

Biological Sciences

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To find faculty & staff phone numbers and email addresses, please consult the University Directory (<http://www.dixie.edu/directory/directory.php>).

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Program Description

The Dixie State University Biology program introduces students to an integrated perspective of study allowing them to consider the many facets of living systems. From its intricate molecular machinations, to the function and form of organisms, and to the complexities of ecological communities, students gain an understanding of life through the entire spectrum of its properties.

Students are provided the opportunity to learn through traditional coursework, extensive laboratory experience, and student-driven research projects. Advanced laboratories for molecular and microbiology experiments, a controlled desert garden and greenhouse facility, a marine reef aquarium, and extensive fieldwork in the unique ecosystems of the surrounding areas are some of the resources utilized for scientific study.

The Bachelor of Science in Biology degree at DSU is designed to provide students with a firm foundation and understanding of the unifying concepts of Biology, including those at the molecular, cellular, and ecosystem levels. It is also essential that biology students develop a strong background in the areas of Chemistry, Physics, and Math because the comprehension and mastery of biological concepts is contingent upon the integration of these other sciences.

All Biological Sciences students will complete a set of core courses focusing on general Biology, genetics, ecology, evolution, cellular and molecular biology, scientific writing, and data analysis. These core areas are intended to prepare an underlying support for further study in Biology. Upon completion of the core, students may select other upper-division Biology courses that allow them to explore and develop in one or more areas (zoology, botany, microbiology, ecological, or molecular) of their choosing.

The versatility of the Biology degree prepares successful undergraduate Biology majors to enter professional programs in medicine, dentistry, and veterinary medicine, as well as other professional programs and graduate schools. Graduates of the Biology program may also opt for governmental or private-sector careers in such fields as natural resource management, environmental research, health care, the biomedical industry, independent laboratory research, or science teaching.

The Bachelor of Science Biology, Secondary Education and the Bachelor of Science in Biology with Integrated Science, Secondary Education degrees at Dixie State University prepare students to become Biology teachers at the secondary level. Students who complete the Biology Education program will be recommended to the Utah State Office of Education for licensure to teach biology at the secondary education level (grades 7-12). The Biology with Integrated Science option prepares students to become middle level Science teachers. In addition to fulfilling the General Education requirements of Dixie State University, students will complete a set of core courses in the sciences plus 39 credits of Secondary Education courses taught through the Education Department that will satisfy the State of Utah requirements for secondary teachers. Students will also be required to take the appropriate PRAXIS II exam(s) for secondary licensure.

Students are strongly encouraged to meet with an advisor in the Biological Sciences Department each semester to outline their programs of study and course sequences.

Course Prefix

- BIOL

Degrees and Certificates

- Bachelor of Science in Bioinformatics (catalog.dixie.edu/programs/biology/bachelor_of_science_in_bioinformatics)
- Bachelor of Science in Biology (catalog.dixie.edu/programs/biology/bachelor_of_science_in_biology)
- Bachelor of Science in Biology - Biological Sciences Emphasis (catalog.dixie.edu/programs/biology/bs_in_biology_biological_sciences_emphasis)
- Bachelor of Science in Biology - Biomedical Sciences Emphasis (catalog.dixie.edu/programs/biology/bs_in_biology_biomedical_emphasis/#text)
- Bachelor of Science in Biology - Natural Sciences Emphasis (catalog.dixie.edu/programs/biology/bs_in_biology_natural_sciences_emphasis)

- Bachelor of Science in Biology - Biology Education Emphasis (catalog.dixie.edu/programs/biology/bachelor_of_science_in_biology_secondary_education)
- Bachelor of Science in Biology with Integrated Science - Biology Education Emphasis (catalog.dixie.edu/programs/biology/bachelor_of_science_in_biology_with_integrated_science_secondary_education)
- Bachelor of Arts/Science in Integrated Studies - Biology Emphasis (catalog.dixie.edu/programs/interdisciplinaryartsandsciences/bachelor_of_science_bachelor_of_arts_in_integrated_studies__biology_emphasis)
- Minor in Biology (catalog.dixie.edu/programs/biology/minor_in_biology)
- Minor in Biology Education (catalog.dixie.edu/programs/biology/minor_in_biology_education)

