



BS in BIOLOGICAL SCIENCE EDUCATION (282024) MAP Sheet

Department of Biology

For students entering the degree program during the 2016–2017 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				PROGRAM REQUIREMENTS (77 total hours, including licensure hours)																																																					
UNIVERSITY CORE REQUIREMENTS				<p>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.</p> <p>Complete the following biology core courses:</p> <table border="0"> <tr><td>Bio 130*</td><td>Biology</td><td>4.0</td></tr> <tr><td>Bio 220</td><td>Biological Diversity: Animals</td><td>4.0</td></tr> <tr><td>Bio 230</td><td>Biological Diversity: Plants</td><td>4.0</td></tr> <tr><td>Bio 350</td><td>Ecology</td><td>3.0</td></tr> <tr><td>Bio 420</td><td>Evolutionary Biology</td><td>2.0</td></tr> <tr><td>Bio 421</td><td>Evolutionary Biology Laboratory</td><td>1.0</td></tr> <tr><td>MMBio 240</td><td>Molecular Biology</td><td>3.0</td></tr> <tr><td>PWS 340</td><td>Genetics</td><td>3.0</td></tr> </table> <p>Note: Bio 420, 421 must be taken at BYU.</p> <p>Complete the following:</p> <table border="0"> <tr><td>Bio 235</td><td>Field Botany</td><td>3.0</td></tr> <tr><td>Bio 380</td><td>Comparative Animal Phys. & Anat.</td><td>4.0</td></tr> <tr><td>Bio 441</td><td>Entomology</td><td>3.0</td></tr> <tr><td>Chem 105*</td><td>General College Chemistry</td><td>4.0</td></tr> <tr><td>Geol 101</td><td>Introduction to Geology</td><td>3.0</td></tr> <tr><td>Phscs 105*</td><td>General Physics 1</td><td>3.0</td></tr> <tr><td>Stat 121*</td><td>Principles of Statistics</td><td>3.0</td></tr> </table> <p>Complete one course from the following:</p> <table border="0"> <tr><td>Bio 470</td><td>History & Philosophy of Biology</td><td>3.0</td></tr> <tr><td>Phil 423R</td><td>History & Philosophy of Science</td><td>3.0</td></tr> </table>			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	Bio 235	Field Botany	3.0	Bio 380	Comparative Animal Phys. & Anat.	4.0	Bio 441	Entomology	3.0	Chem 105*	General College Chemistry	4.0	Geol 101	Introduction to Geology	3.0	Phscs 105*	General Physics 1	3.0	Stat 121*	Principles of Statistics	3.0	Bio 470	History & Philosophy of Biology	3.0	Phil 423R	History & Philosophy of Science	3.0
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Requirements	#Classes	Hours	Classes	<p>Licensure Requirements: Contact the Education Advisement Center, 350 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.</p> <p>Complete the following:</p> <table border="0"> <tr><td>Bio 276</td><td>Exploration of Teaching in Biological Sci.</td><td>3.0</td></tr> <tr><td>Bio 377</td><td>Teaching Methods / Instruction in Biology</td><td>3.0</td></tr> <tr><td>Bio 378</td><td>Practicum in Biology Teaching</td><td>1.0</td></tr> <tr><td>Bio 379</td><td>Classroom Management & Lab Safety</td><td>1.0</td></tr> <tr><td>CPSE 402</td><td>Educating Students with Disabilities</td><td>2.0</td></tr> <tr><td>IP&T 286</td><td>Instructional Technology in Teaching</td><td>1.0</td></tr> <tr><td>Sc Ed 350</td><td>Adolescent Developmt. in Educ. Context</td><td>2.0</td></tr> <tr><td>Sc Ed 353*</td><td>Multicultural Education</td><td>2.0</td></tr> </table> <p>Note 1: Application on mylink.byu.edu, including FBI fingerprint and background clearance, must be completed before enrollment in Bio 276.</p> <p>Note 2: Bio 377, 378, and 379 should be taken concurrently in the semester prior to taking Bio 476.</p> <p>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.</p> <p>Complete 12 hours from the following:</p> <table border="0"> <tr><td>Bio 476</td><td>Secondary Student-Teaching</td><td>12.0</td></tr> </table> <p>Recommended Courses Bio 430, 443, 445, 446, 447, 452, 463. Geol 103, 112. Math 112. PWS 282, 283.</p>			Bio 276	Exploration of Teaching in Biological Sci.	3.0	Bio 377	Teaching Methods / Instruction in Biology	3.0	Bio 378	Practicum in Biology Teaching	1.0	Bio 379	Classroom Management & Lab Safety	1.0	CPSE 402	Educating Students with Disabilities	2.0	IP&T 286	Instructional Technology in Teaching	1.0	Sc Ed 350	Adolescent Developmt. in Educ. Context	2.0	Sc Ed 353*	Multicultural Education	2.0	Bio 476	Secondary Student-Teaching	12.0																								
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Religion Cornerstones																																																									
Teachings & Doctrine, Book of Mormon	1	2.0	Rel A 275																																																						
Jesus Christ & the Everlasting Gospel	1	2.0	Rel A 250																																																						
Foundations of the Restoration	1	2.0	Rel C 225																																																						
The Eternal Family	1	2.0	Rel C 200																																																						
The Individual and Society																																																									
Citizenship																																																									
American Heritage	1–2	3–6.0	from approved list																																																						
Global & Cultural Awareness	1	2.0	Sc Ed 353*																																																						
Skills																																																									
Effective Communication																																																									
First-Year Writing	1	3.0	from approved list																																																						
Adv Written & Oral Communication	1	3.0	Engl 316 recommended																																																						
Quantitative Reasoning	0–1	0–3.0	from approved list																																																						
Languages of Learning (Math or Language)	1	3.0	Stat 121*																																																						
Arts, Letters, and Sciences																																																									
Civilization 1 and 2	2	6.0	from approved list																																																						
Arts	1	3.0	from approved list																																																						
Letters	1	3.0	from approved list																																																						
Scientific Principles & Reasoning																																																									
Biological Science	1	4.0	Bio 130*																																																						
Physical Science	2	7.0	Chem 105*, Phscs 105*																																																						
Social Science	1	3.0	from approved list																																																						
Core Enrichment: Electives																																																									
Religion Electives	3–4	6.0	from approved list																																																						
Open Electives	Variable	Variable	personal choice																																																						
GRADUATION REQUIREMENTS:																																																									
Minimum residence hours required		30.0																																																							
Minimum hours needed to graduate		120.0																																																							

