

Biology - Integrated Science Biology Education, B.S.

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Program Description

The B.S. Biology Secondary Education with Integrated Science emphasis is designed for students seeking a career in secondary education. Successful completion of this degree, the secondary education program and the required PRAXIS exams, allows students to obtain the Biological Sciences and the Mid-Level Science endorsement. This certifies the student to teach high school biology and 7th & 8th grade science.

Program Curriculum

130 credits

DSU General Education Requirements

All DSU General Education requirements must be fulfilled. A previously earned degree may fulfill those requirements, but courses must be equivalent to DSU's minimum General Education standards in American Institutions, English, and Mathematics.

| Code | Title | Hours |
|---|------------------------------|-------|
| General Education Core Requirements (catalog.dixie.edu/programs/generaleducation/#gerequirementstext) | | |
| | English | 3-7 |
| | Mathematics | 3-5 |
| | American Institutions | 3-6 |
| | Life Sciences | 3-10 |
| | Physical Sciences | 3-5 |
| | Laboratory Science | 0-1 |
| | Fine Arts | 3 |
| | Literature/Humanities | 3 |
| | Social & Behavioral Sciences | 3 |
| | Exploration | 3-5 |

| Code | Title | Hours |
|--|---|-------|
| Complete one of the following American Institutions GE course (Secondary Education requirement): | | |
| HIST 1700 or POLS 1100 | American Civilization (AI) American Government (AI) | 3 |
| Complete one of the following Social & Behavioral Sciences GE courses (Secondary Education requirement): | | |
| FSHD 1500 or PSY 1010 or PSY 1100 | Human Development Lifespan (SS, GC) General Psychology (SS, GC) Human Development Through Lifespan (SS, GC) | 3 |

| Code | Title | Hours |
|-------------------------------------|---|-------|
| Biology Program Requirements | | |
| CHEM 1210 & CHEM 1215 | Principles of Chemistry I (PS) and Principles of Chemistry I Lab (LAB) | 5 |
| CHEM 1220 & CHEM 1225 | Principles of Chemistry II and Principles of Chemistry II Lab | 5 |
| PHYS 2010 & PHYS 2015 | College Physics I (PS) and College Physics I Lab (LAB) | 5 |
| MATH 1050 & MATH 1060 | College Algebra / Pre-Calculus (MA) and Trigonometry (MA) | 5-7 |

| | | |
|--|--|-----|
| or MATH 1080 | Pre-Calculus with Trigonometry (MA) | |
| Discipline Core Requirements | | |
| BIOL 1610 & BIOL 1615 | Principles of Biology I (LS) and Principles of Biology I Lab (LAB) | 5 |
| BIOL 1620 & BIOL 1625 | Principles of Biology II and Principles of Biology II Lab | 5 |
| BIOL 2320 & BIOL 2325 or BIOL 3140 & BIOL 3145 | Human Anatomy and Human Anatomy Lab Comparative Vertebrate Anatomy and Comparative Vertebrate Anatomy Lab | 4-5 |
| BIOL 2420 & BIOL 2425 or BIOL 4500 & BIOL 4505 | Human Physiology and Human Physiology Lab Comparative Vertebrate Physiology and Comparative Vertebrate Physiology Lab | 4 |
| BIOL 3010 | Evolution | 3 |
| BIOL 3030 | Principles of Genetics | 4 |
| BIOL 3040 | General Ecology | 3 |
| BIOL 3045 | General Ecology Lab | 1 |
| Complete one of the following sets of courses: | | |
| BIOL 2060 & BIOL 2065 or BIOL 3450 & BIOL 3455 or BIOL 3550 & BIOL 3555 | Principles of Microbiology and Principles of Microbiology Lab General Microbiology and General Microbiology Lab Eukaryotic Cell Biology and Eukaryotic Cell Biology Lab | |
| Required Biology Elective | | |
| BIOL 2400 & BIOL 2405 | Plant Kingdom (LS, ALPP) and Plant Kingdom Lab (LAB, ALPP) | 4 |
| Complete one of the following sets of Zoology courses: | | |
| BIOL 3200 & BIOL 3205 | Invertebrate Zoology and Invertebrate Zoology Lab | |
| BIOL 4260 & BIOL 4265 | Herpetology and Herpetology Lab | |
| BIOL 4270 & BIOL 4275 | Ichthyology and Ichthyology Lab | |
| BIOL 4350 & BIOL 4355 | Animal Behavior and Animal Behavior Lab | |
| BIOL 4380 & BIOL 4385 | Ornithology and Ornithology Lab | |
| BIOL 4411 & BIOL 4415 | Mammalogy and Mammalogy Lab | |
| BIOL 4440 & BIOL 4445 | General Entomology and General Entomology Lab | |
| Integrated Science Requirements | | |
| GEO 1110 & GEO 1115 | Physical Geology (PS) and Physical Geology Lab (LAB) | 4 |
| GEOG 1020 & GEO 1025 | Introduction to Weather (PS) and Life of the Past Laboratory (LAB) | 4 |
| PHYS 1040 & PHYS 1045 | Elementary Astronomy (PS) and Elementary Astronomy Lab (LAB) | 4 |
| Lab Safety Requirement | | |
| SCI 2600 | Lab Safety for Teachers | 1 |
| Secondary Education Program Prerequisite Courses | | |
| EDUC 1010 | Foundations/Intro to Education | 3 |
| EDUC 2010 | Intro to Exceptional Learners | 3 |

