

Biology

Biology

The Biology department is in the [College of Science](#). To find the most up-to-date information, including Program Learning Outcomes for degree programs offered by the Biology department, visit their website.

[Biology department](#)

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Degrees & Programs

Biology, A.A.

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Requirements

Students interested in biology, or related fields, are encouraged to earn at least a baccalaureate degree (BS). Many professions (e.g., Pharmacy or Medicine) require additional post-baccalaureate education. The AS/AA degree is intended for students who plan to use it as a first step toward a baccalaureate degree. The AS/AA degree may be granted

to those who do not continue in a bachelor's program and meet the minimum requirements.

Total Program Credits: 60

General Education Requirements:			39 Credits
	ENGL 1010	Introduction to Academic Writing	3
or	ENGL 1005	Literacies and Composition Across Contexts (5.0)	
	ENGL 2010	Intermediate Writing/Academic Writing and Research	3
	MATH 1050	College Algebra	4
or	MATH 1055	College Algebra with Preliminaries (5.0)	
Complete one of the following:			3
	HIST 2700	US History to 1877 (3.0)	
and	HIST 2710	US History since 1877 (3.0)	
	HIST 1700	American Civilization (3.0)	
	HIST 1740	US Economic History (3.0)	
	POLS 1000	American Heritage (3.0)	
	POLS 1100	American National Government (3.0)	
Complete the following:			
	PHIL 2050	Ethics and Values	3
or	PHIL 205G	Ethics and Values (3.0)	
	HLTH 1100	Personal Health and Wellness (2.0)	
or	EXSC 1097	Fitness for Life	2
Distribution Courses:			
	BIOL 1610	College Biology I (To be taken with BIOL 1615)	4
	CHEM 1210	Principles of Chemistry I (To be taken with CHEM 1215)	4
	CHEM 1220	Principles of Chemistry II (To be taken with CHEM 1225)	4
	Humanities Distribution		3
	Fine Arts Distribution		3
	Social/Behavioral Science		3
Discipline Core Requirements:			13 Credits
Complete the following:			
	BIOL 1615	College Biology I Laboratory (To be taken with BIOL 1610)	1
	BIOL 1620	College Biology II	3
and	BIOL 1625	College Biology II Laboratory	1
	CHEM 1215	Principles of Chemistry I Laboratory (To be taken with CHEM 1210)	1
	CHEM 1225	Principles of Chemistry II Laboratory (To be taken with CHEM 1220)	1
	Minimum of 2 additional biology courses (BIOL, BOT, BTEC, MICR, or ZOOL prefixes). ¹		6
Elective Requirements:			8 Credits
	Same Foreign Language.		8
Graduation Requirements:			

Biology

1. Completion of a minimum of 60 semester credits.
2. Overall grade point average of 2.0 (C) or above. (Departments may require a higher GPA.)
3. Residency hours -- minimum of 20 credit hours through course attendance at UVU.
4. Completion of GE and specified departmental requirements.
5. For the AA degree, completion of 8 credit hours of course work from one language.

Footnote
¹ BIOL 1010 cannot be used to meet this requirement. See Biology Advisor

Biology, A.S.

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Requirements

Students interested in biology, or related fields, are encouraged to earn at least a baccalaureate degree (BS). Many professions (e.g., Pharmacy or Medicine) require additional post-baccalaureate education. The AS/AA degree is intended for students who plan to use it as a first step toward a baccalaureate degree. The AS/AA degree may be granted to those who do not continue in a bachelor's program and meet the minimum requirements.

Total Program Credits: 60

General Education Requirements:		39 Credits
	ENGL 1010 Introduction to Academic Writing	3
or	ENGL 1005 Literacies and Composition Across Contexts (5.0)	
	ENGL 2010 Intermediate Writing/Academic Writing and Research	3
	MATH 1050 College Algebra	4
or	MATH 1055 College Algebra with Preliminaries (5.0)	
Complete one of the following:		3
	HIST 2700 US History to 1877 (3.0)	
and	HIST 2710 US History since 1877 (3.0)	
	HIST 1700 American Civilization (3.0)	
	HIST 1740 US Economic History (3.0)	
	POLS 1000 American Heritage (3.0)	
	POLS 1100 American National Government (3.0)	
Complete the following:		
	PHIL 2050 Ethics and Values	3
	HLTH 1100 Personal Health and Wellness (2.0)	
or	EXSC 1097 Fitness for Life	2
Distribution Courses:		
	BIOL 1610 College Biology I (To be taken with BIOL 1615)	4
	CHEM 1210 Principles of Chemistry I (To be taken with CHEM 1215)	4
	CHEM 1220 Principles of Chemistry II (To be taken with CHEM 1225)	4

