

## Admission Requirements For This Major

1. New freshmen admitted to USU in good standing qualify for admission to this major. A cumulative 2.75 GPA and 60 credits of coursework are required for admission to the Secondary Teacher Education Program (STEP). Students should contact the Department of Secondary Education for information on additional admission criteria.

2. Transfer students from other institutions or other USU majors need a cumulative 2.75 GPA to be admitted to the major. They also need 60 credits of coursework to be admitted to the STEP. Students should contact the Department of Secondary Education for information on additional admission criteria.

## The Program

A bachelor's degree in the Composite Teaching—Biological Science Major includes: University Studies, as required by the College of Science; the Composite Teaching Major; and the Secondary Teacher Education Program (STEP). Students majoring in the Composite Teaching—Biological Science 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 STEP consists of early field experience and coursework in career development and self-assessment, as well as in basic planning and teaching skills. Coursework reviews the historical, social, and philosophical background of American education, while content area reading and writing, computer literacy, instructional media, a survey of issues in special education, and educational psychology are addressed in other coursework. Methods courses specific to the student's academic area of interest form an integral part of the program, as does the final semester of supervised student teaching in the public schools.

The Composite Teaching—Biological Science Major program is fully accredited by the Utah State Office of Education and the National Council for Accreditation of Teacher Education.

## Career Opportunities

Through the bachelor's degree program in the Composite Teaching—Biological Science 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 who may wish to teach Integrated Science at the middle or junior high school level should talk to their advisor about completing the courses necessary for an Integrated Science endorsement. Students may also wish to take extra classes to complete a regular Biology degree. In many instances, this only requires a moderate addition of required coursework. This could enhance a student's opportunities in nonteaching biology-related fields and postgraduate education. For further information, students should contact Dr. Richard Mueller, ESLC 245G, (435) 797-2479, [rmueller@biology.usu.edu](mailto:rmueller@biology.usu.edu).

## Biology Advising Center

The Department of Biology department head, the director of undergraduate studies, and advisors are available to provide all undergraduate majors with additional information regarding specific programs and career opportunities. The Biology Advising Center and the director of undergraduate studies are located in BNR 101. Additional information and an "Ask an Advisor" e-mail service are on the web at <http://www.biology.usu.edu/>

## Undergraduate Degrees Offered Through This Department

**Biology:** Bachelor of Science (BS), Bachelor of Arts (BA)

Emphases: Biology

Cellular/Molecular

Ecology/Biodiversity

Environmental

**Composite Teaching—Biological Science:** BS, BA

**Public Health:** BS

Emphases: Industrial Hygiene

Environmental Health

Public Health Education

## Graduate Degrees Offered Through This Department

**Biology:** MS and PhD

**Ecology:** MS and PhD

**Toxicology:** MS and PhD

### Academic Advisement

All Composite Teaching—Biological Science Major students should contact both their major advisor (Dr. Richard Mueller, ESLC 245G, (435) 797-2479, [rmueller@biology.usu.edu](mailto:rmueller@biology.usu.edu)) and the Secondary Education undergraduate advisor on a regular basis for assistance with course selection, program planning, and meeting graduation requirements. If students do not know who their advisor is, they should contact their departments, colleges, or the Office of University Advising.

## Graduation Requirements: BS and BA Degrees in Biology

Candidates for the **Bachelor of Science Degree** in the Department of Biology must meet all of the minimum requirements for the University, College of Science, and Department.

Candidates for the **Bachelor of Arts Degree** in the Department of Biology must meet all of the minimum requirements for the University, College of Science, and Department. In addition to the requirements listed on this sheet, a **BA Degree** candidate must receive foreign language training. For further information about the foreign language requirement for a BA degree, see the Utah State University *General Catalog*.

All candidates for BS and BA degrees should refer to the *General Catalog* for more detailed information and review this requirement sheet.