| | | |
|-----------|--|---|
| EDUC 2400 | Foundations Multicultural/ESL (SS, GC, ALCI) | 3 |
| EDUC 2500 | Instructional Technology in K-12 Classrooms | 3 |
| EDUC 3110 | Educational Psychology | 3 |

Secondary Education Program Admission

To be admitted to the Secondary Education Program and enroll in professional courses:

- USBE R277-504-3 A(3) "requires candidates to maintain a cumulative university GPA of 3.0, and receive a C or better in all education related courses and major required content courses"

and students must pass the appropriate PRAXIS II content area subject test(s). In addition, one of the following must be completed:

- Students with BA/BS degrees in progress must have completed at least 95% of major coursework and have approval of major academic content area department advisor
- Students with completed BA/BS or higher degrees must have their transcripts reviewed by content area department advisor

Secondary Education Program Professional Requirements

| Code | Title | Hours |
|--------------------|--|-------|
| Semester I | | |
| SCI 4700 | Secondary Science Teaching Methods | 3 |
| SCED 3720 | Reading Writing Content Areas (ALPP) | 3 |
| SCED 4100 | Curriculum, Instruction, and Assessment (ALPP) | 3 |
| SCED 4600 | Classroom Management (ALPP) | 3 |
| Semester II | | |
| SCED 4900 | Secondary Student Teaching | 10 |
| SCED 4989 | Student Teaching Seminar | 2 |

Graduation Requirements

1. Complete a minimum of 130 college-level credits (1000 and above).
2. Complete at least 40 upper-division credits (3000 and above).
3. Complete at least 30 upper-division credits at DSU for institutional residency.
4. Cumulative university GPA 3.0 or higher.
5. Grade C or higher (not C-) in each Biology Program Requirement, Core Discipline Requirement, and Biology Elective course.
6. USBE R277-504-3 A(3) "requires candidates to maintain a cumulative university GPA of 3.0, and receive a C or better in all education related courses and major required content courses"
7. 3.0 GPA in program prerequisite and professional courses.

Graduation Plan

| Course | Title | Hours |
|-------------------------------|---|-------|
| 1st Year | | |
| Fall Semester | | |
| BIOL 1610 & BIOL 1615 | Principles of Biology I (LS) and Principles of Biology I Lab (LAB) ((meets General Education - Life Sciences)) | 5 |
| CHEM 1210 & CHEM 1215 | Principles of Chemistry I (PS) and Principles of Chemistry I Lab (LAB) ((meets General Education - Physical Sciences)) | 5 |
| EDUC 1010 | Foundations/Intro to Education | 3 |
| SSC 1010 | Trailblazer Connections | 2 |
| General Education (Fine Arts) | | 3 |
| Hours | | 18 |
| Spring Semester | | |
| BIOL 1620 & BIOL 1625 | Principles of Biology II and Principles of Biology II Lab | 5 |
| BIOL 2320 & BIOL 2325 | Human Anatomy and Human Anatomy Lab | 5 |

