



Biological Science - Composite Teaching Major

Updated June, 2018

Effective Fall 2018 Semester

Admission Requirements for the Biological Science - Composite Teaching Major

New freshmen admitted to USU in good standing qualify for admission to this major. A cumulative 3.0 GPA, ACT scores of 21 composite and 20 verbal/English and 19 mathematics/quantitative and 60 credits of coursework are required for admission to the Secondary Teacher Education Program (STEP). Students should contact the School of Teacher Education and Leadership (TEAL) for information on additional admission criteria.

Transfer students from other institutions or other USU majors need a cumulative 3.0 GPA, ACT scores of 21 composite and 20 verbal/English and 19 mathematics/quantitative to be admitted to the major. They also need 60 credits of coursework to be admitted to the STEP.

The Program

A bachelor's degree in the Biological Science - Composite Teaching Major includes coursework fulfilling the University Studies requirements as well as courses required by the College of Science; the Biological Science - Composite Teaching Major; and the Secondary Teacher Education Program (STEP). Students majoring in the Biological Science - Composite Teaching Major will complete courses which provide an in-depth understanding of biological principles. These include ecology, genetics, areas of plant and animal biology, microbiology, and physiology. Additional coursework is designed to develop analytical and applicable skills in such areas as mathematics, chemistry, and physics. In addition to the academic areas of study, the program provides the student with a thorough background in the latest and most effective teaching methods and resources.

The Biological Science - Composite Teaching Major program is fully accredited by the Utah State Office of Education.

Career Opportunities

Through the bachelor's degree program in the Biological Science - Composite Teaching Major, students are prepared for public school teaching at the secondary level. Students completing the program are eligible to apply for secondary licensure in the State of Utah. Utah also has reciprocal agreements with many other states.

Students desiring licensure to teach more than biology should consider completing a teaching minor in an area such as chemistry.

Academic Advisement

All Biological Science - Composite Teaching Major students should contact both their major advisor (Dr. Richard Mueller, Eccles Science Learning Center 245L, (435) 797-2479) and the Secondary Education Program undergraduate advisor on a regular basis for assistance with course selection, program planning, and meeting graduation requirements.

Graduation Requirements

Candidates for the **Bachelor of Science Degree** or **Bachelor of Arts Degree** with a Biological Science - Composite Teaching Major must meet all of the minimum requirements for the University, College of Science, and Department of Biology. In addition to the requirements listed on this sheet, a **BA Degree** candidate must receive foreign language training. All candidates for BS and BA degrees should refer to the [General Catalog](#) for more detailed information on degree requirements.

Minimum University Requirements

Total Credits.....	120
Grade point average*.....	2.00 GPA
Credits of C- or better.....	100
Credits of upper-division courses (3000 or above).....	40
USU Credits (20 must be upper division, including 10 required by the major).....	30
Completion of approved major program of study.....	
Credits in American Institutions.....	3
University Studies Requirements.....	

*The Biological Science - Composite Teaching Major requires a 3.0 minimum GPA

Changes in Graduation/Catalog Requirements

Students who can complete a baccalaureate degree within seven years of enrollment at USU can qualify for graduation by meeting (1) the General Education/University Studies requirements in effect when they initially enrolled and (2) the major requirements in effect when they officially declared their major, even though there may have been changes in the University Studies and major requirements since that time.

Students who have not completed the baccalaureate requirements within seven years of their initial enrollment at USU must have their University Studies and major requirements evaluated and approved by their department head and dean.

Grade Requirements for Teaching Majors

For all science and mathematics teaching majors declared after Jan 1, 2015 the following new requirements must be met.

A grade of C or better in all letter graded STEP program courses.

A grade of C or better in all content courses in the major located in the home department. For example for biology teaching majors this would include Biol prefix courses but not Chem or Phys.

Note these are in addition to the 3.0 cumulative GPA and minimum ACT scores (19 mathematics, 20 English and 21 composite).

Undergraduate Course Expiration Policy

Coursework (including transfer credit) that is more than 10 years old that is required by the major may be disallowed by the student's department. Students will have an opportunity to revalidate coursework that is disallowed.

University Studies Requirements for the Biological Science - Composite Teaching Major

Approved University Studies courses and requirements are listed at <http://www.catalog.usu.edu>.

