

Biology

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The UVU Biology program offers a variety of courses that investigate the living world, including courses in biology, biotechnology, botany, ecology, genetics, human anatomy, human physiology, conservation biology, microbiology, zoology and others. A course of study may be designed to provide breadth in the life sciences or to prepare students for a specific area of biology.

Many courses in these programs fill general education requirements in the biology distribution area (see Graduation Requirements section of the UVU catalog).

CAREER OPPORTUNITIES

Majors in Biology prepare for a wide variety of occupations in education, government, medicine, and research. Students majoring in a UVU Bachelor's program should meet with the Biology Department advisor early in their program.

JOB OUTLOOK

Graduates with degrees in Biology are especially in demand in the secondary education, health, natural resource management, and biotechnology areas.

PROGRAMS

Five degree options are available: Associate in Science Degree with a pre-major in Biology; Bachelor of Science Degree in Integrated Studies with a Biology emphasis, Bachelor of Science Degree in Biology, Bachelor of Science Degree in Biotechnology, and Bachelor of Science in Biology Education. A minor in biology is available for those in other baccalaureate programs.

All AS/AA and BS Biology majors must consult with the Biology Department advisor prior to their first semester of enrollment at UVU to formulate a plan of study. BS in Biotechnology majors consult with the Biotechnology advisor. BS in Biology Education majors consult with Biology Secondary Education advisor.

Students interested in a career in biology or a related field are encouraged to earn at least a baccalaureate degree (BS). Many professions (e.g. pharmacy, medicine) require additional post-baccalaureate education. The UVU AS/AA degree is intended for students who plan to use it as a first step toward a baccalaureate degree. The AS degree may be granted to those who do not continue in a bachelor's program and meet the minimum requirements. The Bachelor of Science in Biology Degree may be used for entry into a career or in preparation for post-baccalaureate (for masters and doctoral degrees) or professional (e.g. medical, dental) education. A Bachelor of Science Degree in Integrated Studies, Biology emphasis is available. Please see Biology advisor for more information.

PROGRAMS

AA Pre Major in Biology 62 CREDITS

General Education Requirements: 42 Credits

- ENGL 1010 Introduction to Writing 3.0
- ENGL 2010 Intermediate Writing--Humanities/Social Sciences 3.0
- or ENGL 2020 Intermediate Writing--Science and Technology (3.0) 3.0
- MATH 1050 College Algebra 4.0

Complete one of the following: 3.0

- 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 3.0
- HLTH 1100 Personal Health and Wellness (2.0)
- or PES 1097 Fitness for Life 2.0

Distribution Courses

- BIOL 1610 College Biology I 4.0
- and BIOL 1615 College Biology I Laboratory 1.0
- CHEM 1210 Principles of Chemistry I 4.0
- and CHEM 1215 Principles of Chemistry I Laboratory 1.0
- CHEM 1220 Principles of Chemistry II 4.0
- and CHEM 1225 Principles of Chemistry II Laboratory 1.0

- Humanities Distribution 3.0
- Fine Arts Distribution 3.0
- Social/Behavioral Science 3.0

Discipline Core Requirements: 10 Credits

Complete the following:

- BIOL 1620 College Biology II 3.0
- and BIOL 1625 College Biology II Laboratory 1.0
- Minimum of 2 additional biology courses (BIOL, BOT, MICR, or ZOO prefix). BIOL 1010 and BIOL 1050 cannot be used to meet this requirement. See Biology Advisor. 6.0

Elective Requirements: 10 Credits

- Same Foreign Language. 10.0

Graduation Requirements:

- 1 Completion of a minimum of 62 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 10 credit hours of course work from one language.