	Humanities Distribution	3
	Fine Arts Distribution	3
	Social/Behavioral Science	3
Discipline Core Requirements:		15 Credits
Complete the following:		
	BIOL 1615 College Biology I Laboratory (To be taken with BIOL 1610)	1
	BIOL 1620 College Biology II	3
and	BIOL 1625 College Biology II Laboratory	1
	CHEM 1215 Principles of Chemistry I Laboratory (To be taken with CHEM 1210)	1
	CHEM 1225 Principles of Chemistry II Laboratory (To be taken with CHEM 1220)	1
Minimum of 3 additional biology courses (BIOL, BOT, MICR, or ZOOL prefixes). ¹		8
Elective Requirements:		6 Credits
	Complete any course 1000 or higher. See Biology Advisor.	6

Graduation Requirements:

1. Completion of a minimum of 60 semester credits.
2. Overall grade point average of 2.0 (C) or above. (Departments may require a higher GPA.)
3. Residency hours -- minimum of 20 credit hours through course attendance at UVU.
4. Completion of GE and specified departmental requirements.

Footnote
¹ BIOL 1010 cannot be used to meet this requirement. See Biology Advisor.

Biology, Minor

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Requirements

The minor is a way for students to investigate the Biology Degree.

Total Program Credits: 21

Matriculation Requirements:		
1. Admitted to a bachelor degree program at UVU.		
Discipline Core Requirements:		21 Credits
Complete the following with a grade of C- or better:		
	BIOL 1610 College Biology I	4
	BIOL 1615 College Biology I Laboratory	1
	BIOL 1620 College Biology II	3
	BIOL 1625 College Biology II Laboratory	1
Complete 12 upper-division credits from any BIOL, BOT, MICR, or ZOOL courses with a grade of C- or higher in each. BIOL 489R, BIOL 499R, cannot be used to meet this requirement.		12

Bioinformatics, B.S.

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Requirements

Bioinformatics is the fastest growing field in Biology. In general terms, bioinformatics is the synthesis of computational methods and biological systems and comprises many sub-fields that approach different questions in biology. A Bachelor of Science in Bioinformatics will prepare students to enter a variety of fields such as: medical informatics and interventions, new agricultural paradigms, pharmaceutical discovery, and molecular genealogy predictions, among others. This degree would provide students with the knowledge, skills, and experience to be competitive for both graduate school and employment opportunities.

Total Program Credits: 120

Matriculation Requirements:			
BIOL 1610 with C- or higher			
CS 1400 with a C+ or higher, and approval of Biology Department or Computer Science Department advisor.			
General Education Requirements:			39 Credits
	ENGL 1010	Introduction to Academic Writing	3
or	ENGL 1005	Literacies and Composition Across Contexts (5)	
	ENGL 2010	Intermediate Writing/Academic Writing and Research	3
	MATH 1050	College Algebra	4
or	MATH 1055	College Algebra with Preliminaries (5)	
Complete one of the following:			3
	HIST 2700	US History to 1877 (3)	
and	HIST 2710	US History since 1877 (3)	
	HIST 1700	American Civilization (3)	
	HIST 1740	US Economic History (3)	
	POLS 1000	American Heritage (3)	
	POLS 1100	American National Government (3)	
Complete the following:			
	PHIL 2050	Ethics and Values	3
	HLTH 1100	Personal Health and Wellness (2)	
or	EXSC 1097	Fitness for Life	2
Distribution Courses:			
	BIOL 1610	College Biology I	4
	CHEM 1210	Principles of Chemistry I	4
	CHEM 1220	Principles of Chemistry II	4
	Humanities Distribution		3
	Fine Arts Distribution		3
	Social/Behavioral Science		3
Discipline Core Requirements:			50 Credits
	BIOL 1011	Introduction to Bioinformatics	3
	BIOL 1615	College Biology I Laboratory	1

	BIOL 3100	Introduction to Data Analysis for Biologists	3
	BIOL 3500	Genetics	3
	BIOL 3550	Molecular Biology	3
	BIOL 492R	Professional Development	1
	BIOL 494R	Student Seminar WE	2
	BIOL 497R	Biology Colloquium (0.5 cr, two required)	1
	BIOL 4550	Molecular Evolution and Bioinformatics WE	3
	BIOL 4600	Bioinformatics Capstone	3
	STAT 2040	Principles of Statistics	4
	CHEM 1215	Principles of Chemistry I Laboratory	1
	CHEM 1225	Principles of Chemistry II Laboratory	1
	CS 1400	Fundamentals of Programming	3
	CS 1410	Object Oriented Programming	3
	CS 2300	Discrete Mathematical Structures I	3
	CS 2420	Introduction to Algorithms and Data Structures	3
	CS 305G	Global Social and Ethical Issues in Computing	3
	INFO 2410	Database Fundamentals	3
	IT 1510	Introduction to System Administration--Linux/UNIX	3
Elective Requirements:			31 Credits
	Choose 6 credits from any general electives. ¹		6
	Choose 25 credits from list below or approved by advisor		25
	BIOL 3700	General Ecology (3)	
	BIOL 4300	Bioinformatics and Genome Analysis (4)	
	BIOL 4400	Genomics (3)	
	BIOL 4500	Principles of Evolution WE (3)	
	BIOL 489R	Student Research (1-9)	
	BIOL 490R	Special Topics in Biology (1-4)	
	BIOL 499R	Senior Thesis (1-2)	
	MICR 2060	Microbiology for Health Professions (3)	
	MICR 3200	Emerging and Re Emerging Diseases and Zoonoses (3)	
	MICR 3450	General Microbiology (3)	
	CS 3270	Python Software Development (3)	
	CS 3320	Numerical Software Development (3)	
	CS 3520	Database Theory (3)	
	CS 3530	Data Management For Data Sciences (3)	
	STAT 4100	Design of Experiment (3)	
	STAT 4400	Multivariate Analysis WE (3)	
	STAT 4710	Mathematical Statistics-Probability and Statistics (3)	