General Education Requirements

Competency Requirements

Communications Literacy (CL1 and CL2)

ENGL 1010 (CL1) or satisfactory AP, CLEP, IBO, ACT, or SAT score
ENGL 2010 (CL2) or satisfactory IBO score

Quantitative Literacy (QL)

MATH 1030 or 1050 or STAT 1040

OR

One MATH or STAT course requiring MATH 1050 as a prerequisite

OR

Satisfactory AP, CLEP, IBO, ACT, or SAT score

Breadth Requirements

Select at least one approved course from each of the following six categories: **American Institutions (BAI)**, **Creative Arts (BCA)**, **Humanities (BHU)**, **Life Sciences (BLS)**, **Physical Sciences (BPS)**, and **Social Sciences (BSS)**. (CLEP or AP credit may be used.) The most relevant courses with the USU prefix are: USU 1300 (BAI), 1320 (BHU), 1330 (BCA), and 1340 (BSS).

Note: Students in the Biological Science - Composite Teaching Major complete the Quantitative Literacy Competency with MATH 1210, complete the Life Sciences Breadth Requirement with BIOL 1620 and complete the Physical Sciences Breadth Requirement with required coursework in chemistry, physics, and geology.

Integrated Studies Requirement

Required coursework in chemistry, physics and geology will fulfill the Integrated Studies Requirement for students in the Biological Science - Composite Teaching Major.

Depth Education Requirements

Communications Intensive (CI) (2 courses)

BIOL 5250 and SCED 4200 will meet this requirement

Quantitative Intensive (QI) (1 course)

STAT 3000 will meet this requirement.

Depth Course Requirements (4 credit minimum, including 2 credits in each of the following two depth areas):

Complete at least 2 credits in approved 3000-level or above courses from each of the following two categories: **Humanities and Creative Arts (DHA)** and **Social Sciences (DSS)**. SCED 3210 will fulfill the DSS requirement.

Required Coursework for the Biological Science - Composite Teaching Major

To graduate, a candidate for the Biological Science - Composite Teaching Major must accumulate an overall cumulative GPA of 3.0. The *Pass-Fail* option is not acceptable for any course required for the degree. A minimum grade of C is required for all BIOL prefix and STEP program courses in the major.

All USU teacher education candidates will be required to take and pass the content exam approved by the Utah State Office of Education in their major content area prior to student teaching. They must also take an exam (which they are not required to pass until applying for licensure in the minor area) in any minor or endorsement subject areas prior to student teaching.

Laboratory fees required for some Department of Biology courses are used to purchase expendable laboratory items and other materials required for successful completion of laboratory assignments.

Students who receive a 3 on the AP Biology examinations may fulfill the Breadth Life Science (BLS) requirements plus 3 elective credits. Students who receive a 4 or 5 on the AP Biology examination may fulfill both BIOL 1610 and BIOL 1620 requirement. Either way, you still have to take labs BIOL 1615 and BIOL 1625 in sequence.

Required Coursework for Biological Science - Composite Teaching Major

Required Biology Courses (30) credits	Credits
BIOL 1610 Biology I (F)	3
BIOL 1615 Biology I Laboratory (F).....	1
BIOL 1620 (BLS) Biology II (Sp)	3
BIOL 1625 Biology II Laboratory (Sp).....	1
BIOL 2220 General Ecology (F,Sp).....	3
BIOL 2420 ¹ Human Physiology (F,Sp)	4
BIOL 3060 (QI) Principles of Genetics (F,Sp,Su)	4
BIOL 3065 Genetics Laboratory (F) (Alt. Years, 2018 and 2020)	2
BIOL 3220 (QI) Field Ecology (F)	2
BIOL 3300 General Microbiology (F,Sp).....	4
BIOL 5250 (CI) Evolutionary Biology (F,Sp)	3

Physiology Course with Lab Requirement (4-5 credits)

Students must take from the following list one upper-division physiology course with an integrated or separate laboratory:

Courses with integrated laboratories:	Credits
BIOL 4400 (QI) Plant Physiology (F)	4
BIOL 4600 ¹ Advanced Human Physiology (Sp)	5

Courses with separate lecture and lab; one of the following two lecture courses and BIOL 5610 must be taken to meet the requirement:

