

# BS in Biological Science Education (282024) MAP Sheet

## Life Sciences, Biology

For students entering the degree program during the 2017-2018 curricular year.

This major is designed to prepare students to teach in public schools. In order to graduate with this major, students are required to complete Utah State Office of Education licensing requirements. To view these requirements go to <http://education.byu.edu/ess/licensing.html> or contact Education Student Services, 350 MCKB, (801) 422-3426.



University Core and Graduation Requirements				Suggested Sequence of Courses			
<b>University Core Requirements:</b>				<b>FRESHMAN YEAR</b>			
<b>Requirements</b>	<b>#Classes</b>	<b>Hours</b>	<b>Classes</b>	<b>1st Semester</b>		<b>JUNIOR YEAR</b>	
<b>Religion Cornerstones</b>				First-year Writing or American Heritage		<b>5th Semester</b>	
Teachings and Doctrine of The Book of Mormon	1	2.0	REL A 275	BIO 130	3.0	BIO 380	4.0
Jesus Christ and the Everlasting Gospel	1	2.0	REL A 250	CHEM 105	4.0	BIO 441	3.0
Foundations of the Restoration	1	2.0	REL C 225	Quantitative Reasoning (if needed)	0-3.0	STAT 121	3.0
The Eternal Family	1	2.0	REL C 200	Religion Cornerstone course	2.0	IP&T 286	1.0
<b>The Individual and Society</b>				<b>Total Hours</b>		Religion elective	
American Heritage	1-2	3-6.0	from approved list	<b>13-16.0</b>		General electives	2.0
Global and Cultural Awareness	1	2.0	SC ED 353*	<b>2nd Semester</b>		<b>Total Hours</b>	
<b>Skills</b>				A HTG 100 or 1st Year Writing	3.0	<b>15.0</b>	
First Year Writing	1	3.0	from approved list	BIO 220	4.0	<b>6th Semester</b>	
Advanced Written and Oral Communications	1	3.0	from approved list	BIO 230	4.0	BIO 470	3.0
Quantitative Reasoning	1	3-4.0	from approved list	GEOL 101	3.0	PWS 340	3.0
Languages of Learning (Math or Language)	1	3.0	STAT 121*	Religion Cornerstone course	2.0	Adv. Written & Oral Communication	3.0
<b>Arts, Letters, and Sciences</b>				<b>Total Hours</b>		Religion elective	
Civilization 1	1	3.0	from approved list	<b>16.0</b>		Arts or Letters elective	3.0
Civilization 2	1	3.0	from approved list	Application for Bio 276 due by Aug 15.		<b>Total Hours</b>	
Arts	1	3.0	from approved list			<b>14.0</b>	
Letters	1	3.0	from approved list	Student teaching application due Sept. 15.			
Biological Science	1	4.0	BIO 130*	<b>SOPHOMORE YEAR</b>			
Physical Science	2	7.0	CHEM 105*, PHSCS 105*	<b>3rd Semester</b>		<b>SENIOR YEAR</b>	
<b>Social Science</b>				BIO 276 (F-1st term)	3.0	<b>7th Semester</b>	
Social Science	1	3.0	from approved list	SC ED 350 (F-2nd term)	2.0	BIO 377, 378, 379	5.0
<b>Core Enrichment: Electives</b>				BIO 235	3.0	BIO 420, 421	3.0
Religion Electives	3-4	6.0	from approved list	PHSCS 105	3.0	Arts or Letters elective	3.0
Open Electives	Variable	Variable	personal choice	Civilization 1 elective	3.0	Religion elective	2.0
				Religion Cornerstone course	2.0	Social Science elective	3.0
				<b>Total Hours</b>		<b>Total Hours</b>	
				<b>16.0</b>		<b>16.0</b>	
				<b>4th Semester</b>		<b>8th Semester</b>	
				BIO 350	3.0	BIO 476	12
				MMBIO 240	3.0	<b>Total Hours</b>	
				CPSE 402	2.0		
				SC ED 353	2.0		
				Civilization 2 elective	3.0		
				Religion cornerstone course	2.0		
				<b>Total Hours</b>			
				<b>15.0</b>			
<b>Graduation Requirements:</b>				*Note: CPSE 402, Sc Ed 350, 353 may be taken in any sequence.			
Minimum residence hours required		30.0		Note: This degree program requires a minimum of 120 hours for graduation. Students are encouraged to complete an average of 15 credit hours each semester or 30 credit hours each year, which could include spring and/or summer terms. Taking fewer credits substantially increases the cost and the number of semesters to graduate.			
Minimum hours needed to graduate		120.0					