Admission Process & Requirements

1. Completion of the following courses

| | | |
|---------------------------|--|---|
| BIOL 1610 & BIOL 1615 | Principles of Biology I and Principles of Biology I Lab | 5 |
| BIOL 1620 & BIOL 1625 | Principles of Biology II and Principles of Biology II Lab | 5 |
| CHEM 1210 & CHEM 1215 | Principles of Chemistry I and Principles of Chemistry I Lab | 5 |
| CHEM 1220 & CHEM 1225 | Principles of Chemistry II and Principles of Chemistry II Lab | 5 |
| BIOL 3010 or BIOL 3030 | Evolution Principles of Genetics | 3 |

2. An overall GPA of 2.7 or higher

3. Complete Application (includes Personal Statement)

Incoming freshman & current students, who don't meet admission requirements, interested in pursuing biology, will be matriculated as Pre-Biology Majors.

Student may apply for admission when course & GPA requirements are complete or during the semester they will finish said course requirements. Students applying during the semester they are finishing course requirements can receive tentative admission. Full admission will be granted pending the students meets course & GPA requirements at the conclusion of the semester.

Prospective Biology Majors who meet the requirements must set an appointment with the biology advisor and bring completed application form. Once the application is verified, the student will be matriculated under the desired B.S Biology Emphasis.

Students, who don't meet the application requirements, may go through an appeal process. The Biology Department Chair, Biology Advisor and select Biology Faculty will hear all admission appeals.

All upper-division biology courses except BIOL 3010, BIOL 3030, BIOL 3040/45 and BIOL 3000R, will be closed to students except those matriculated in a **B.S Biology Emphasis, Biology Minor, or Integrated Studies with a Biology Emphasis.***

*** Except for Upper-division biology courses used in the Allied Health degrees and B.S Chemistry.**

Biology Career Information

Career Strategies

In addition to the required coursework, students can do the following to enhance their career opportunities:

- Develop excellent laboratory skills
- Take additional computer science and math courses to increase analytical skills
- Develop strong oral and written communication skills
- Maintain a high grade point average
- Gain related experience through part-time jobs, internships, or volunteer research
- Learn federal and state job application processes

Career Opportunities *

This major prepares you for a multitude of employment possibilities including graduate schools and careers in biomedicine and research, allied health, private industry, and education. Many pre-medicine, pre-dentistry and pre-veterinary science majors enroll in biology as their undergraduate major. Job opportunities in the biological sciences are as diverse as the science itself.

A Biology degree prepares students for graduate or professional training in the biomedical sciences or employment in research, industry, or governmental agencies.

Job Outlook *

Employment of Biological scientists is projected to grow 14-16% between 2010 and 2020, which is about average for all occupations.

Salary Range *

Earning potential varies by industry. The median annual salary for a bachelor's degree graduate in the Biological Sciences is about \$39,020, which is 20% above the average for all occupations. Those who earn advanced degrees in areas such as microbiology, genetics, botany, or bio-technology can expect to more than double entry level salaries of baccalaureate graduates.

Biology Educational Career Information

Career Strategies

In addition to the required coursework, students can do the following to enhance their career opportunities:

- Develop excellent laboratory skills
- Take additional computer science and math courses
- Develop strong oral and written communication skills
- Maintain a high grade point average
- Gain related experience through part-time jobs, internships or volunteer research
- Be well-prepared for student teaching experience

Career Opportunities *

Teaching is a very rewarding and noble profession, and most teachers find their jobs fulfilling, especially for those who love what they teach and enjoy working with young people. Current employment opportunities for graduates from Biology Education programs are strong, particularly for those who also have a chemistry endorsement or integrated science endorsement.

Job Outlook *

The demand for secondary science teachers will continue at a growth rate of 15-17% until 2020. Population growth and a need to replace retiring biology teachers will contribute to a steady demand, which is highest in rural areas and low-income communities.

Salary Range *

The median salary for a middle or high school teacher is \$51,960 to \$53,230, with an average starting salary of about \$33,000 in Utah (all are 9-month contracts). Many schools report difficulty in filling teaching positions in math and science, so teachers in those subjects should have better job prospects, and steady salary increases can be obtained by furthering one's education.

* Information from the Occupational Outlook Handbook, 2012