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	STAT 4720	Mathematical Statistics-Statistical Inference (3)	
	MATH 1210	Calculus I (4)	
or	MATH 121H	Calculus I (4)	
	MATH 1220	Calculus II (4)	
or	MATH 122H	Calculus II (4)	
	MATH 2210	Calculus III (4)	
or	MATH 222H	Calculus III (4)	
	MATH 2270	Linear Algebra (3)	

Graduation Requirements:

1. Complete the required minimum credit hours.
2. If an AA or AS degree has been earned, a maximum of 64 of these credits may apply toward the BS.
3. At least 30 credit hours in residence at UVU or satellite sites are required, with 10 hours earned during the last 45 hours.
4. A minimum of 40 credits must be upper-division (numbered 3000 or above).
5. A minimum of 40 credits must be in the major, 30 of which must be upper-division. A minimum of nine Department credits must be taken at UVU.
6. Except for 490R Special Topics courses, a maximum cumulative total of 9 credits in any combination of upper division Departmental courses with an "R" designation may count toward graduation.
7. Complete Biology Department core courses with a grade of "C-" or higher in each course.
8. Achieve a minimum overall GPA of 2.0 with a minimum GPA of 2.25 in biology department courses.
9. Complete the appropriate application for graduation form.
10. Successful completion of at least one Global/Intercultural course.

Footnotes:

¹ Upper division is suggested to meet upper division requirements

Biology Education, B.S.

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Requirements

Biology is the study of living organisms and includes study of subjects such as evolution, ecology, zoology, physiology, anatomy, and botany among other subjects. Completion of this degree will prepare students to teach classes in high school biology, and related subjects, plus integrated science at the 7th grade level.

Total Program Credits: 126

Matriculation Requirements:

Admission to Professional Education status is a requirement for enrollment in professional studies level courses. Admission criteria includes:

1. ACT exam minimums: Composite 21, English 20, Math 19; or SAT exam minimums: Critical Read /Math 1000, with Math and Reading scores of 450; or if student has a bachelor degree or higher, he/she does not need to meet this testing requirement.
2. GPA of 3.0 or higher with no grade lower than a C in content area courses.
3. Completion of all General Education requirements and the majority of content area courses.
4. Pass LiveScan Criminal Background Check.

General Education Requirements:			38 Credits
	ENGL 1010	Introduction to Academic Writing	3
or	ENGL 1005	Literacies and Composition Across Context (5.0)	
	ENGL 2010	Intermediate Writing Academic Writing and Research	3
	MATH 1050	College Algebra	4
or	MATH 1055	College Algebra with Preliminaries (5.0)	
Complete one of the following:			3
	HIST 2700	US History to 1877 (3.0)	
and	HIST 2710	US History since 1877 (3.0)	
	HIST 1700	American Civilization (3.0)	
	HIST 1740	US Economic History (3.0)	
	POLS 1000	American Heritage (3.0)	
	POLS 1100	American National Government (3.0)	
Complete the following:			
	PHIL 2050	Ethics and Values	3
or	PHIL 205G	Ethics and Values GI	
	HLTH 1100	Personal Health and Wellness (2.0)	
or	EXSC 1097	Fitness for Life	2
Distribution Courses			
	BIOL 1610	College Biology I	4
	CHEM 1110	Elementary Chemistry for the Health Sciences	4
	PHYS 1010	Elementary Physics	3
	Humanities Distribution		3
	Fine Arts Distribution		3
	Social/Behavioral Science Distribution		3
Discipline Core Requirements:			88 Credits
	BIOL 1615	College Biology I Laboratory	1
	BIOL 1620	College Biology II	3
	BIOL 1625	College Biology II Laboratory	1
	BIOL 3700	General Ecology	3
	BIOL 4500	Principles of Evolution WE	3
	BIOL 494R	Student Seminar WE	2
	BOT 3340	Plant Biology	4
	SCIE 4210	Science Teaching Methods I	3
	SCIE 4220	Teaching Methods in Science II	3
	ZOO 2320	Human Anatomy	3
	ZOO 2325	Human Anatomy Laboratory	1
	ZOO 2420	Human Physiology	3
	ZOO 2425	Human Physiology Laboratory	1
	CHEM 1115	Elementary Chemistry Laboratory	1
	CHEM 1120	Elementary Organic Bio-Chemistry	4
	CHEM 1125	Elementary Organic Bio-Chemistry Laboratory	1
	GEO 1010	Introduction to Geology	3