AS Pre Major in Biology 60 CREDITS

General Education Requirements: 42 Credits

- ENGL 1010 Introduction to Writing 3.0
- ENGL 2010 Intermediate Writing--Humanities/Social Sciences 3.0
- or ENGL 2020 Intermediate Writing--Science and Technology (3.0) 3.0
- MATH 1050 College Algebra 4.0

Complete one of the following: 3.0

- 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 3.0
- HLTH 1100 Personal Health and Wellness (2.0)
- or PES 1097 Fitness for Life 2.0

Distribution Courses

- BIOL 1610 College Biology I 4.0
- and BIOL 1615 College Biology I Laboratory 1.0
- CHEM 1210 Principles of Chemistry I 4.0
- and CHEM 1215 Principles of Chemistry I Laboratory 1.0
- CHEM 1220 Principles of Chemistry II 4.0
- and CHEM 1225 Principles of Chemistry II Laboratory 1.0

- Humanities Distribution 3.0
- Fine Arts Distribution 3.0

• Social/Behavioral Science	3.0
Discipline Core Requirements:	12 Credits
Complete the following:	
• BIOL 1620 College Biology II	3.0
and BIOL 1625 College Biology II Laboratory	1.0
• Minimum of 3 additional biology courses (BIOL, BOT, MICR, or ZOO prefixes), BIOL 1010 and BIOL 1050 cannot be used to meet this requirement. See Biology Advisor.	8.0

Elective Requirements:	6 Credits
• Complete any course 1000 or higher. See Biology Advisor.	6.0

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.	

BS in Biology 122 CREDITS

General Education Requirements:	39 Credits
• ENGL 1010 Introduction to Writing	3.0
• ENGL 2020 Intermediate Writing--Science and Technology	3.0
• MATH 1050 College Algebra	4.0
Complete one of the following:	3.0
• 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	3.0
• HLTH 1100 Personal Health and Wellness (2.0)	
or PES 1097 Fitness for Life	2.0
Distribution Courses	
• BIOL 1610 College Biology I	4.0
• CHEM 1210 Principles of Chemistry I	4.0
• CHEM 1220 Principles of Chemistry II	4.0
• Humanities Distribution	3.0
• Fine Arts Distribution	3.0
• Social/Behavioral Science	3.0

Discipline Core Requirements:	47 Credits
• BIOL 1615 College Biology I Laboratory	1.0
• BIOL 1620 College Biology II	3.0
• BIOL 1625 College Biology II Laboratory	1.0
• BIOL 3400 Cell Biology	3.0
• BIOL 3500 Genetics	3.0
• BIOL 3600 Biological Chemistry	3.0
• BIOL 3700 General Ecology	3.0
• BIOL 4500 Principles of Evolution	3.0
• BIOL 494R Seminar	1.0
• MATH 2040 Principles of Statistics	4.0
or MATH 1060 Trigonometry (3.0)	
and MATH 1210 Calculus I (5.0)	
• PHYS 2010 College Physics I	4.0
• PHYS 2015 College Physics I Lab	1.0
• PHYS 2020 College Physics II	4.0
• PHYS 2025 College Physics II Lab	1.0
• CHEM 1215 Principles of Chemistry I Laboratory	1.0
• CHEM 1225 Principles of Chemistry II Laboratory	1.0
• CHEM 2310 Organic Chemistry I	4.0
• CHEM 2315 Organic Chemistry I Laboratory	1.0
• CHEM 2320 Organic Chemistry II	4.0
• CHEM 2325 Organic Chemistry II Laboratory	1.0

Elective Requirements:	36 Credits
• Choose 4 credits from any MICR electives.	4.0
• Choose 3 credits from any BOT electives.	3.0
• Choose 3 credits from any ZOO electives (except ZOO 1090).	3.0
• Additional credits to meet credit and upper-division requirements.	26.0

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 ZOO 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 Students completing a bachelor degree following the 2008 or later catalog must complete one course that meets the Global/Intercultural Requirement, indicated by a course number ending in G.	

BS in Biology Education 123 CREDITS

Matriculation Requirements:	
1 Admission to Professional Education status is a requirement for enrollment in professional studies level courses.	

