BIOLOGY DEPARTMENT

101 Science Bldg.
(435) 652-7760
http://dixie.edu/biology/

To find faculty & staff phone numbers and email addresses, please consult the College Directory http://www.dixie.edu/directory.php.

Department Chair  Department Secretary
David Jones       Kathi Steadward

Faculty

Professors
Dr. Patt Allen
Dr. Karen Bauer
Dr. Thomas McNeilis
Dr. Del Smith
Dr. Curtis Walker

Associate Professors
David Jones
Dr. Marius van der Merwe
Dr. Erin O’Brien
Dr. Donald Warner

Assistant Professor
Dr. Jennifer Ciaccio

Lecturer/Advisor
Lyle Pack

School of Science & Technology

Dean   Administrative Assistant
Dr. Victor Hasfurther        Ruth Bruckert

Program Description

The Bachelor of Science in Biology degree at Dixie State College is designed to provide students with a firm foundation and understanding of the unifying concepts of biology, including those at the molecular, cellular, and ecosystem levels. It is also essential that biology students develop a strong background in the areas of chemistry, physics, and math because the comprehension and mastery of biological concepts is contingent upon the integration of these other sciences.

All Biology students will complete a set of core courses focusing on general biology, genetics, ecology, evolution, cellular and molecular biology, scientific writing, and data analysis. These core areas are intended to prepare an underlying support for further study in biology. Upon completion of the core, students may select other upper-division biology courses that allow them to explore and develop in one or more areas (zoology, botany, microbiology, ecological, or molecular) of their choosing.

The versatility of the Biology degree will allow successful undergraduate Biology majors to enter professional programs in medicine, dentistry, and veterinary medicine, as well as other professional or graduate schools. Graduates of the Biology degree program may also opt for governmental or private-sector careers in such fields as natural resource management, environmental research, health care, the biomedicinal industry, independent laboratory research, or science teaching.

The Bachelor of Science Biology, Secondary Education and the Bachelor of Science in Biology with Integrated Science, Secondary Education degrees at Dixie State College prepare students to become Biology teachers at the secondary level. The Biology with Integrated Science option prepares students to become Middle Level Science teachers. In addition to fulfilling the General Education requirements of Dixie State College, students will complete a set of core courses in the sciences plus 39 credits of Secondary Education Teacher (SET) courses taught through the Education Department that will satisfy the State of Utah requirements for secondary teacher licensure. Students will also be required to take the appropriate PRAXIS exam(s) for secondary licensure.

Students are strongly encouraged to meet with an advisor in the Biology Department each semester to outline their programs of study and course sequences.

Course Prefixes

- BIOL

Degrees

- Bachelor of Science in Biology
- Bachelor of Science in Biology, Secondary Education
- Bachelor of Science in Biology with Integrated Science, Secondary Education
- Emphasis in Integrated Studies

Bachelor of Science in Biology

120 credits

The Bachelor of Science in Biology degree has four basic components:

1. General Education and Institutional Requirements (some may also be included in program requirements)
2. Biology program requirements in Chemistry, Physics, and Mathematics
3. Biology major core courses
4. Upper-division Biology elective courses

DSC General Education & Institutional Requirements

All DSC General Education requirements must be fulfilled. A previously earned degree may fulfill those requirements, but courses must be equivalent to DSC’s minimum General Education standards in American Institutions, English, and Mathematics.
### Institutional Requirement in Computer Literacy
Complete one of the following:
- CIS 1200  Computer Literacy  3
- CIS 1201  Computer Literacy Exam  0
- CS 1400/CS 1410  Computer Programming  6

### General Education Requirements
Complete the following:
- ENGL 1010  Intro to Writing  3
- ENGL 2010  Intermediate Writing  3

Complete one of the following:
- LIB 1000  Information Literacy Exam  0
- LIB 1010  Information Literacy  1

Complete the following:
- Mathematics GE course  3-5
- American Institutions GE course  3
- Life Sciences GE course  3-5
- Physical Sciences GE course  3-5
- Laboratory Science GE course  0-1
- Fine Arts GE course  3
- Literature/Humanities GE course  3
- Social & Behavioral Sciences GE course  3
- Exploration GE course  3-5
- Two (2) Global & Cultural Perspectives GE courses  0-6

### Biology Program Requirements
Complete the following:
- CHEM 1210/1215  Principles of Chemistry I / Lab  4/1
- CHEM 1220/1225  Principles of Chemistry II / Lab  4/1
- CHEM 2310/2315  Organic Chemistry I / Lab  4/1
- CHEM 2320/2325  Organic Chemistry II / Lab  4/1
- MATH 1210  Calculus I  5

Complete one of the following series of courses:
- PHYS 2010/2015  College Physics I / Lab  4/1
  and
- PHYS 2020/2025  College Physics II / Lab  4/1
  OR
- PHYS 2210/2215  Physics for Scientists I / Lab  4/1
  and
- PHYS 2220/2225  Physics for Scientists II / Lab  4/1

### Biology Core Requirements
Complete the following:
- BIOL 1610/1615  Principles of Biology I / Lab  4/1
- BIOL 1620/1625  Principles of Biology II / Lab  4/1
- BIOL 2030  Principles of Genetics  4
- BIOL 2220/2225  General Ecology / Lab  3/1
- BIOL 3010  Biological Evolution  3
- BIOL 3150/3155  Introduction to Biometry / Lab  2/1

Complete one of the following sets of courses:
- BIOL 3020/3025  Principles of Cell Biology / Lab  3/1
- BIOL 3450/3455  General Microbiology / Lab  3/1

Complete one of the following:
- BIOL 4910  Senior Seminar I  1
- BIOL 4920  Senior Seminar II  1