BIOL 4450 Neurobiology (Sp) (Alt. Years, 2014 and 2016 (3 cr) or	
BIOL 5600 Comparative Animal Physiology (F) (3 cr).....	3
And	
BIOL 5610 (QI) Animal Physiology Laboratory (F).....	2

Required Physical Science Courses (20-31 credits)

Chemistry Requirement ² (9-17 credits)	
CHEM 1110 (BPS) General Chemistry I (F,Sp).....	4
CHEM 1125 General Chemistry Laboratory (Sp).....	1
CHEM 1120 (BPS) General Chemistry II (Sp).....	4
Or	

CHEM 1210 Principles of Chemistry I (F, Sp, Su).....	4
CHEM 1215 Chemical Principles Laboratory I (F, Sp, Su).....	1
CHEM 1220 (BPS) Principles of Chemistry II (F, Sp, Su).....	4
CHEM 1225 Chemical Principles Laboratory II (F, Sp).....	1
CHEM 2300 Principles of Organic Chemistry (F).....	3
CHEM 2315 Organic Chemistry Laboratory I (F).....	1
CHEM 3700 Introductory Biochemistry (Sp).....	3

Geology Requirement³ (3-4 credits)

GEO 1010 (BPS) Introduction to Geology (F,Su) (3 cr) or	
GEO 1020 Prehistoric Life (USU Eastern only) (F,Sp) (3 cr) or	
GEO 1110/1115 (BPS) The Dynamic Earth: Physical Geology and lab (F,Sp) (3/1 cr)	3-4

Physics Requirement (8-10 credits)

PHYS 2110 General Physics-Life Science I (F) (4cr) and	
PHYS 2120 (BPS) General Physics-Life Sciences II (Sp) (4cr)	8
Or	
PHYS 2210/PHYS 2215 (QI) General Physics-Science and Engineering I and Lab (F,Sp,Su) (4/1cr) and	
PHYS 2220/PHYS 2225 (BPS/QI) General Physics-Science and Engineering II and Lab (F,Sp,Su) (4/1cr).....	10

Mathematics and Statistics Requirement (7 credits)

MATH 1210 (QL) ⁴ Calculus I (F,Sp,Su).....	4
STAT 3000 (QI) Statistics for Scientists (F,Sp,Su)	3

¹Students who complete BIOL 4600 do not need to take BIOL 2420, but are encouraged to take another physiology course to broaden their knowledge.

²To improve employment and career options, the two-year chemistry sequence as shown (CHEM 1210 through CHEM 3700) is highly recommended and will meet the requirements for a Chemistry Teaching Minor.

³Students who complete the coursework for a Chemistry Teaching Minor will not need to take a geology course, but are encouraged to do so to broaden their knowledge. See advisor for details.

⁴Students should be certain that they have the proper background to enroll in MATH 1210. See the *General Catalog* for prerequisites or contact the Department of Mathematics and Statistics.

Note: To begin the admissions process to the STEP, students should see their advisor at least two semesters before they begin Level 1 coursework. STEP admission deadlines are March 1 for fall and October 1 for spring. For details, contact Dr. Richard Mueller, Eccles Science Learning Center 245L.

Required Courses for the Secondary Teacher Education Program (STEP) (37 credits)

Level 1:	Credits
ITLS 5500 Integration and Innovation of Technology in Education (F,Sp)	3
SCED 3100 or 5100 Motivation and Classroom Management (F,Sp)	3
SCED 3210 (CI/DSS) Educational and Multicultural Foundations (F,Sp)	3
SCED 3300 Clinical Experience I (F).....	1
SCED 3400* Teaching Science I (F)	3

Level 2:	
SPED 4000 Education of Exceptional Individuals (may be taken anytime) (F,Sp,Su)	2
SCED 4200 (CI) Language, Literacy and Learning in the Content Areas (F,Sp).	3
SCED 4210 Assessment and Curriculum Design (F,Sp).....	3
SCED 4300 Clinical Experience II (Sp)	1
SCED 4400* Teaching Science II (Sp).....	3

Level 3:	
SCED 5500 Student Teaching Seminar (F,Sp)	2
SCED 5630 Student Teaching in Secondary Schools (F,Sp).....	10

*The Teaching Science I and II courses (SCED 3400 and 4400) are *only* taught once per year. Therefore, it is important for students to consult with their advisor to fit these courses in the correct sequence into their plan of study.