General Education Requirements:	39 Credits
• ENGL 1010 Introduction to Writing	3.0
• ENGL 2020 Intermediate Writing--Science and Technology	3.0
• MATH 1050 College Algebra	4.0
Complete one of the following:	3.0
• 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	3.0
• HLTH 1100 Personal Health and Wellness (2.0)	
or PES 1097 Fitness for Life	2.0

Distribution Courses	
• BIOL 1610 College Biology I	4.0
• CHEM 1110 Elementary Chemistry for the Health Sciences	4.0
• CHEM 1120 Elementary Organic Bio-Chemistry	4.0
• Humanities Distribution	3.0
• Fine Arts Distribution	3.0
• HIST 4320 History of Scientific Thought (Social/Behavioral Science)	3.0

Discipline Core Requirements:	84 Credits
• BIOL 1615 College Biology I Laboratory	1.0
• BIOL 1620 College Biology II	3.0
• BIOL 1625 College Biology II Laboratory	1.0
• MICR 2060 Microbiology for Health Professions	4.0
or MICR 3450 General Microbiology (4.0)	
• BIOL 3500 Genetics	3.0
• BIOL 3700 General Ecology	3.0
• BIOL 4200 Teaching Methods in Science	3.0
• BIOL 4500 Principles of Evolution	3.0
• BIOL 494R Seminar	1.0
• BOT 2050 Field Botany	3.0
or BOT 2100 Flora of Utah (3.0)	
or BOT 4300 Wildland Shrubs (3.0)	
• BOT 3340 Plant Biology	4.0
• ZOO 2320 Human Anatomy	4.0
• ZOO 2420 Human Physiology	4.0
• ZOO 3100 Vertebrate Zoology	4.0
• ZOO 3200 Invertebrate Zoology	4.0
• CHEM 1115 Elementary Chemistry Laboratory	1.0
• CHEM 1125 Elementary Organic Bio-Chemistry Laboratory	1.0

Education Courses	
• EDSC 2540 Development of the Adolescent Student	2.0
• EDSC 3000 Educational Psychology	3.0
• EDSC 3050 Foundations of American Education	2.0
• EDSC 3250 Instructional Media	2.0
• EDSC 4200 Classroom Management I	1.0
• EDSC 4250 Classroom Management II	1.0
• EDSC 4440 Content Area Reading and Writing	3.0
• EDSC 445G Multicultural Instruction ESL	2.0
• EDSC 4550 Secondary Curriculum Instruction and Assessment	4.0

• EDSC 4850 Student Teaching--Secondary (4.0)	8.0
• EDSP 3400 Exceptional Students	2.0
• GEO 1010 Introduction to Geology	3.0
• GEO 1015 Introduction to Geology Laboratory	1.0
• PHYS 1010 Elementary Physics	3.0

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 Students completing a bachelor degree following the 2008 or later catalog must complete one course that meets the Global/Intercultural Requirement, indicated by a course number ending in G. For a complete listing, see page 25.	

BS in Biotechnology 64 CREDITS

General Education Requirements:	39 Credits
• ENGL 1010 Introduction to Writing	3.0
• ENGL 2020 Intermediate Writing--Science and Technology	3.0
• MATH 1050 College Algebra	4.0
Complete one of the following:	3.0
• 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	3.0
• HLTH 1100 Personal Health and Wellness (2.0)	
or PES 1097 Fitness for Life	2.0

Distribution Courses	
• BIOL 1610 College Biology I	4.0
• CHEM 1210 Principles of Chemistry I	4.0
• CHEM 1220 Principles of Chemistry II	4.0
• Humanities Distribution	3.0
• Fine Arts Distribution	3.0
• Social/Behavioral Science	3.0