### Minimum University Requirements\*

Total credits . . . . .	120
Grade point average (most majors require higher GPA) . . . . .	2.00 GPA
Credits of C- or better . . . . .	100
Credits of upper-division courses (#3000 or above)** . . . . .	40
USU credits . . . . .	30
(20 of which must be upper division, including 10 required by major)	
Completion of approved major program of study . . . . .	See department
Credits in minor (if required by department) . . . . .	12
Credits in American Institutions (ECON 1500; HIST 1700, 2700, or 2710; POLS 1100; or USU 1300). . . . .	3
University Studies requirements . . . . .	See next page

\*Colleges and departments may require more credits or a higher GPA. See requirements on this sheet.

\*\*Students must accumulate a minimum of 40 upper-division credits by careful selection of courses. The minimum requirements for the major may not automatically meet this requirement.

### Minimum College of Science Requirements

All College requirements are met by completing the Departmental degree requirements; no additional coursework is required.

## 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 General Education/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 General Education/University Studies and major requirements evaluated and approved by their department head and dean.

## Undergraduate Course Expiration Policy

Coursework (including transfer credit) that is more than 10 years old and 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 Composite Teaching—Biological Science Major

Note: Approved University Studies courses and requirements are listed in the back section of each semester's *Schedule of Classes*.

### General Education Requirements (30-34 credits)

#### Competency Requirements (9-10 credits)

##### Communications Literacy (CL1 and CL2) (6 credits)

ENGL 1010 (CL1) (3 credits) or satisfactory AP, CLEP, IBO, ACT, or SAT score

AND

ENGL 2010 (CL2) (3 credits) or satisfactory IBO score

##### Quantitative Literacy (QL) (3-4 credits)<sup>1</sup>

MATH 1030 or 1050 or STAT 1040 (3-4 credits)

OR

One MATH or STAT course requiring MATH 1050 as a prerequisite

OR

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

##### Computer and Information Literacy (0 credits)

Passing grade on six computer and information literacy related examinations.

#### Breadth Requirements (18-20 credits)<sup>1</sup>

Select at least one approved course from each of the following six categories: **American Institutions (BAI)**, **Creative Arts (BCA)**, **Humanities (BHU)**, **Life Sciences (BLS)**<sup>1</sup>, **Physical Sciences (BPS)**<sup>1</sup>, and **Social Sciences (BSS)**. At least two of the six breadth courses must be University Studies courses with a **USU prefix** (excluding USU 1000, 1010, 1100, 3330, 4900, and 6900). (CLEP or AP credit may be used.)

#### Exploration Requirement (3-4 credits)

Choose an additional class from one of the following General Education categories: QL, BAI, BCA, BHU, BLS, BPS, or BSS. GEO 1110 (BPS), in conjunction with CHEM 1120 (BPS), will fulfill the Exploration Requirement for students in the Composite Teaching—Biological Science 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 credits minimum, including 2 credits minimum completed in each of two courses)

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 Social Sciences requirement.

## Required Coursework for Composite Teaching—Biological Science Major

To graduate, a candidate for the Composite Teaching—Biological Science Major must accumulate an overall cumulative GPA of 2.75 and a grade of C- or better in BIOL 1610 and 1620. The *Pass-Fail* option is not acceptable for any course required for the degree, but D grades are permitted within the restrictions of the 2.75 GPA. Students who may wish to teach Integrated Science at the middle or junior high school level should talk to their advisor about completing the courses necessary for an Integrated Science endorsement.

Beginning in 2006, 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) in any minor or endorsement subject areas prior to student teaching.

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

**Note:** Effective Summer Semester 2006, some course numbers changed, due to House Bill 320 (Common Course Numbering). Course numbers used *prior* to Summer Semester 2006 are shown in parentheses, following *formerly*.