	GEO 1015	Introduction to Geology Laboratory	1
Complete three of the following sequences: (MICR 2060/2065 & MICR 3450/3455 cannot both count)			12
	MICR 2060	Microbiology for Health Professions (3)	
and	MICR 2065	Microbiology for Health Professions Laboratory (1)	
or	MICR 3450	General Microbiology (3)	
and	MICR 3455	General Microbiology Laboratory (1)	
or	ZOO 3100	Vertebrate Zoology (3)	
and	ZOO 3105	Vertebrate Zoology Laboratory (1)	
or	ZOO 3200	Invertebrate Zoology (3)	
and	ZOO 3205	Invertebrate Zoology Laboratory (1)	
or	BIOL 3400	Cell Biology (3)	
and	BIOL 3405	Cell Biology Laboratory (1)	
Complete one of the following:			3
	BIOL 2500	Environmental Biology (3)	
	BIOL 3300	Developmental Biology (3)	
	BIOL 3800	Conservation Biology (3)	
	BIOL 4300	Bioinformatics and Genome Analysis (4)	
	BOT 2050	Field Botany (3)	
	BOT 2400	Plant Kingdom (4)	
	BOT 2100	Flora of Utah (3)	
	BOT 4300	Native Trees and Shrubs of Utah (3)	
	MICR 3200	Emerging and Re Emerging Diseases and Zoonoses (3)	
	ZOO 4000	Animal Behavior (3)	
	BIOL 3500	Genetics (3)	
	BIOL 3200	Guided Research Experience (1-3)	
Education Courses: ¹			
	EDEL 1010	Introduction to Education	2
	EDSC 3000	Educational Psychology	3
	EDSC 325G	Equitable Technology Integration	2
	EDSC 4200	Classroom Management I	2
	EDSC 4250	Classroom Management II	2
	EDSC 4440	Content Area Literacies	3
	EDSC 445G	Multicultural Instruction ESL	3
	EDSC 455G	Secondary Curriculum Instruction and Assessment	3
	EDSC 4850	Student Teaching--Secondary	8
	EDSC 4990	Teacher Performance Assessment Project WE	2
	EDSP 340G	Exceptional Students	2

Graduation Requirements:

1. Complete the required minimum credit hours.
2. If an AA or AS degree has been earned, a maximum of 64 of these credits may apply toward the BS.
3. At least 30 credit hours in residence at UVU or satellite sites are required, with 10 hours earned during the last 45 hours.

4. A minimum of 40 credits must be upper-division (numbered 3000 or above).
5. A minimum of 30 credits must be in the major (BIOL, BOT, MICR, or ZOO prefixes), courses as follows: minimum of 9 Biology credits must be taken at UVU and a minimum of 20 Biology credits must be upper-division.
6. Complete the appropriate application for graduation form.
7. Successful completion of at least one Global/Intercultural course.
8. Overall Grade of 3.0 (B) or above with no grade lower than a C or better in major required content courses and no grade lower than a B- in Licensure and Methods courses.

Footnotes:

1-Must be completed with a grade of B- or higher.

Biology, B.S.

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Requirements

Students interested in Biology, or related fields, are encouraged to earn at least a baccalaureate degree (BS). Many professions (e.g., Pharmacy or Medicine) require additional post -baccalaureate education. The BS degree in Biology may be used for entry into a career or in preparation for graduate (Masters/PhD) or professional schools (medical, dental, pharmacy, etc.).

Total Program Credits: 120

Matriculation Requirements:			
BIOL 1610 College Biology I with C- or higher and approval of Biology Department advisor.			
General Education Requirements:			39 Credits
	ENGL 1010	Introduction to Academic Writing	3
or	ENGL 1005	Literacies and Composition Across Contexts (5)	
	ENGL 2010	Intermediate Writing/Academic Writing and Research	3
	MATH 1050	College Algebra	4
or	MATH 1055	College Algebra with Preliminaries (5)	
Complete one of the following:			3
	HIST 2700	US History to 1877	
and	HIST 2710	US History since 1877 (6)	
	HIST 1700	American Civilization (3)	
	HIST 1740	US Economic History (3)	
	POLS 1000	American Heritage (3)	
	POLS 1100	American National Government (3)	
Complete the following:			
	PHIL 2050	Ethics and Values	3
or	PHIL 205G	Ethics and Values (3)	
	HLTH 1100	Personal Health and Wellness (2)	
or	EXSC 1097	Fitness for Life	2
Distribution Courses:			
	BIOL 1610	College Biology I	4
	CHEM 1210	Principles of Chemistry I	4