Discipline Core Requirements:	75 Credits
• BIOL 1615 College Biology I Laboratory	1.0
• BIOL 3400 Cell Biology	3.0
• BIOL 3405 Cell Biology Laboratory	1.0
• BIOL 3500 Genetics	3.0
• BIOL 3515 Advanced Genetics Laboratory	2.0
• BIOL 3550 Molecular Biology	3.0
• BIOL 3555 Experiments in Molecular Biology	1.0
• BIOL 3600 Biological Chemistry	3.0
• BIOL 3605 Biochemistry Laboratory	1.0
• BIOL 4550 Molecular Evolution and Bioinformatics	3.0
• BTEC 481R Biotechnology Internship (1.0)	5.0
• BTEC 481R Biotechnology Internship (1.0)	5.0
or BIOL 489R Student Research (1.0)	
and BIOL 499R Senior Thesis (1.0)	
• MICR 2060 Microbiology for Health Professions	4.0
• MATH 2040 Principles of Statistics	4.0
• PHYS 2010 College Physics I	4.0
• PHYS 2015 College Physics I Lab	1.0
• PHYS 2020 College Physics II	4.0
• PHYS 2025 College Physics II Lab	1.0
• CHEM 1215 Principles of Chemistry I Laboratory	1.0
• CHEM 1225 Principles of Chemistry II Laboratory	1.0
• CHEM 2310 Organic Chemistry I	4.0
• CHEM 2315 Organic Chemistry I Laboratory	1.0
• CHEM 2320 Organic Chemistry II	4.0
• CHEM 2325 Organic Chemistry II Laboratory	1.0
• BTEC 1010 Fundamentals of Biotechnology I Career Survey	3.0
• BTEC 2010 DNA Manipulation and Analysis	3.0
• BTEC 2020 Protein Purification and Analysis	2.0
• BTEC 2030 Cell Culture Techniques	3.0

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- BTEC 2040 Advanced Nucleic Acid Laboratory 3.0

Elective Requirements: 10 Credits

- Additional credits to meet credit and upper-division 10.0 requirements.

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 course.
- 5 Achieve a minimum overall GPA of 2.0 with a minimum GPA of 2.25 in core courses.
- 6 Students completing a bachelor degree following the 2008 or later catalog must complete one course that meets the Global/Intercultural Requirement, indicated by a course number ending in G. For a complete listing, see page 25.

Minor in Biology 21 CREDITS

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 4.0
- BIOL 1615 College Biology I Laboratory 1.0
- BIOL 1620 College Biology II 3.0
- BIOL 1625 College Biology II Laboratory 1.0
- Complete 12 upper-division credits from any BIOL, BOT, MICR, or ZOOLOG courses with a grade of C- or higher in each. BIOL 495R, BIOL 489R, BIOL 499R, ZOOLOG 3080, or ZOOLOG 4080 cannot be used to meet this requirement.

BA/BS in Integrated Studies 123 CREDITS

The following Integrated Studies Emphasis is available (see the Integrated Studies section of this catalog for complete degree requirement listings.)

Emphasis in Biology 18 Credits

Emphasis Requirements: 18 Credits

Biology Emphasis

Prerequisites (see Advisor):

- BIOL 1610 College Biology I (4.0)
- BIOL 1615 College Biology I Laboratory (1.0)
- CHEM 1110 Elementary Chemistry for the Health Sciences (recommended) (4.0)

Complete the following:

- BIOL 1620 College Biology II 3.0
- BIOL 1625 College Biology II Laboratory 1.0
- BIOL 4500 Principles of Evolution 3.0
- Complete 11 credits (minimum of 9 credits must be upper-division) from any BIOL, BOT, MICR, or ZOOLOG courses except BIOL 1010, ZOOLOG 1090, BIOL 494R, BIOL 489R, BIOL 495R, or BIOL 499R. 11.0

USU/UVU HORTICULTURE PROGRAM

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The USU/UVU Horticulture Program is a partnership between Utah State University and Utah Valley University. Currently USU offers classes at UVU for a 1-year certificate and an Associate in Applied Science degree (AAS) in Horticulture (the degrees are awarded by Utah State University). For full program description, see the Degree Partnerships section of this catalog.

See Course Descriptions section of the catalog for detailed course information. This department manages the following course prefixes:

- BIOL, Biology
- BOT, Botany
- BTEC, Biotechnology
- MICR, Microbiology
- ZOOLOG, Zoology