| | | |
|--|--|----|
| CHEM 1220 & CHEM 1225 | Principles of Chemistry II and Principles of Chemistry II Lab | 5 |
| ENGL 1010 | Introduction to Writing (EN) | 3 |
| Hours | | 18 |
| 2nd Year | | |
| Fall Semester | | |
| BIOL 3010 | Evolution | 3 |
| BIOL 3030 | Principles of Genetics | 4 |
| ENGL 2010 | Interm Writing Selected Topics: (EN) | 3 |
| MATH 1080 | Pre-Calculus with Trigonometry (MA) | 5 |
| General Education (American Institutions) ¹ | | 3 |
| Hours | | 18 |
| Spring Semester | | |
| BIOL 2420 & BIOL 2425 | Human Physiology and Human Physiology Lab | 4 |
| BIOL 3040 & BIOL 3045 | General Ecology and General Ecology Lab | 4 |
| EDUC 2400 | Foundations Multicultural/ESL (SS, GC, ALCI) | 3 |
| EDUC 2010 | Intro to Exceptional Learners | 3 |
| SCI 2600 | Lab Safety for Teachers | 1 |
| BIOL Requirement (Approved Zoology course) | | 3 |
| Hours | | 18 |
| 3rd Year | | |
| Fall Semester | | |
| GEO 1110 & GEO 1115 | Physical Geology (PS) and Physical Geology Lab (LAB) | 4 |
| BIOL 2400 & BIOL 2405 | Plant Kingdom (LS, ALPP) and Plant Kingdom Lab (LAB, ALPP) | 4 |
| PHYS 1040 & PHYS 1045 | Elementary Astronomy (PS) and Elementary Astronomy Lab (LAB) | 4 |
| BIOL 2060 & BIOL 2065 | Principles of Microbiology and Principles of Microbiology Lab | 4 |
| Hours | | 16 |
| Spring Semester | | |
| GEOG 1020 & GEOG 1025 | Introduction to Weather (PS) and Introduction to Weather Lab (LAB) (meets GE Exploration requirement) | 4 |
| EDUC 2500 | Instructional Technology in K-12 Classrooms | 3 |
| EDUC 3110 | Educational Psychology | 3 |
| PHYS 2010 & PHYS 2015 | College Physics I (PS) and College Physics I Lab (LAB) | 5 |
| General Education (Literature/Humanities) (catalog.dixie.edu/programs/generaleducation/#gerequirementstext) | | 3 |
| Hours | | 18 |
| 4th Year | | |
| Fall Semester | | |
| SCED 3720 | Reading Writing Content Areas (ALPP) | 3 |
| SCED 4100 | Curriculum, Instruction, and Assessment (ALPP) | 3 |
| SCED 4600 | Classroom Management (ALPP) | 3 |
| SCI 4700 | Secondary Science Teaching Methods | 3 |
| Hours | | 12 |
| Spring Semester | | |
| SCED 4900 | Secondary Student Teaching | 10 |

| | | |
|-----------|--------------------------|-----|
| SCED 4989 | Student Teaching Seminar | 2 |
| | Hours | 12 |
| | Total Hours | 130 |

¹ Specific courses fulfill SET requirements

Biology with Integrated Science Program Learning Outcomes:

At the successful conclusion of this program, students will be able to:

1. Outline the foundational concepts of biology including cellular, organismic, ecological, and evolutionary biology.
2. Evaluate hypotheses, design research, test hypotheses, conduct data analysis, and draw conclusions on biology related problems.
3. Integrate knowledge of scientific literacy in oral and written assignments when communicating biological topics.
4. Develop an understanding of why science is an integral activity for addressing social and environmental problems.
5. Analyze evidence to continually reflect on and adapt practices to meet the needs of K-12 learners.