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	CHEM 1220	Principles of Chemistry II	4
	Humanities Distribution		3
	Fine Arts Distribution		3
	Social/Behavioral Science		3
Discipline Core Requirements:			54 Credits
	BIOL 1615	College Biology I Laboratory	1
	BIOL 1620	College Biology II	3
	BIOL 1625	College Biology II Laboratory	1
	BIOL 3400	Cell Biology	3
	BIOL 3500	Genetics	3
	BIOL 3550	Molecular Biology	3
	BIOL 3600	Biological Chemistry	3
	BIOL 3700	General Ecology	3
	BIOL 4500	Principles of Evolution WE	3
	BIOL 492R	Professional Development	1
	BIOL 494R	Student Seminar WE	2
	BIOL 497R	Biology Colloquium (0.5 cr, two required)	1
Complete one of the following upper division lab courses: One course from this category needs to be taken although only 1 credit hour is required.			1
	BIOL 3100	Introduction to Data Analysis for Biologists (3)	
	BIOL 3200	Guided Research Experience (1-3)	
	BIOL 3405	Cell Biology Laboratory (1)	
	BIOL 3515	Advanced Genetics Laboratory (1)	
	BIOL 3555	Experiments in Molecular Biology (1)	
	BIOL 4300	Bioinformatics and Genome Analysis (4)	
	BIOL 4550	Molecular Evolution and Bioinformatics WE (3)	
	MICR 3150	Microbial Ecology WE (4)	
	MICR 3455	General Microbiology Laboratory (1)	
	MICR 4505	Applied Virological Methods (3)	
	BOT 3500	Mycology (4)	
	BOT 3800	Ethnobotany WE (4)	
	BOT 4100	Plant Anatomy (4)	
	BOT 4200	Plant Systematics (3)	
	BOT 4430	Plant Pathology (3)	
	BOT 4600	Plant Physiology WE	
and	BOT 4605	Plant Physiology Laboratory (4)	
	BOT 4700	Plant Tissue Culture WE (4)	
Complete one of the following:			4
	STAT 2040	Principles of Statistics	4
or	MATH 1060	Trigonometry (3)	
and	MATH 1210	Calculus I (5)	
	PHYS 2010	College Physics I	4
	PHYS 2015	College Physics I Lab	1
	PHYS 2020	College Physics II	4

	PHYS 2025	College Physics II Lab	1
	CHEM 1215	Principles of Chemistry I Laboratory	1
	CHEM 1225	Principles of Chemistry II Laboratory	1
	CHEM 2310	Organic Chemistry I	4
	CHEM 2315	Organic Chemistry I Laboratory	1
	CHEM 2320	Organic Chemistry II	4
	CHEM 2325	Organic Chemistry II Laboratory	1
Elective Requirements:			27 Credits
	Choose 4 credits from any MICR electives. ¹		4
	Choose 3 credits from any BOT electives. ¹		3
	Choose 3 credits from any ZOOI electives. ¹		3
	Additional credits to meet credit and upper-division requirements.		17

Graduation Requirements:

1. Complete the required minimum credit hours.
2. If an AA or AS degree has been earned, a maximum of 64 of these credits may apply toward the BS.
3. At least 30 credit hours in residence at UVU or satellite sites are required, with 10 hours earned during the last 45 hours.
4. A minimum of 40 credits must be upper-division (numbered 3000 or above).
5. A minimum of 40 credits must be in the major (BIOL, BOT, BTEC, MICR, or ZOOI prefixes), 30 of which must be upper-division. A minimum of nine Department credits must be taken at UVU.
6. Except for 490R Special Topics courses, a maximum cumulative total of 9 credits in any combination of upper division Departmental courses with an "R" designation may count toward graduation.
7. Complete Biology Department core courses with a grade of "C-" or higher in each course.
8. Achieve a minimum overall GPA of 2.0 with a minimum GPA of 2.25 in biology department courses.
9. Complete the appropriate application for graduation form.
10. Successful completion of at least one Global/Intercultural course.

Footnote

¹Upper division is suggested to meet upper division requirements

Biotechnology, B.S.

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Requirements

The Bachelor's Degree in Biotechnology will prepare students to enter the field of research, education, pharmaceuticals, forensics, and a variety of other careers. It is also great preparation for advanced degrees in the sciences.

