Biology - Biomedical Science Emphasis, BS

Program Description

The B.S. Biomedical Science emphasis is designed for students seeking a career in the medical field. This includes students looking to apply to medical school (M.D. & D.O.), dental school, pharmacy school, podiatry school, optometry school, and other health-related, professional schools.

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 (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
Exploration		3-5

Code	Title	Hours
Biology Core Requirements		
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
BIOL 3040	General Ecology	3
Other Degree Requirements		
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
CHEM 3510 & CHEM 3515	Biochemistry I and Biochemistry I Lab	4

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 (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 (LAB) and Physics/Scientists EngineersII and Physics/Scientists Engineers II Lab	
Additional Biology Requirements		
BIOL 2320 & BIOL 2325	Human Anatomy and Human Anatomy Lab	5
BIOL 3420	Advanced Human Physiology	3
BIOL 3150 & BIOL 3155	Biostatistics and the Scientific Method and Scientific Method and Experimental Design	4
BIOL 3450 & BIOL 3455	General Microbiology and General Microbiology Lab	4
or BIOL 3550 & BIOL 3555	Eukaryotic Cell Biology and Eukaryotic Cell Biology Lab	
BIOL 4910	Senior Seminar	1
Complete 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
Social & Behavioral Sciences		**3**
Complete one (1) psychology courses from among the following		
PSY 2400	Psychology of Abnormal Behavior	3
PSY 3460	Health Psychology	3
PSY 3710	Behavioral Neuroscience	3
Electives		
Complete at least 7 credits of upper-division biology courses not already used to fulfill a degree requirement and pick at least one Technical Laboratory Course. Elective credits must total 15.		
BIOL 3000R	Advanced Utah Health Scholars Students (Prerequisite: HLOC 2000)	
BIOL 3100	Bioethics	
BIOL 3110	Scientific Writing	
BIOL 3120	Science Communication	
BIOL 3140 & BIOL 3145	Comparative Vertebrate Anatomy and Comparative Vertebrate Anatomy Lab	
BIOL 3230R	Cadaver Practicum	
BIOL 3250	Cancer Biology	
BIOL 3360	Developmental Biology	
BIOL 3460	Biology of Infectious Disease	
BIOL 3470	Introduction to Immunology	
BIOL 4300 & BIOL 4305	Molecular Biology and Molecular Biology Laboratory	
BIOL 4440	General Entomology	
BIOL 4930R	Senior Thesis	
CHEM 3520 & CHEM 3525	Biochemistry II and Biochemistry II Lab	
MATH 1210	Calculus I (MA) (Technical Laboratory Courses)	

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.

Graduation Plan

1st Year

Fall Semester	Hours	Spring Semester	Hours
SSC 1010	2	BIOL 1620 & BIOL 1625	5
BIOL 1610 & BIOL 1615	5	CHEM 1220 & CHEM 1225	5
CHEM 1210 & CHEM 1215	5	MATH 1060	3
ENGL 1010	3		
	15		**13**

2nd Year

Fall Semester	Hours	Spring Semester	Hours
BIOL 3030	3	BIOL 3010	3
CHEM 2310 & CHEM 2315	5	CHEM 2320 & CHEM 2325	5
ENGL 2010	3	PSY 1010	3
General Education (American Institutions) (catalog.utahtech.edu/programs/generaleducation/#gerequirementstext)	3	General Education (Fine Arts) (catalog.utahtech.edu/programs/generaleducation/#gerequirementstext)	3
	14		**14**

3rd Year

Fall Semester	Hours	Spring Semester	Hours
CHEM 3510 & CHEM 3515	4	BIOL 2320 & BIOL 2325	5
PHYS 2010 & PHYS 2015	5	PHYS 2020 & PHYS 2025	5
BIOL 3450 & BIOL 3455	4	BIOL 3040	3
General Education (Exploration) (catalog.utahtech.edu/programs/generaleducation/#gerequirementstext)	3	BIOL Upper Division Elective	3
	16		**16**

4th Year

Fall Semester	Hours	Spring Semester	Hours
BIOL 3420	3	BIOL 4910	1
BIOL 3150 & BIOL 3155	4	Psychology Requirement	3
BIOL Upper Division Electives	6	BIOL Upper Division Electives	4
General Elective	3	General Education (Literature/Humanities) (catalog.utahtech.edu/programs/generaleducation/#gerequirementstext)	3

		General Elective	3
	16		**14**

Total Hours 118

Graduation Plan - MATH 1010

1st Year

Fall Semester	**Hours**	**Spring Semester**	**Hours**
BIOL 1610 & BIOL 1615	5	ENGL 2010	3
ENGL 1010	3	BIOL 1620 & BIOL 1625	5
MATH 1010	4	MATH 1050	4
General Education (Fine Arts) (catalog.utahtech.edu/programs/generaleducation/#gerequirementstext)	3	PSY 1010	3
	15		**15**

2nd Year

Fall Semester	**Hours**	**Spring Semester**	**Hours**
CHEM 1210 & CHEM 1215	5	CHEM 1220 & CHEM 1225	5
MATH 1060	3	BIOL 3010	3
BIOL 3030	3	General Education (American Institutions) (catalog.utahtech.edu/programs/generaleducation/#gerequirementstext)	3
Technical Laboratory Course	2	Psychology Elective	3
General Elective	3		
	16		**14**

3rd Year

Fall Semester	**Hours**	**Spring Semester**	**Hours**
CHEM 2310 & CHEM 2315	5	CHEM 2320 & CHEM 2325	5
PHYS 2010 & PHYS 2015	5	PHYS 2020 & PHYS 2025	5
BIOL 3550 & BIOL 3555	4	BIOL 2320 & BIOL 2325	5
	14		**15**

4th Year

Fall Semester	**Hours**	**Spring Semester**	**Hours**
CHEM 3510 & CHEM 3515	4	BIOL 4910	1
BIOL 3420	3	BIOL 3150 & BIOL 3155	4
Biology Upper Division Elective	5	Upper Division BIOL Elective	4
BIOL 3040	3	Upper Division BIOL Elective	4
		General Education (Literature/Humanities) (catalog.utahtech.edu/programs/generaleducation/#gerequirementstext)	3
	15		**16**

Total Hours 120

BS Biomedical Science Program Learning Outcomes:

At the successful conclusion of this program, students will be able to:

1. Outline the foundational concepts of biology including cellular, organismic, ecological, and evolutionary biology.
2. Evaluate hypotheses, design research, test hypotheses, conduct data analysis, and draw conclusions on biology related problems.
3. Integrate knowledge of scientific literacy in oral and written assignments when communicating biological topics.
4. Evaluate information to discriminate between science and non-science.
5. Develop an understanding of why science is an integral activity for addressing social and environmental problems.