

# Biology Education, B.S.

Students interested in becoming a biology teacher in a 7th-12th grade setting must complete an accredited program which includes a baccalaureate degree and pass a licensure assessment. Students that successfully complete both the UVU professional teacher education program and meet licensure requirements will receive a baccalaureate in science degree in Biology Education and a Level two endorsement in Biology. This will allow them to teach Biology in 9th-12th grade as well as middle school science in 7th and 8th grade.

## Matriculation Requirements

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

1. ENGL and MATH QL courses must have a grade C or higher.
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 70% of content area courses.
4. Pass LiveScan Criminal Background Check.

## Program Requirements

Code	Title	Credit Hours
<b>Total Credit Hours</b>		<b>121</b>
<b>General Education Requirements</b>		<b>38 Credits</b>
ENGL 1010 or ENGH 1005	Introduction to Academic Writing CC Literacies and Composition Across Contexts CC	3
ENGL 2010	Intermediate Academic Writing CC	3
MATH 1050 or MATH 1055	College Algebra QL College Algebra with Preliminaries QL	4
Complete one of the following:		3
HIST 2700 & HIST 2710	US History to 1877 AS and US History since 1877 AS (6)	
HIST 1700	American Civilization AS (3)	
HIST 1740	US Economic History AS (3)	
POLS 1000	American Heritage AS (3)	
POLS 1100	American National Government AS (3)	
Complete the following:		
PHIL 2050 or PHIL 205G	Ethics and Values IH Ethics and Values IH GI	3
HLTH 1100 or EXSC 1097	Personal Health and Wellness TE Fitness for Life TE	2
Distribution Courses:		
BIOL 1610	College Biology I BB	4
CHEM 1110	Elementary Chemistry for the Health Sciences PP	4
PHYS 1010	Elementary Physics PP	3
Humanities Distribution		3
Fine Arts Distribution		3
Social/Behavioral Science Distribution		3
<b>Discipline Core Requirements</b>		<b>83 Credits</b>
BIOL 1615	College Biology I Laboratory	1
BIOL 1620 & BIOL 1625	College Biology II and College Biology II Laboratory	4
Complete one of the following series:		4
MICR 2060 & MICR 2065	Microbiology for Health Professions BB and Microbiology for Health Professions Laboratory (4)	

BIOL 3400 & BIOL 3405	Cell Biology and Cell Biology Laboratory (4)	
Take one of the following series:		4
ZOOL 3100 & ZOOL 3105	Vertebrate Zoology and Vertebrate Zoology Laboratory (4)	
ZOOL 3200 & ZOOL 3205	Invertebrate Zoology and Invertebrate Zoology Laboratory (4)	
ZOOL 2420 & ZOOL 2425	Human Physiology and Human Physiology Laboratory (4)	
ZOOL 2320 & ZOOL 2325	Human Anatomy and Human Anatomy Laboratory (4)	
Complete two of the following:		6
BIOL 2500	Environmental Biology BB (3)	
BIOL 3200	Guided Research Experience (1-3)	
BIOL 3300	Developmental Biology (3)	
BIOL 3800	Conservation Biology (3)	
BIOL 4000	Freshwater Ecology (4)	
BIOL 4300	Bioinformatics and Genome Analysis (4)	
BIOL 4400	Genomics (3)	
BIOL 497R	Biology Colloquium (0.5-1) <sup>Max of 1 credit</sup>	
BIOL 489R	Student Research (1-4) <sup>Max of three credits.</sup>	
BOT 2050	Field Botany BB (3)	
BOT 2400	Plant Kingdom BB (4)	
BOT 2100	Flora of Utah BB (3)	
BOT 3200	Integrated Pest Management (undefined)	
BOT 3500	Mycology (4)	
BOT 3710	Plant Propagation (3)	
BOT 3800	Ethnobotany WE (4)	
BOT 4430	Plant Pathology (3)	
BOT 4300	Native Trees and Shrubs of Utah (3)	
MICR 3150	Microbial Ecology WE (4)	
MICR 4200	Microbiomes WE (3)	
MICR 4300	Pathogenic Microbiology (4)	
MICR 4450	Immunology (3)	
MICR 4500	Virology (3)	
MICR 3200	Emerging and Re Emerging Diseases and Zoonoses (3)	
ZOOL 3300	Herpetology (3)	
ZOOL 3305	Herpetology Laboratory (1)	
ZOOL 3430	Entomology (3)	
ZOOL 3435	Entomology Laboratory (1)	
ZOOL 3500	Mammalogy (3)	
ZOOL 3505	Mammalogy Laboratory (1)	
ZOOL 4000	Animal Behavior (3)	
ZOOL 4100	Parasitology (4)	
ZOOL 4300	Histology (4)	
ZOOL 4500	Comparative Vertebrate Zoology (3)	
ZOOL 4505	Comparative Vertebrate Zoology Laboratory (1)	
ZOOL 4600	Ornithology (4)	
ZOOL 4780	Neuroscience (4)	
SCIE 2400	Measurement and Analysis for Science Teachers	3
BIOL 3500	Genetics	3
BIOL 3550	Molecular Biology	3
BIOL 3700	General Ecology	3