## BS in Biological Science Education (282024) 2017-2018 Program Requirements (79 Credit Hours)

This major is designed to prepare students to teach in public schools. In order to graduate with this major, students are required to complete Utah State Office of Education licensing requirements. To view these requirements go to <http://education.byu.edu/ess/licensing.html> or contact Education Student Services, 120 MCKB, (801) 422-3426.

**For students accepted into the major after August 1, 2014, grades below C in any required coursework in a teaching major or teaching minor will not be accepted. Teacher candidates must maintain a total GPA of 3.0 or higher throughout the program and to qualify for student teaching. For details on admission and retention requirements for teaching majors and teaching minors, see Educator Preparation Program (EPP) Requirements in the Undergraduate Catalog.**

**Students wishing to enter the Biological Science Education (BSE) program must declare the premajor, complete Bio 130, Bio 220, Chem 105, and Bio 276, and meet and maintain minimum GPA requirements of 2.85 in the major and 3.0 cumulative, prior to making application via myLink. Students obtaining a teaching minor must also student teach at least one period in the minor, when available.**

**REQUIREMENT 1** Complete 8 courses

**BIOLOGY CORE. NOTE: BIO 420, 421 MUST BE TAKEN AT BYU.**

*BIO 130 - Biology	4.0
BIO 220 - Biological Diversity: Animals	4.0
BIO 230 - Biological Diversity: Plants	4.0
BIO 350 - Ecology	3.0
BIO 420 - Evolutionary Biology	2.0
BIO 421 - Evolutionary Biology Laboratory	1.0
MMBIO 240 - Molecular Biology	3.0
PWS 340 - Genetics	3.0

**REQUIREMENT 2** Complete 7 courses

BIO 235 - Field Botany	3.0
BIO 380 - Comparative Animal Physiology and Anatomy	4.0
BIO 441 - Entomology	3.0
*CHEM 105 - General College Chemistry 1 with Lab (Integrated)	4.0
GEOL 101 - Introduction to Geology	3.0
*PHSCS 105 - General Physics 1	3.0
*STAT 121 - Principles of Statistics	3.0

**REQUIREMENT 3** Complete 1 course

BIO 470 - History and Philosophy of Biology	3.0
PHIL 423R - History and Philosophy of Science	3.0

**REQUIREMENT 4** Complete 2 options

**PROFESSIONAL EDUCATION COMPONENT:**

**Licensure requirements: Contact the Education Advisement Center, 120 MCKB, 422-3426, to schedule the final interview to clear your application for the secondary teaching license. You should be registered for your last semester at BYU prior to the scheduled appointment.**

**OPTION 4.1** Complete 10 courses

BIO 276 - Exploration of Teaching in Biological Sciences	3.0
BIO 377 - Teaching Methods and Instruction in Biology	3.0
BIO 378 - Practicum in Biology Teaching	1.0
BIO 379 - Classroom Management and Laboratory Safety	1.0
CPSE 402 - Educating Students with Disabilities in Secondary Classroom	2.0
IP&T 371 - Integrating K-12 Educational Technology 1	1.0
IP&T 372 - Integrating K-12 Educational Technology 2	1.0
IP&T 373 - Teaching in K-12 Online and Blended Learning Contexts	1.0
SC ED 350 - Adolescent Development in an Education Context	2.0
*SC ED 353 - Multicultural Education for Secondary Education	2.0