Biological Science – Composite Teaching Major Degree Plan

The suggested schedule shown below should be used in conjunction with the major requirement sheet at: <http://www.usu.edu/majorsheets/>

Students should consult with their advisor to develop a plan of study tailored to their individual needs and interests.

Freshman Year (29 credits)

Fall Semester (14 credits)

BIOL 1610 Biology I.....	3
BIOL 1615 Biology I Laboratory.....	1
CHEM 1110 (BPS) General Chemistry I.....	4
University Studies or MATH ¹ prerequisite courses.....	6

Spring Semester (15 credits)

BIOL 1620 (BLS) Biology II.....	3
BIOL 1625 Biology II Laboratory.....	1
CHEM 1115 General Chemistry Laboratory.....	1
CHEM 1120 (BPS) General Chemistry II.....	4
University Studies or MATH ¹ prerequisite courses.....	6

Sophomore Year (31 credits)

Fall Semester (15 credits)

BIOL 2420 Human Physiology.....	4
BIOL 3060 (QI) Principles of Genetics.....	4
MATH 1210 (QL) Calculus I.....	4
University Studies courses.....	3

Spring Semester (15-16 credits)

BIOL 2220 General Ecology.....	3
GEO 1020 Prehistoric Life (USU Eastern only) or GEO 1110/1115(BPS) The Dynamic Earth: Physical Geology and lab.....	3-4
STAT 3000 (QI) Statistics for Scientists.....	3
University Studies courses.....	6

Junior Year (32-33 credits)

Fall Semester (16-17 credits)

BIOL 3300 General Microbiology.....	4
PHYS 2110 General Physics-Life Sciences I (4 cr) or PHYS 2210/2215 (QI) General Physics-Science and Engineering I with lab (4/1 cr).....	4-5
SCED 3300 Clinical Experience I.....	1
SCED 3400* Teaching Science I.....	3
Upper-division Physiology elective with lab ³	4-5

Spring Semester (17-18 credits)

ITLS 5500 Integration and Innovation of Technology in Education (F,Sp).....	3
PHYS 2120 (BPS) General Physics-Life Sciences II (4 cr) or PHYS 2220/2225 (BPS/QI) General Physics-Science and Engineering II with lab (4/1 cr).....	4-5
SCED 3100 or 5100 Motivation and Classroom Management.....	3
SCED 3210 (CI/DSS) Educational and Multicultural Foundations.....	3
SCED 4300 Clinical Experience II.....	1
SCED 4400* Teaching Science II.....	3

Senior Year (28 credits)

Fall Semester (15 credits)

BIOL 3065 ² Genetics Laboratory (2 cr) or.....	2
BIOL 3220 (QI) Field Ecology.....	2
BIOL 5250 (CI) Evolutionary Biology.....	3
SPED 4000 Education of Exceptional Individuals.....	2
SCED 4200 (CI) Language, Literacy and Learning in the Content Areas (F,Sp).....	3
SCED 4210 Assessment and Curriculum Design (F,Sp).....	3

Spring Semester (12 credits)

SCED 5500 Student Teaching Seminar.....	2
SCED 5630 Student Teaching in Secondary Schools.....	10

¹If students need Math courses prerequisite to MATH 1210 Calculus I, credits in addition to those listed here will be required.

²BIOL 3065 is only offered during alternating years.

³Courses that meet this requirement are also offered during spring semester.

*Students should complete SCED 3300 and 3400 before enrolling in SCED 4300 and 4400. All SCED prefix courses require STEP admission as a prerequisite. For details, students should consult their advisor.

For more information contact

Department of Biology; Biology-Natural Resources 101; Utah State University; 5305 Old Main Hill; Logan UT 84322-5305; tel. (435) 797-2485;
<http://www.biology.usu.edu/>

Or

Secondary Education Program, School of Teacher Education and Leadership (TEAL); Education 385; Utah State University; 2805 Old Main Hill; Logan UT 84322-2805; tel. (435) 797-0385; e-mail teal@usu.edu;
<http://www.teal.usu.edu/htm/seced/>