### Required Biology Electives
Complete one of the following sets of courses:
- BIOL 4500/4505  Comparative Vertebrate Phys/Lab  3/1
- BIOL 4600/4605  Plant Physiology / Lab  3/1

Complete one of the following courses or sets of courses:
- BIOL 3200/3205  Invertebrate Zoology / Lab  3/1
- BIOL 4200/4205  Plant Taxonomy / Lab  2/2
- BIOL 4230/4235  General Parasitology / Lab  3/1
- BIOL 4260/4265  Herpetology / Lab  2/1
- BIOL 4270/4275  Ichthyology / Lab  2/1
- BIOL 4280  Marine Biology  3
- BIOL 4380/4385  Ornithology / Lab  2/1
- BIOL 4411/4415  Mammalogy / Lab  3/1
- BIOL 4440/4445  General Entomology / Lab  3/1

Complete 14-15 credits from the following or from any upper-division BIOL course listed above not already used to fulfill a requirement:
- BIOL 3000  Rural Health Scholars (2 cr. max.)  1
- BIOL 3100  Bioethics  3
- BIOL 3110  Scientific Writing  2
- BIOL 3140/3145  Comp. Vertebrate Anatomy / Lab  3/1
- BIOL 3230  Cadaver Practicum  2
- BIOL 3250  Cancer Biology  2
- BIOL 3340/3345  Plant Anatomy / Lab  3/1
- BIOL 3360  Developmental Biology  3
- BIOL 3460  Biology of Infectious Disease  3
- BIOL 3470  Introduction to Immunology  3
- BIOL 4190/4195  Mammalian Histology / Lab  3/1
- BIOL 4300  Molecular Biology  2
- BIOL 4305  Molecular Biology Techniques  2
- BIOL 4350/4355  Animal Behavior/Lab  3/1
- BIOL 4400  Pathophysiology  3
- BIOL 4460/4465  Plant Ecology / Lab  2/1
- BIOL 4810R  Independent Research  1-4
- BIOL 4820R  Independent Research  1-4
- BIOL 4830R  Independent Research  1-4

### Institutional Requirement in Computer Literacy
Complete one of the following:
- CIS 1200  Computer Literacy  3
- CIS 1201  Computer Literacy Exam  0
- CS 1400/CS 1410  Computer Programming  6

### General Education Requirements
Complete the following:
- ENGL 1010  Intro to Writing  3
- ENGL 2010  Intermediate Writing  3

Complete one of the following:
- LIB 1000  Information Literacy Exam  0
- LIB 1010  Information Literacy  1

Complete the following:
- Mathematics GE course  3-5
- American Institutions GE course  3
- Life Sciences GE course  3-5
- Physical Sciences GE course  3-5
- Laboratory Science GE course  0-1
- Fine Arts GE course  3
- Literature/Humanities GE course  3
- Social & Behavioral Sciences GE course  3
- Exploration GE course  3-5
- Two (2) Global & Cultural Perspectives GE courses  0-6

### Biology Program Requirements
Complete the following:
- CHEM 1210/1215  Principles of Chemistry I / Lab  4/1
- CHEM 1220/1225  Principles of Chemistry II / Lab  4/1
- CHEM 2310/2315  Organic Chemistry I / Lab  4/1
- CHEM 2320/2325  Organic Chemistry II / Lab  4/1
- MATH 1210  Calculus I  5

Complete one of the following series of courses:
- PHYS 2010/2015  College Physics I / Lab  4/1
  and
- PHYS 2020/2025  College Physics II / Lab  4/1
  OR
- PHYS 2210/2215  Physics for Scientists I / Lab  4/1
  and
- PHYS 2220/2225  Physics for Scientists II / Lab  4/1

### Biology Core Requirements
Complete the following:
- BIOL 1610/1615  Principles of Biology I / Lab  4/1
- BIOL 1620/1625  Principles of Biology II / Lab  4/1
- BIOL 2030  Principles of Genetics  4
- BIOL 2220/2225  General Ecology / Lab  3/1
- BIOL 3010  Biological Evolution  3
- BIOL 3150/3155  Introduction to Biometry / Lab  2/1

Complete one of the following sets of courses:
- BIOL 3020/3025  Principles of Cell Biology / Lab  3/1
- BIOL 3450/3455  General Microbiology / Lab  3/1

Complete one of the following:
- BIOL 4910  Senior Seminar I  1
- BIOL 4920  Senior Seminar II  1

### Required Biology Electives
Complete one of the following sets of courses:
- BIOL 4500/4505  Comparative Vertebrate Phys/Lab  3/1
- BIOL 4600/4605  Plant Physiology / Lab  3/1

Complete one of the following courses or sets of courses:
- BIOL 3200/3205  Invertebrate Zoology / Lab  3/1
- BIOL 4200/4205  Plant Taxonomy / Lab  2/2
- BIOL 4230/4235  General Parasitology / Lab  3/1
- BIOL 4260/4265  Herpetology / Lab  2/1
- BIOL 4270/4275  Ichthyology / Lab  2/1
- BIOL 4280  Marine Biology  3
- BIOL 4380/4385  Ornithology / Lab  2/1
- BIOL 4411/4415  Mammalogy / Lab  3/1
- BIOL 4440/4445  General Entomology / Lab  3/1

Complete 14-15 credits from the following or from any upper-division BIOL course listed above not already used to fulfill a requirement:
- BIOL 3000  Rural Health Scholars (2 cr. max.)  1
- BIOL 3100  Bioethics  3
- BIOL 3110  Scientific Writing  2
- BIOL 3140/3145  Comp. Vertebrate Anatomy / Lab  3/1
- BIOL 3230  Cadaver Practicum  2
- BIOL 3250  Cancer Biology  2
- BIOL 3340/3345  Plant Anatomy / