

Natural Sciences and Mathematics

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OVERVIEW

The Division of Natural Sciences and Mathematics offers courses in Biology, Chemistry, Chemistry: Secondary Education, Computer Science, Earth Science, Engineering, Forensic Science, Geology, Geographic Information Science, Mathematics, Physics and Natural

Science to provide students with the opportunity to develop their maximum potential in their professional and personal life. Courses within these disciplines emphasize the philosophy and processes of science and mathematics, the contribution of science and mathematics to contemporary culture, and environmental issues.

The philosophy of the Division is to involve students in the process of science through active student research as a means of developing skills needed for critical thought about issues in science.

The Division offers baccalaureate majors in Biology, Biology: Secondary Education, Earth Science, Earth Science: Secondary Education, Chemistry, Chemistry: Secondary Education, Computer Science, Mathematics, Mathematics: Secondary Education, and Natural Science: Secondary Education. The Division also offers an associate degree in Liberal Arts: Natural Science. Courses are fully transferable to other accredited institutions for students who plan to continue studies in physical therapy, occupational therapy, forestry, engineering, agriculture, medical technology, pharmacy, dental hygiene, premedical, pre-dental, veterinary science and physician assistance. Students should contact the division office for a faculty advisor in order to plan the courses for their major.

The Division's objectives are to provide a well-balanced and high quality science and mathematics education and four-year (BS and BA) degrees in Science, Mathematics, and Secondary Science and Mathematics Education. Students develop specific skills and competencies, become aware of the social role of scientists and mathematicians in the world community, develop personal and intellectual attributes for thoughtful decision making, and develop a general education foundation which promotes competency for life.

The Division also has many special facilities to assist in undergraduate education and provide opportunities for individual research projects. Among these are a Computer Science Laboratory, a Science and Math Tutoring Lab, an Astronomical Observatory, the Nez Perce County Biodiversity Museum and Collection, and a large geological collection. Students seeking entrance into medicine, dentistry, physical therapy, occupational therapy, medical technology, and veterinary medicine usually complete a baccalaureate degree in Biology or Chemistry with a minor in the Humanities prior to admittance to a professional program. Faculty advisors work closely with students in planning course work and preparing for the entrance exams and interviews that are prerequisites for acceptance into a professional school.

MAJORS AND MINORS OFFERED

MAJORS

BIOLOGY

Biology students may take general biology courses during their first few semesters and then have the opportunity to take upper division courses in their field of interest. Coursework is available for students interested in preparing for medicine, dentistry, veterinary science, physical therapy and other related health fields. Students interested in seeking entrance into these professions usually complete a baccalaureate degree prior to admittance to a professional program. Biology majors may also continue their education in a graduate program in the life sciences.

Coursework is also available for students interested preparing for employment with government agencies such as State Fish and Game, US Fish and Wildlife Service, US Forest

Service, Bureau of Land Management. Tribal agencies, private industry (natural resource companies, energy companies), land use planning agencies, environmental consulting firms or entry into graduate school. Associated classes emphasize a bridge between theoretical and applied field approaches, research experiences with professional field biologists and placement into summer research/work programs with regional state, government or private agencies.

Students may also complete courses required for secondary teaching certification.

CHEMISTRY

The Chemistry program prepares students for industrial or government laboratory work or graduate work in Chemistry or Biochemistry. The Chemistry emphasis provides a strong foundation for students entering the professional health fields, especially the pre-professional programs such as Pre-Medical, Pre-Dental, Pharmacy and Medical Technology.

The Geochemistry emphasis couples a solid foundation in analytical chemistry with the deductive thinking skills, three-dimensional visualization skills, and fundamental understanding of earth materials that the earth sciences offer. Students graduating with this major are prepared for careers in the geo-technical industry as well as continuing their education in a graduate program in the Environmental Earth Sciences.

Students may also complete courses required for secondary teaching certification.

COMPUTER SCIENCE

The Computer Science program is designed to prepare students for industrial work or graduate work in Computer Science or Management Information Systems. The program offers four options within the major. The Computer Science emphasis is a traditional computer science curriculum, mathematically rigorous and is based on the Association of Computing Machinery (ACM) core curricula recommendations. Although this option is especially designed to prepare students for graduate programs in Computer Science, the courses contain sufficient practical projects which prepare students for entry-level programming or software engineering positions.

The Computer Information Systems emphasis is an interdisciplinary program combining courses from the Business Division with the Computer Science core and is based on the Association of Information Systems (AIS) curriculum model. This option is designed to prepare students for entry-level information systems positions requiring both technical and organizational expertise. Students are also prepared to enter graduate programs in Management Information Systems.

The Computer Science Web-Based emphasis combines courses from the BTS Division's Web Development program with the CS core to create a program with both a strong application and a strong theoretical orientation. This option is designed for CS students who want a strong applied background, preparing them for industry.

The Computer Science Technology emphasis combines courses from the T & I Division's Information Systems Analysis program with the CS core to create a program with both a strong application and strong theoretical orientation. This option is designed for CS students who want a strong applied background in computing infrastructure, preparing them for industry.

EARTH SCIENCE

The Earth Science major provides a quantitative education in Earth's systems, including the solid earth, hydrosphere, atmosphere and biosphere. Students will gain a foundational understanding of the major features of each of these systems and the interrelations between them through lecture, laboratory and field studies. The program provides a very broad-based science education, preparing students for a wide variety of careers in the private and government sectors including the fields of environmental science, mining and petroleum industries, and resource management. It also provides an excellent foundation for students interested in continuing their education with graduate work in the sciences.

Students may also complete courses required for secondary teaching certification.

