

Pre-professional curricula are offered by a number of departments for students interested in preparing for careers in medicine, dentistry, mortuary science, chiropractic, optometry, osteopathy, and other health related fields. Most pre-professional programs are flexible and can be developed around many different majors. Departments that advise pre-professional majors include biological sciences, chemistry and biochemistry, physics and psychology.

In addition to the preceding, a number of departments have developed other specializations to meet today's rapidly changing job markets. These may be found in the individual department sections as follows:

- **Biological Sciences:** environmental science, biotechnology, biological sciences education, comprehensive science education, wildlife and fisheries biology, cell biology/physiology, and zoology
- **Chemistry:** biochemistry, biotechnology, chemistry education, pre-professional chemistry, coatings and polymeric materials
- **Geosciences:** geochemistry

- **Psychology:** natural science, social sciences, behavioral neuroscience, industrial-organizational, human services, managerial psychology, and experimental

Teacher Certification

Several of the majors available through the College of Science and Mathematics may lead to careers in teaching.

Students may complete the requirements for a major in the college, then apply for admission to the School of Education (<http://www.ndsu.edu/education>) in the College of Human Development and Education to undertake the additional requirements necessary to qualify for teacher certification. Alternatively, students may initially select a science and mathematics education curriculum offered through the School of Education.

Programs leading to teacher certification are available in the following areas: biological sciences, chemistry, comprehensive science, earth science, mathematics, and physics.

Students interested in teacher education are encouraged to declare a double major in their discipline and in education (i.e., chemistry education and chemistry). Such double majors may be earned by successful completion of a few additional credits. Students should contact their advisers for details, and are encouraged to declare their primary and secondary majors with the Office of Registration and Records (<http://www.ndsu.edu/bulletin/offices/registrar>), 110 Ceres Hall (<http://www.ndsu.edu/bulletin/buildings/ceres>).

Pre-Medicine and Pre-Dentistry Programs

The suggested program will meet the requirements of most medical and dental schools with specialized advising provided for pre-professional majors including mortuary science, chiropractic, optometry, and osteopathy. In general, these requirements include organic chemistry, physics, and the equivalent of a year of general biology. Some college-level mathematics, such as MATH 146 Applied Calculus I - MATH 147 Applied Calculus II, is strongly recommended. The Bachelor of Arts degree program is recommended. Contact the Department of Biological Sciences (<http://www.ndsu.edu/biology>) for additional information (231-7087).

Interdisciplinary Programs

The College of Science and Mathematics participates in the following undergraduate interdisciplinary programs. For further information, refer to the Interdisciplinary Programs (<http://bulletin.ndsu.edu/past-bulletin-archive/2014-15/undergraduate/interdisciplinary-studies>) section of the Bulletin.

Biotechnology Major

Biotechnology is an interdisciplinary field based on a combination of biology and technology. It includes the application of science and technology to the design of new plants, animals, and microorganisms that have improved characteristics.

Natural Resources Management Major

This interdisciplinary program is available through the College of Science and Mathematics' Biological Sciences (<http://bulletin.ndsu.edu/past-bulletin-archive/2014-15/undergraduate/colleges/science-mathematics/biological-sciences>) Department and the College of Agriculture, Food Systems and Natural Resources' School of Natural Resources (<http://bulletin.ndsu.edu/past-bulletin-archive/2014-15/undergraduate/colleges/agriculture-food-systems-natural-resources/natural-resource-sciences>) and the College of Engineering (<http://bulletin.ndsu.edu/past-bulletin-archive/2014-15/undergraduate/colleges/engineering>).

bulletin.ndsu.edu/past-bulletin-archive/2014-15/undergraduate/colleges/agriculture-food-systems-natural-resources/natural-resource-sciences) and the College of Engineering (<http://bulletin.ndsu.edu/past-bulletin-archive/2014-15/undergraduate/colleges/engineering>).

Cooperative Education

Cooperative Education (<http://www.ndsu.edu/bulletin/offices/careercenter/coop>), a program of the Career Center, offers undergraduate and graduate students an opportunity to integrate classroom study with paid, career-related work experience for academic credit. Work may be full or part time. A Cooperative Education experience may substantially improve students' employment opportunities after graduation. Students may obtain one or two semesters of professional work experience related to their studies; however, no more than a total of three credits may be applied to the minimum of 122 credits required for the degree. Each department has specific requirements for earning these credits. The student must have approval from the department chair prior to beginning the Cooperative Education program. See Career Center (<http://www.ndsu.edu/career>) for more information.

College Requirements

Bachelor of Science (BS) Degree – An additional 6 credits in Humanities or Social Sciences*

Bachelor of Arts (BA) Degree – An additional 12 credits Humanities and Social Sciences* and proficiency at the second year level in a modern foreign language.

- * Humanities and Social Sciences may be fulfilled by any course having the following prefix: ADHM, ANTH, ARCH, ART, CJ, CLAS, COMM, ECON, ENGL, FREN, GEOG, GERM, HDFS, HIST, LA, LANG, MUSC, PHIL, POLS, PSYC, RELS, SOC, SPAN, THEA, WGS, or any course from the approved list of general education courses in humanities and social sciences (general education categories A and B). These credits must come from outside the department of the student's major.

The following programs are interdisciplinary and are integrated with more than one college/departments within the University.

Biotechnology (<http://bulletin.ndsu.edu/past-bulletin-archive/2014-15/undergraduate/colleges/science-mathematics/biotechnology>)

Great Plains Institute of Food Safety (<http://bulletin.ndsu.edu/past-bulletin-archive/2014-15/undergraduate/colleges/science-mathematics/great-plains-institute-food-safety>)

Natural Resources Management (<http://bulletin.ndsu.edu/past-bulletin-archive/2014-15/undergraduate/colleges/science-mathematics/natural-resources-management>)