FOR UNIVERSITY CORE QUESTIONS CONTACT THE ADVISEMENT CENTER ◆ FOR PROGRAM QUESTIONS SEE YOUR FACULTY ADVISOR

*THESE CLASSES FILL BOTH UNIVERSITY CORE AND PROGRAM REQUIREMENTS (16 hours overlap)

BS in BIOLOGICAL SCIENCE EDUCATION (282024)

2016–2017

Suggested Sequence of Courses:

FRESHMAN YEAR

<u>1st Semester</u>	
Bio 130 (FW) (Biological Science)	4.0
Chem 105	4.0
First-Year Writing	3.0
or A Htg 100	(3.0)
Quantitative Reasoning (if needed)	0–3.0
Religion Cornerstone course	2.0
Total Hours	13–16.0

2nd Semester

Bio 220 (FW)	4.0
Bio 230 (FW)	4.0
Geol 101 (FWSpSu)	3.0
A Htg 100 (FWSpSu)	3.0
or First-Year Writing	(3.0)
Religion Cornerstone course	2.0
Total Hours	16.0

Application for Bio 276 due by Aug 15.

SOPHOMORE YEAR

<u>3rd Semester</u>	
Bio 276 (F-1st term)	3.0
Sc Ed 350 (F-2nd term)	2.0
Bio 235 (Fsp)	3.0
Phscs 105 (FWSp) (Physical Science)	3.0
Civilization 1 elective	3.0
Religion Cornerstone course	2.0
Total Hours	16.0

4th Semester

Bio 350 (FW)	3.0
MMBio 240 (FWSp)	3.0
CPSE 402 (FWSpSu-term)	2.0
Sc Ed 353 (FWSpSu, term)	2.0
Civilization 2 elective	3.0
Religion Cornerstone course	2.0
Total Hours	15.0

***Note:** CPSE 402, Sc Ed 350, 353 may be taken in any sequence.

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.

JUNIOR YEAR

<u>5th Semester</u>	
Bio 380 (F)	4.0
Bio 441 (FSp)	3.0
Stat 121	3.0
IP&T 286	1.0
Religion elective	2.0
General electives	2.0
Total Hours	15.0

6th Semester

Bio 470 (W)	3.0
PWS 340 (FW)	3.0
Adv. Written & Oral Communication	3.0
Religion elective	2.0
Arts or Letters elective	3.0
Total Hours	14.0

Student teaching application due Sept. 15.

SENIOR YEAR

<u>7th Semester</u>	
Bio 377, 378, 379 (F)	5.0
Bio 420, 421 (FWSp)	3.0
Arts or Letters elective	3.0
Religion elective	2.0
Social Science elective	3.0
Total Hours	16.0

8th Semester

Bio 476 (W)	12.0
Total Hours	12.0

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 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.

Department of Biology
4102 Life Sciences Building
Brigham Young University, Provo, UT 84602
Telephone: (801) 422-2582