GENERAL STUDIES: NATURAL SCIENCES & MATHEMATICS

The General Studies major serves a number of student's needs: for strong liberal arts programs; for thorough pre-professional coursework; as preparation for many graduate programs. See the Academic Programs section for additional information on this major.

INTERDISCIPLINARY STUDIES

The Interdisciplinary Studies major permits students the opportunity to design a course of study to satisfy personal and career goals. Students interested in an academic area within the Interdisciplinary option **MUST** contact the division office of the discipline they intend to pursue as their primary area of study. See the Academic Dean section for additional information on this major.

MATHEMATICS

The Mathematics major is characterized by a balance between theory and application, beginning in the pre-calculus sequence and continuing through to upper division courses. Appropriate technology is integrated at all levels of the curriculum. At the end of the program students are prepared to enter graduate school or business and industry. Students may also complete courses required for secondary teaching certification.

NATURAL SCIENCES: SECONDARY EDUCATION MAJOR

Based upon the processes of science, this major provides learning experience and subject matter skills necessary for the secondary school teacher who must be prepared to teach a variety of science courses. At the same time it allows the student to selectively acquire depth of subject matter in a concentrated discipline of . The versatility inherent to this major is especially applicable to teaching in junior high schools and smaller senior high schools. Students are encouraged to take additional upper division courses in pertinent disciplines.

ASSOCIATE DEGREES

ASSOCIATE OF ARTS LIBERAL ARTS: NATURAL SCIENCES

The Associate of Arts Liberal Arts with an emphasis in Natural Sciences and Mathematics requires completion of 64 credits which must include the General Education Core plus 18 ± 24 credits in Science and/or Mathematics courses taken from subjects in the Division of Natural Sciences and Mathematics. This degree provides a solid liberal arts foundation accompanied by strong preparation in Science and Math. Completion of this degree prepares students to continue in multiple science baccalaureate programs as well as programs in health sciences.

MINORS

- Biology
- Chemistry
- Computer Science
- Forensic Science
- Geographic Information Science
- Geology
- Information Systems
- Mathematics
- Math: Elementary Education
- Natural Sciences
- Physical Sciences

ONE- AND TWO-YEAR TRANSFER PROGRAMS

For students interested in any of the following fields, the Division of Natural Sciences and Mathematics offers one to three years of coursework that will prepare them for transfer to an institution offering programs in these fields. The student **MUST** meet with an advisor in the appropriate content area. The advisor will assist in planning a transfer program designed for the institution to which the student plans to transfer.

Transfer programs

- Agriculture
- Dental Hygiene
- Engineering
- Forestry
- Medical Technology
- Pharmacy

PRE-ENGINEERING PROGRAM

The Pre-Engineering program prepares students to complete a degree in any field of engineering study after transfer to an engineering school. Engineers use the principles of science and mathematics to design and build products that enhance our quality of life in all areas including health, home, work place, recreation and entertainment. All introductory Engineering course numbers follow Idaho statewide standards. Students have the option of participating in formal 2/3 dual-degree agreements with BSU and ISU Engineering programs. Transfer to Engineering programs at any other school is also possible through individual consultation.

ASSESSMENT

Major field examinations are given to all students at the conclusion of their program of study. The purpose of these exams is to assess content knowledge in their area of study to continue improving the program. Exit interviews are required of all Natural Sciences majors at the conclusion of their program of study. Data gathered from the major field examinations and the exit exams are used to guide improvement and development of programs within the Division of Natural Sciences and Mathematics. Additionally, the success of graduates who enter professional and graduate schools is monitored.

ADVISING

All students declaring majors in the Division of Natural Sciences and Mathematics will be assigned an advisor. Students should meet with their faculty advisor each semester in advance of registration and any time that they have questions concerning their program or are in need of academic advice.

TUTORING

The Division of Natural Sciences and Mathematics has comprehensive tutoring available in Mathematics, Chemistry and introductory Biology courses. To help students succeed in math courses, the Math and Science Tutoring Center is open daily, as well evenings and weekend hours.

CLUBS

The Division of Natural Sciences and Mathematics has three student organizations. The Chem-Bio Club is active in promoting Chemistry, Biology and environmental activities not only for students, but community members of all ages. It is very active in working with regional K-12 schools. It encourages membership into the American Chemical Society, and promotes funding for travel to academic meetings, poster and research presentations all over the country.

The Geology Club regularly attends regional conferences, participates in numerous field trips, including extended trips to more distant sites over the summer breaks. It sponsors a yearly jet boat trip up the Snake River that is quite famous locally.

The Computer Science club is a community club that extends membership to both LC students and members of the local community. The club promotes Computer Science in all of its forms with regional K-12 schools. Members of the CS club are encouraged to consider membership in the Association for Computing Machinery (ACM). The club works on projects locally with an emphasis on creating a community for those interested in computer science. All of these clubs encourage the camaraderie and teamwork necessary for successful careers in science.

PREPARATION FOR FUTURE GRADUATE STUDIES

Students who major in Biology, Chemistry, Computer Science and Mathematics are regularly accepted into graduate programs across the country. These majors prepare students to successfully complete the Graduate Record Examination and encourages interested students to do an undergraduate research experience (REU) before graduation in the discipline they are considering for graduate study.

FRANK MOSHER MEMORIAL OBSERVATORY

The Frank Mosher Memorial Observatory, located on the Lewiston Rodeo Grounds, houses a 16-inch Newtonian Reflector telescope in a 16-foot dome. Built with funds contributed from the community, it is a memorial to Frank Mosher, a Clarkston High School teacher who was an enthusiastic promoter of amateur astronomy. The observatory was dedicated in 1975 to public service as well as instructional use by the College.