Total Program Credits: 124

General Education Requirements:			39 Credits
	ENGL 1010	Introduction to Academic Writing	3
or	ENGL 1005	Literacies and Composition Across Context (5)	
	ENGL 2010	Intermediate Writing Academic Writing and Research	3

	MATH 1050	College Algebra	4
or	MATH 1055	College Algebra with Preliminaries	
Complete one of the following:			3
	HIST 2700	US History to 1877 (3)	
and	HIST 2710	US History since 1877 (3)	
	HIST 1700	American Civilization (3)	
	HIST 1740	US Economic History (3)	
	POLS 1000	American Heritage (3)	
	POLS 1100	American National Government (3)	
Complete the following:			
	PHIL 2050	Ethics and Values	3
	HLTH 1100	Personal Health and Wellness (2)	
or	EXSC 1097	Fitness for Life	2
Distribution Courses:			
	BIOL 1610	College Biology I	4
	CHEM 1210	Principles of Chemistry I	4
	CHEM 1220	Principles of Chemistry II	4
	Humanities Distribution		3
	Fine Arts Distribution		3
	Social/Behavioral Science		3
Discipline Core Requirements:			73 Credits
	BIOL 1615	College Biology I Laboratory	1
	BIOL 3400	Cell Biology	3
	BIOL 3500	Genetics	3
	BIOL 3550	Molecular Biology	3
	BIOL 3600	Biological Chemistry	3
	BIOL 4550	Molecular Evolution and Bioinformatics WE	3
	BTEC 494R	Student Seminar WE	2
	Choose any 2 from the following. Student must complete at least 2 of the courses listed even if it exceeds the required 3 credit hours.		3
	BIOL 3100	Introduction to Data Analysis for Biologists (3)	
	BIOL 3405	Cell Biology Laboratory (1)	
	BIOL 3515	Advanced Genetics Laboratory (1)	
	BIOL 3555	Experiments in Molecular Biology (1)	
	BIOL 3605	Biological Chemistry Lab (1)	
	BTEC 3300	Biomolecular Modeling and Simulations (4)	
	BOT 4700	Plant Tissue Culture WE (4)	
	CHEM 3005	Analytical Chemistry Laboratory (2)	
	ZOO 4300	Histology (4)	
	Choose any from the following:		8
	BTEC 481R	Biotechnology Internship (1-10)	
	BIOL 489R	Student Research (1-4)	
	BTEC 489R	Student Research (1-4)	
	BTEC 499R	Senior Thesis (1-2)	

Choose from 1 MICR course and accompanying lab from the following:		4
MICR 2060	Microbiology for Health Professions (3)	
MICR 2065	Microbiology for Health Professions Laboratory (1)	
MICR 3450	General Microbiology (3) (***Recommended***)	
MICR 3455	General Microbiology Laboratory (1)	
Complete the following:		
STAT 2040	Principles of Statistics	4
PHYS 2010	College Physics I	4
PHYS 2015	College Physics I Lab	1
PHYS 2020	College Physics II	4
PHYS 2025	College Physics II Lab	1
CHEM 1215	Principles of Chemistry I Laboratory	1
CHEM 1225	Principles of Chemistry II Laboratory	1
CHEM 2310	Organic Chemistry I	4
CHEM 2315	Organic Chemistry I Laboratory	1
CHEM 2320	Organic Chemistry II	4
CHEM 2325	Organic Chemistry II Laboratory	1
BTEC 1010	Fundamentals of Biotechnology I Career Survey	3
BTEC 2010	DNA Manipulation and Analysis	3
BTEC 2020	Protein Purification and Analysis	3
BTEC 2030	Cell Culture Techniques	2
BTEC 2040	Advanced Nucleic Acid Laboratory	3
Elective Requirements:		12 Credits
Additional credits to meet credit and upper-division requirements.		12

Graduation Requirements:

1. Complete the required minimum credit hours.
2. At least 30 credit hours in residence at UVU or satellite sites are required, with 10 hours earned during the last 45 hours.
3. A minimum of 40 credits must be upper-division (numbered 3000 or above).
4. Complete core courses with a grade of "C" or higher in each BTEC course and a "C-" or higher in all other core courses.
5. Achieve a minimum overall GPA of 2.0 with a minimum GPA of 2.25 in core courses.
6. Successful completion of at least one Global/Intercultural course.

Botany, B.S.

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Requirements

Students interested in botany, or related fields, are strongly encouraged to earn at least a baccalaureate degree (BS). To be competitive in the job market additional post-baccalaureate education is suggested. The BS degree in Botany may be used for entry into a career or in preparation for graduate (Masters/ PhD) or professional schools (medical, pharmacy etc.).

Biology

Total Program Credits: 120

Matriculation Requirements:			
1. BIOL 1610 with C- or higher and approval of Biology Department adviser.			
General Education Requirements:		39 Credits	
	ENGL 1010	Introduction to Academic Writing	3
or	ENGL 1005	Literacies and Composition Across Context (5)	
	ENGL 2010	Intermediate Writing Academic Writing and Research	3
	MATH 1050	College Algebra	4
or	MATH 1055	College Algebra with Preliminaries (5)	
Complete one of the following:		3	
	HIST 2700	US History to 1877 (3)	
and	HIST 2710	US History since 1877 (3)	
	HIST 1700	American Civilization (3)	
	HIST 1740	US Economic History (3)	
	POLS 1000	American Heritage (3)	
	POLS 1100	American National Government (3)	
Complete the following:			
	PHIL 2050	Ethics and Values	3
or	PHIL 205G	Ethics and Values GI	
	HLTH 1100	Personal Health and Wellness (2)	
or	EXSC 1097	Fitness for Life	2
Distribution Courses:			
	BIOL 1610	College Biology I	4
	CHEM 1210	Principles of Chemistry I	4
	CHEM 1220	Principles of Chemistry II	4
	Humanities Distribution		3
	Fine Arts Distribution		3
	Social/Behavioral Science		3
Discipline Core Requirements:		63 Credits	
	BIOL 1615	College Biology I Laboratory	1
	BIOL 1620	College Biology II	3
	BIOL 1625	College Biology II Laboratory	1
	BIOL 3400	Cell Biology	3
	BIOL 3500	Genetics	3
	BIOL 4500	Principles of Evolution WE	3
	BIOL 492R	Professional Development	1
	BIOL 494R	Student Seminar WE	2
	BIOL 497R	Biology Colloquium (0.5 cr, two required)	1
	BOT 2100	Flora of Utah	3
or	BOT 2050	Field Botany (3)	
	BOT 2400	Plant Kingdom	4
	BOT 4050	Plant Ecology	3
	BOT 4055	Plant Ecology Laboratory	1
	BOT 4100	Plant Anatomy	4

	BOT 4200	Plant Systematics	3
	BOT 4300	Native Trees and Shrubs of Utah	3
or	BOT 4500	Introduction to Grasses (3)	
	BOT 4600	Plant Physiology	3
and	BOT 4605	Plant Physiology Laboratory WE	1
	CHEM 1215	Principles of Chemistry I Laboratory	1
	CHEM 1225	Principles of Chemistry II Laboratory	1
	CHEM 2310	Organic Chemistry I	4
	CHEM 2315	Organic Chemistry I Laboratory	1
	STAT 2040	Principles of Statistics	4
or	MATH 1060	Trigonometry (3)	
and	MATH 1210	Calculus I (5)	
	MICR 3450	General Microbiology	3
and	MICR 3455	General Microbiology Laboratory	1
	PHYS 2010	College Physics I	4
	PHYS 2015	College Physics I Lab	1
Elective Requirements:		18 Credits	
Additional credits to meet credit and upper-division requirements.		18	
ENVT 2630 and ENVT 3630 are suggested electives. BOT 3340 cannot count for credit towards the Botany degree			

Graduation Requirements:

1. Complete the required minimum credit hours.
2. Completion of GE and specified departmental requirements.
3. If an AA or AS degree has been earned, a maximum of 64 of these credits may apply toward the BS.
4. At least 30 credit hours in residence at UVU or satellite sites are required, with 10 hours earned during the last 45 hours.
5. A minimum of 40 credits must be upper-division (numbered 3000 or above).
6. A minimum of 40 credits must be in the Biology Department (BIOL, BOT, BTEC, MICR, or ZOOL prefixes), 30 of which must be upper-division. A minimum of nine Biology Department credits must be taken at UVU.
7. Complete discipline core courses with a grade of "C-" or higher in each course.
8. Except for 490R Special Topics courses, a maximum cumulative total of 9 credits in any combination of upper division Departmental courses with an "R" designation may count toward graduation.
9. Achieve a minimum overall GPA of 2.0 with a minimum GPA of 2.25 in Biology Department courses.
10. Complete the appropriate application for graduation form.
11. Successful completion of at least one Global/Intercultural course.

Microbiology, B.S.

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Requirements

Microbiology is the study of microorganisms, the smallest living things on earth, including bacteria, viruses, fungi, protozoa, and algae. While microorganisms are most known for their ability to cause disease, they are actually ubiquitous on earth and central to many of the essential life processes on this planet. The field of microbiology is a major

contributor to human, animal, plant, and environmental health as well as central to the food/beverage, biotechnology, bioremediation, and pharmaceutical industries. This curriculum will examine the diverse roles of microorganisms and cover the fundamentals of microbial diversity, physiology, and genetics. Students will examine the roles and interactions of microbial populations in aquatic, terrestrial, human, animal, and plant systems.

A degree in microbiology can open the door to a wide variety of careers in different industries. Studying microbiology will prepare students to go to medical, dental, veterinary, or graduate school, and also provides them a highly employable career option in healthcare, industry, or government agencies. A degree in microbiology allows students to easily enter the workforce or continue on to a professional or graduate program.