BIOL 4500	Principles of Evolution WE	3
BIOL 4940	Student Seminar WE	2
BOT 3340	Plant Biology	4
SCIE 4210	Science Teaching Methods I	3
SCIE 4220	Teaching Methods in Science II	3
CHEM 1115	Elementary Chemistry Laboratory	1
GEO 1010 & GEO 1015	Introduction to Geology PP and Introduction to Geology Laboratory	4
Education Courses: <sup>1</sup>		
EDSC 1010	Introduction to Education	2
EDSC 3000	Educational Psychology	3
EDSC 325G	Equitable Technology Integration GI	2
EDSP 340G	Exceptional Students GI	2
EDSC 4200	Classroom Management I	2
EDSC 4250	Classroom Management II	2
EDSC 445G	Multicultural and Multilingual Education	3
EDSC 4440	Content Area Literacies	3
EDSC 455G	Secondary Curriculum Instruction and Assessment GI	3
EDSC 4850	Student Teaching Secondary	8
EDSC 4990	Teacher Assessment Project	2

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

## Graduation Requirements

1. Complete the required minimum 121 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 ZOOL 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.
9. Successful completion of at least two Writing Enriched courses.

## Graduation Plan

This graduation plan is a sample plan and is intended to be a guide. Your specific plan may differ based on your Math and English placement and/or transfer credits applied. You are encouraged to meet with an advisor and set up an individualized graduation plan in Wolverine Track (<http://www.uvu.edu/wolverinetrack/>).

### First Year

Semester 1		Credit Hours
BIOL 1610	College Biology I BB	4
BIOL 1615	College Biology I Laboratory	1
ENGL 1010 or ENGH 1005	Introduction to Academic Writing CC or Literacies and Composition Across Contexts CC	3
MATH 1050 or MATH 1055	College Algebra QL or College Algebra with Preliminaries QL	4
American Institutions		3
<b>Credit Hours</b>		<b>15</b>

### Semester 2

ENGL 2010	Intermediate Academic Writing CC	3
PHIL 2050	Ethics and Values IH	3
HLTH 1100 or EXSC 1097	Personal Health and Wellness TE or Fitness for Life TE	2

Fine Arts Distribution		3
BIOL 1620	College Biology II	3
BIOL 1625	College Biology II Laboratory	1
<b>Credit Hours</b>		<b>15</b>
<b>Second Year</b>		
<b>Semester 3</b>		
BIOL 3700	General Ecology	3
CHEM 1110	Elementary Chemistry for the Health Sciences PP	4
CHEM 1115	Elementary Chemistry Laboratory	1
GEO 1010	Introduction to Geology PP	3
GEO 1015	Introduction to Geology Laboratory	1
PHYS 1010	Elementary Physics PP	3
<b>Credit Hours</b>		<b>15</b>
<b>Semester 4</b>		
ZOOL 2320	Human Anatomy	3
ZOOL 2325	Human Anatomy Laboratory	1
Complete one of the following Combinations:		4
MICR 2060 and MICR 2065 OR		
BIOL 3400 and BIOL 3405		
SCIE 2400	Measurement and Analysis for Science Teachers	3
BIOL 3550	Molecular Biology	3
Complete one of the following:		3
BOT 2050	Field Botany BB	
BOT 2100	Flora of Utah BB	
BOT 4300	Native Trees and Shrubs of Utah	
<b>Credit Hours</b>		<b>17</b>
<b>Third Year</b>		
<b>Semester 5</b>		
BOT 3340	Plant Biology	4
Humanities Distribution		3
Social/Behavioral Science Distribution		3
BIOL 3500	Genetics	3
<b>Credit Hours</b>		<b>13</b>
<b>Semester 6</b>		
EDSC 1010	Introduction to Education	2
BIOL 4940	Student Seminar WE	2
EDSC 325G	Equitable Technology Integration GI	2
BIOL 4500	Principles of Evolution WE	3
SCIE 4210	Science Teaching Methods I	3
<b>Credit Hours</b>		<b>12</b>
<b>Fourth Year</b>		
<b>Semester 7</b>		
SCIE 4220	Teaching Methods in Science II	3
EDSC 3000	Educational Psychology	3
EDSC 4440	Content Area Literacies	3
EDSC 445G	Multicultural and Multilingual Education	3
EDSC 455G	Secondary Curriculum Instruction and Assessment GI	3
EDSC 4200	Classroom Management I	2
<b>Credit Hours</b>		<b>17</b>
<b>Semester 8</b>		
EDSC 4250	Classroom Management II	2
EDSC 4850	Student Teaching Secondary	8
EDSC 4990	Teacher Assessment Project	2
EDSP 340G	Exceptional Students GI	2
MICR 4500	Virology	3
<b>Credit Hours</b>		<b>17</b>
<b>Total Credit Hours</b>		<b>121</b>

## Program Learning Outcomes

1. Apply the process of science through the use of hypothesis testing in the design and completion of scientific experiments.
2. Critically evaluate scientific and educational information to make educational decisions.
3. Quantitatively analyze educational data through graph interpretation, statistical analysis, and problem solving.
4. Effectively communicate scientific information in both written and oral formats as is appropriate for a 7-12th grade classroom.
5. Explain fundamental biological concepts including cell biology, genetics, evolution, ecological principles, organismal biology, and biodiversity.
6. Apply scientific concepts to everyday life in a way that is relevant to 7-12th grade students.