#### Required Courses (32 credits)

#### Credits

<input type="checkbox"/> BIOL 1610 Biology I (F). . . . .	4
(formerly BIOL 1210)	
<input type="checkbox"/> BIOL 1620 (BLS) Biology II (Sp). . . . .	4
(formerly BIOL 1220)	
<input type="checkbox"/> BIOL 2220 General Ecology (F,Sp). . . . .	3
<input type="checkbox"/> BIOL 2420 Human Physiology (F,Sp,Su). . . . .	4
(formerly BIOL 2000)	
<input type="checkbox"/> BIOL 3060 (QI) Principles of Genetics (F,Sp,Su). . . . .	4
(formerly BIOL 3200)	
<input type="checkbox"/> BIOL 3065 Genetics Laboratory (F) (Alt. Years) . . . . .	2
(formerly BIOL 4100)	
<input type="checkbox"/> BIOL 3220 (QI) Field Ecology (F) . . . . .	2
<input type="checkbox"/> BIOL 3300 General Microbiology (F,Sp). . . . .	4
<input type="checkbox"/> BIOL 5250 (CI) Evolutionary Biology (F,Sp). . . . .	3
<input type="checkbox"/> SCI 4300 Science in Society (F,Sp) . . . . .	2

#### Physiology Course with Lab Requirement (4-5 credits)

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

Courses with integrated laboratories:	Credits
<input type="checkbox"/> BIOL 4400 (QI) Plant Physiology (F). . . . .	4
<input type="checkbox"/> BIOL 5300 (QI) Microbial Physiology (Sp). . . . .	4

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

<input type="checkbox"/> BIOL 5100 Neurobiology (F) (3 cr) <b>or</b>	
<input type="checkbox"/> BIOL 5600 Comparative Animal Physiology (Sp) (3 cr) <b>or</b>	
<input type="checkbox"/> BIOL 5620 Medical Physiology (F) (3 cr). . . . .	3
And	
<input type="checkbox"/> BIOL 5610 (QI) Animal Physiology Laboratory (F,Sp) . . . . .	2

#### Required Physical Science Courses (21 credits)

<input type="checkbox"/> GEO 1110 (BPS) The Dynamic Earth: Physical Geology (F,Sp). . . . .	4
(formerly GEOL 1150)	
<input type="checkbox"/> CHEM 1110 (BPS) <sup>2</sup> General Chemistry I (F,Sp). . . . .	4
<input type="checkbox"/> CHEM 1115 General Chemistry Laboratory (F,Sp). . . . .	1
(formerly CHEM 1130)	
<input type="checkbox"/> CHEM 1120 (BPS) General Chemistry II (Sp) . . . . .	4
<input type="checkbox"/> PHYS 2110 The Physics of Living Systems I (4 cr) <b>and</b>	
<input type="checkbox"/> PHYS 2120 (BPS) The Physics of Living Systems II (4 cr). . . . .	8
Or	
<input type="checkbox"/> PHYS 2210 (QI) General Physics—	
Science and Engineering I (4 cr) <b>and</b>	
<input type="checkbox"/> PHYS 2220 (BPS/QI) General Physics—Science and	
Engineering II (4 cr) . . . . .	8

<sup>1</sup>Composite Teaching—Biological Science majors complete the Quantitative Literacy Competency with MATH 1210, complete the Physical Sciences Breadth Requirement with GEO 1110, and complete the Life Sciences Breadth Requirement with BIOL 1620.

### Mathematics and Statistics Requirement (7 credits)

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

<sup>2</sup>To improve employment and career options, the full two-year chemistry sequence required of Biology Emphasis Majors is highly recommended. See advisor for details.