Total Program Credits: 120

Matriculation Requirements:			
BIOL 1610 with C- or higher and approval of Biology Department advisor.			
General Education Requirements:			39 Credits
	ENGL 1010	Introduction to Academic Writing	3
or	ENGL 1005	Literacies and Composition Across Contexts (5)	
	ENGL 2010	Intermediate Writing/Academic Writing and Research	3
	MATH 1050	College Algebra	4
or	MATH 1055	College Algebra with Preliminaries (5)	
Complete one of the following:			3
	HIST 2700	US History to 1877 (3)	
and	HIST 2710	US History since 1877 (3)	
	HIST 1700	American Civilization (3)	
	HIST 1740	US Economic History (3)	
	POLS 1000	American Heritage (3)	
	POLS 1100	American National Government (3)	
Complete the following:			
	PHIL 2050	Ethics and Values	3
	HLTH 1100	Personal Health and Wellness (2)	
or	EXSC 1097	Fitness for Life	2
Distribution Courses:			
	BIOL 1610	College Biology I	4
	CHEM 1210	Principles of Chemistry I	4
	CHEM 1220	Principles of Chemistry II	4
	Humanities Distribution		3
	Fine Arts Distribution		3
	Social/Behavioral Science		3
Discipline Core Requirements:			53 Credits
	BIOL 1615	College Biology I Laboratory	1
	BIOL 1620	College Biology II	3
	BIOL 1625	College Biology II Laboratory	1
	BIOL 3600	Biological Chemistry	3
	BIOL 3605	Biological Chemistry Lab	1
	BIOL 4500	Principles of Evolution WE	3

BIOL 492R	Professional Development	1
BIOL 497R	Biology Colloquium (0.5 cr, two required)	1
MICR 3150	Microbial Ecology WE	4
MICR 3450	General Microbiology	3
MICR 3455	General Microbiology Laboratory	1
MICR 3550	Microbial Physiology	4
MICR 3650	Microbial Genetics	4
MICR 494R	Student Seminar WE	2
CHEM 1215	Principles of Chemistry I Laboratory	1
CHEM 1225	Principles of Chemistry II Laboratory	1
CHEM 2310	Organic Chemistry I	4
CHEM 2315	Organic Chemistry I Laboratory	1
CHEM 2320	Organic Chemistry II	4
CHEM 2325	Organic Chemistry II Laboratory	1
MATH 1100	Introduction to Calculus	4
PHYS 2010	College Physics I	4
PHYS 2015	College Physics I	1
Elective Requirements:		28 Credits
Choose a minimum of 18 credits from: (Upper division courses are encouraged to meet upper division credit requirements)		18
MICR 3200	Emerging and Re Emerging Diseases and Zoonoses (3)	
MICR 4100	Parasitology (4)	
MICR 4200	Microbiomes (3)	
MICR 4300	Pathogenic Microbiology (4)	
MICR 4450	Immunology (3)	
MICR 4455	Immunology Laboratory (1)	
MICR 4500	Virology (3)	
MICR 4505	Applied Virological Methods (3)	
MICR 4600	Arthropod-Borne Pathogens (3)	
MICR 490R	Special Topics in Microbiology (1)	
BIOL 3400	Cell Biology (3)	
BIOL 3405	Cell Biology Laboratory (1)	
BIOL 3550	Molecular Biology (3)	
BIOL 3555	Experiments in Molecular Biology (1)	
BIOL 4550	Molecular Evolution and Bioinformatics WE (3)	
BTEC 1010	Fundamentals of Biotechnology I Career Survey (3)	
BTEC 2010	DNA Manipulation and Analysis (3)	
BTEC 2020	Protein Purification and Analysis (3)	
BTEC 2030	Cell Culture Techniques (2)	
BTEC 2040	Advanced Nucleic Acid Laboratory (3)	
BOT 3500	Mycology (4)	
BOT 4430	Plant Pathology (3)	
CHEM 3020	Environmental Chemistry (3)	

Biology

CHEM 3025	Environmental Chemistry Laboratory (1)	
ENVT 1270	Environmental Microbiology (3)	
Choose 6 credits from:		6
MICR 489R	Student Research (1)	
BIOL 3100	Introduction to Data Analysis for Biologists (3)	
BIOL 369R	Introduction to Undergraduate Research (1)	
BIOL 4300	Bioinformatics and Genome Analysis (4)	
Choose 4 credits from BIOL, BOT, BTEC, ZOOL, or CHEM ¹		4

Graduation Requirements:

1. Complete the required minimum credit hours.
2. If an AA or AS degree has been earned, a maximum of 64 of these credits may apply toward the BS.
3. At least 30 credit hours in residence at UVU or satellite sites are required, with 10 hours earned during the last 45 hours.
4. A minimum of 40 credits must be upper-division (numbered 3000 or above).
5. A minimum of 40 credits must be in the Biology Department (BIOL, BOT, BTEC, MICR, or ZOOL prefixes), 30 of which must be upper-division. A minimum of nine Department credits must be taken at UVU.
6. Except for 490R Special Topics courses, a maximum cumulative total of 13 credits in any combination of upper division Departmental courses with an "R" designation may count toward graduation.
7. Complete Biology Department core courses with a grade of "C-" or higher in each course.
8. Achieve a minimum overall GPA of 2.0 with a minimum GPA of 2.25 in biology department courses.
9. Complete the appropriate application for graduation form.
10. Successful completion of at least one Global/Intercultural course.

Footnotes:

¹ Upper division is suggested to meet upper division requirements