**Note 1: Application on mylink.byu.edu, including FBI fingerprint and background clearance, must be completed prior to enrollment in Bio 276.**

**Note 2: Bio 377, 378, and 379 should be taken concurrently in the semester prior to taking Bio 476.**

**Note 3: Most states require the Biology Praxis Exam for employment in High School and the Middle Level Praxis Exam for teaching in grades 6-8.**

**OPTION 4.2** Complete 12.0 hours from the following course(s)

BIO 476 - Biology Student Teaching	12.0
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**Student teachers/interns must complete three forms in their LiveText accounts (PIBS, CDS, FED) and attach their TWS to the LiveText account for their program. All four must be completed to be cleared for graduation.**

**RECOMMENDED** Complete 12 courses

**ALTHOUGH NOT REQUIRED, THESE COURSES ARE RECOMMENDED.**

BIO 430 - Plant Classification and Identification	4.0
BIO 443 - Ichthyology	3.0
BIO 445 - Herpetology	4.0
BIO 446 - (Bio - PWS) Ornithology	3.0
BIO 447 - Mammalogy	3.0
BIO 452 - Marine Biology	4.0
BIO 463 - Genetics of Human Disease	3.0
GEOL 103 - Life of the Past	3.0
GEOL 112 - Historical Geology	4.0
MATH 112 - Calculus 1	4.0
PWS 282 - Soil Science	3.0
PWS 283 - Soil Science Laboratory	1.0

### THE DISCIPLINE:

Biology teachers can help students in public schools catch a vision of the exciting future in biology. Students study both the discipline of biology and the techniques of science education. Teaching junior and senior high school students about the broad areas of biology requires an understanding of botany, molecular biology and zoology. Biology teachers must have exposure and limited expertise in chemistry, physics, mathematics and geology. Biology teachers also must understand how to plan and carry out lab investigations, field trips and multi disciplinary activities that bring junior and senior high school students into the study of biology. Their role is to help students see the inter- relationships among science, society, and technology and the resulting bioethical concerns.

### STUDENT TEACHING AND INTERNSHIPS:

Student teaching is normally completed during the senior year and must occur within the state of Utah. Some half-salary teaching internships are available annually. The intern experience counts for student-teaching credit. Applications for winter student teaching are due Sept. 15.

### APPLICATION TO PROGRAM:

Admission to teaching program is by application. All candidates must be declared Biological Science Education majors prior to application. All students are required to have a minimum GPA of 3.0 with no grade lower than a C in any required class. The following classes must be taken: Bio 130, Bio 220, Bio 230, and Chem 105. Application is found at mylink.byu.edu.

### FINANCING:

Many undergraduate students work about 20 hours per week. Upper-class students may work as assistants in the science education teaching and research programs. These assistantships are only available after students have successfully completed Bio 276.

### CAREERS:

This major prepares students specifically for teaching life sciences

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in public schools. At the high school level this could include general biology, anatomy, physiology, botany, zoology, AP biology and many other life science subjects. At the junior high school level this could include life science and general science. Many teachers have summer jobs in fields related to biology teaching. This includes work with the Forest Service, Wildlife Division, Park Service, city summer recreation programs, etc.

### **FACILITIES:**

Science education facilities at BYU include a science education laboratory and teaching area.

Other facilities include microteaching laboratories with complete videotaping equipment and a learning resource center housing a variety of science education materials.

### **MAP DISCLAIMER**

While every reasonable effort is made to ensure accuracy, there are some student populations that could have exceptions to listed requirements. Please refer to the university catalog and your college advisement center/department for complete guidelines.

### **DEPARTMENT INFORMATION**

#### **Department of Biology**

Brigham Young University  
4101 Life Sciences Building  
Provo, UT 84602  
Telephone: (801) 422-2582

### **ADVISEMENT CENTER INFORMATION**

#### **Life Science Student Services**

Brigham Young University  
2060 Life Sciences Building  
Provo, UT 84602  
Telephone: (801) 422-3042