<sup>3</sup>Students 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 two semesters before they begin Level 1 coursework. For details, contact Dr. Richard Mueller, ESLC 245G.**

### Required Courses for the Secondary Teacher Education Program (STEP) (35 credits)

Level 1:	Credits
<input type="checkbox"/> INST 3500 Technology Tools for Secondary Teachers (F,Sp,Su) . . .	1
<input type="checkbox"/> SCED 3100 Motivation and Classroom Management (F,Sp) . . . . .	3
<input type="checkbox"/> SCED 3210 (CI/DSS) Educational and Multicultural Foundations (F,Sp) . . . . .	3
<input type="checkbox"/> SCED 3300 Clinical Experience I (F,Sp) . . . . .	1
<input type="checkbox"/> SCED 3400 <sup>4</sup> Teaching Science I (F,Sp) . . . . .	3
<b>Level 2:</b>	
<input type="checkbox"/> SPED 4000 Education of Exceptional Individuals (may be taken anytime) (F,Sp,Su) . . . . .	2
<input type="checkbox"/> SCED 4200 (CI) Reading, Writing, and Technology (F,Sp) . . . . .	3
<input type="checkbox"/> SCED 4210 Cognition and Evaluation of Student Learning (F,Sp) . .	3
<input type="checkbox"/> SCED 4300 Clinical Experience II (F,Sp) . . . . .	1
<input type="checkbox"/> SCED 4400 <sup>4</sup> Teaching Science II (F,Sp) . . . . .	3
<b>Level 3:</b>	
<input type="checkbox"/> SCED 5500 Student Teaching Seminar (F,Sp) . . . . .	2
<input type="checkbox"/> SCED 5630 Student Teaching in Secondary Schools (F,Sp) . . . . .	10

<sup>4</sup>Students should complete SCED 3400 before enrolling in SCED 4400. Depending upon the student's home campus, some sections may only be available through distance education. For details, students should consult their advisor.

### Minor Requirements

**Biology Minor:** The biology minor requires completion of the following: BIOL 1610 and 1620 (both completed with a C- or better grade); and 12 credits chosen from any upper-division (3000-level) BIOL prefix elective credits. **Note:** Although BIOL/NR 2220 is a lower-division course, it may be counted toward the 12 elective credits. A minimum cumulative GPA of 2.25 is required for these courses.

**Biology Teaching Minor:** As of Fall Semester 1998, this minor will no longer be offered.

**BioMath Minor:** This minor requires mathematics and quantitative biology courses beyond those required for the basic biology degrees. It is an excellent option for students considering graduate work. A minimum GPA of 2.25 is required for these courses, with a C- or better grade in *both* BIOL 1610 and 1620. Biology majors may take this minor through the Mathematics and Statistics Department. The requirements for this minor are described in the Utah State University *General Catalog*. For further information, contact the Biology Advising Center (BNR 101) or Dr. James Haefner (BNR 233).

**Public Health Minor:** The Public Health minor requires completion of the following: BIOL 1610 and 1620 (both completed with a C- or better grade); and 12 credits of upper-division (3000-level and above) Public Health elective courses. A minimum GPA of 2.25 is required for these courses.

### Departmental Honors

Biology majors enrolled in the Honors Program (or those with at least a 3.5 GPA) may earn Departmental Honors by completing 9 credits of upper-division honors Biology coursework, BIOL 5800H, and a research-based Bachelor's Thesis. For further information, contact Dr. Kimberly A. Sullivan, BNR 313, (435) 797-3713, yejunco@biology.usu.edu.

### Requirement Changes

The Composite Teaching—Biological Science Major requirements were changed in 1993, and the major option became available through the Department of Biology and the College of Science. Students will be responsible for meeting the requirements that were in effect when they entered the program.

### Materials for Persons with Disabilities

This requirement sheet is available in digital format, recordings, or large print upon request to the USU Disability Resource Center.

### For more information contact

**Biology Department;** Biology-Natural Resources 101; Utah State University; 5305 Old Main Hill; Logan UT 84322-5305; tel. (435) 797-3203; e-mail [undergrad\\_info@biology.usu.edu](mailto:undergrad_info@biology.usu.edu); <http://www.biology.usu.edu/>

**Or**

**Secondary Education Department;** Education 330; Utah State University; 2815 Old Main Hill; Logan UT 84322-2815; tel. (435) 797-2222; e-mail [seced@usu.edu](mailto:seced@usu.edu); <http://secondaryeducation.usu.edu/>

*Prepared by Registrar's Office, Utah State University*