

# Biology - Biological Sciences Emphasis, BS

## Program Description

This B.S. Biology emphasis is designed for students interested in graduate school and seeking a career in research or academia. Students can cater their studies in this degree in multiple areas of biology including, molecular, biochemical, physiological, evolutionary and organismal. It is also the best option for students looking to apply to Veterinary school.

## Program Curriculum

**120 credits**

### Utah Tech General Education Requirements

All Utah Tech General Education requirements must be fulfilled. A previously earned degree may fulfill those requirements, but courses must be equivalent to Utah Tech's minimum General Education standards in American Institutions, English, and Mathematics.

General Education Core Requirements (<https://catalog.utahtech.edu/programs/generaleducation/#gerequirementstext>)

Code	Title	Hours
English		3-7
Mathematics		3-5
American Institutions		3-6
Life Sciences		3-10
Physical Sciences		3-5
Fine Arts		3
Literature/Humanities		3
Social & Behavioral Sciences		3

Code	Title	Hours
<b>Biology Core Requirements</b>		
BIOL 1610 & BIOL 1615	Principles of Biology I (LS) and Principles of Biology I Lab (LAB)	5
BIOL 1620 & BIOL 1625	Principles of Biology II and Principles of Biology II Lab	5
BIOL 3010	Evolution	3
BIOL 3030	Principles of Genetics	3
<b>Mathematics &amp; Physical Science Requirements</b>		
CHEM 1210 & CHEM 1215	Principles of Chemistry I (PS) and Principles of Chemistry I Lab (LAB)	5
CHEM 1220 & CHEM 1225	Principles of Chemistry II and Principles of Chemistry II Lab	5
CHEM 2310 & CHEM 2315	Organic Chemistry I and Organic Chemistry I Lab	5
CHEM 2320 & CHEM 2325	Organic Chemistry II and Organic Chemistry II Lab	5
Complete one (1) of the following series of courses:		
PHYS 2010 & PHYS 2015 & PHYS 2020 & PHYS 2025	College Physics I (PS) and College Physics I Lab and College Physics II and College Physics II Lab	10

or PHYS 2210 & PHYS 2215 & PHYS 2220 & PHYS 2225	Physics/Scientists Engineers I (PS) and Physics/Scientists Engineers I Lab and Physics/Scientists EngineersII and Physics/Scientists Engineers II Lab	
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**Additional Biology Requirements**

BIOL 3040 & BIOL 3045	General Ecology and General Ecology Lab	4
BIOL 3150 & BIOL 3155	Biostatistics and the Scientific Method and Scientific Method and Experimental Design	4

**Pick one (1) of the following Technical Laboratory Courses**

BTEC 2010	DNA Methods and Analysis	2
BTEC 2020	Protein Purification and Analysis	2
BTEC 2030	Cell Culture Techniques	2
BTEC 2050	Zebrafish Maintenance & Methodology	2
BIOL 2300	Fundamentals of Bioinformatics	2

**Complete one (1) of the following sets of courses:**

BIOL 3450 & BIOL 3455	General Microbiology and General Microbiology Lab	4
or BIOL 3550 & BIOL 3555	Eukaryotic Cell Biology and Eukaryotic Cell Biology Lab	

Complete one (1) of the following series of courses:

BIOL 3420	Advanced Human Physiology	3
BIOL 4500 & BIOL 4505	Comparative Vertebrate Physiology and Comparative Vertebrate Physiology Lab	4
or BIOL 4600 & BIOL 4605	Plant Physiology and Plant Physiology Lab	

Complete one (1) of the following sets of courses:

BIOL 3200 & BIOL 3205	Invertebrate Zoology and Invertebrate Zoology Lab	
BIOL 4260 & BIOL 4265	Herpetology and Herpetology Lab	
BIOL 4270 & BIOL 4275	Ichthyology and Ichthyology Lab	
BIOL 4280	Marine Biology	
BIOL 4350 & BIOL 4355	Animal Behavior and Animal Behavior Lab	
BIOL 4380 & BIOL 4385	Ornithology and Ornithology Lab	
BIOL 4411 & BIOL 4415	Mammalogy and Mammalogy Lab	
BIOL 4440	General Entomology	

Complete the following seminar course:

BIOL 4910	Senior Seminar	1
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**Biology Electives**

Complete 12 credits of upper-division BIOL or BTEC coursework not already used to fulfill another requirement. Courses from the following list may also be used to fulfill this requirement: 12

CHEM 3510 & CHEM 3515	Biochemistry I and Biochemistry I Lab	
CHEM 3520 & CHEM 3525	Biochemistry II and Biochemistry II Lab	
MATH 1210	Calculus I (MA)	

## Graduation Requirements

1. Complete a minimum of 120 college-level credits (1000 and above).
2. Complete at least 40 upper-division credits (3000 and above).
3. Complete at least 30 upper-division credits at Utah Tech for institutional residency.
4. Cumulative GPA 2.0 or higher.
5. Grade C- or higher required in each Program Requirement, Core Discipline Requirement, and Biology Elective Requirement course.
6. Maximum 6 total credits of BIOL 4810R, and/or BIOL 4890R, and/or BIOL 4930R may be used toward Biology requirements.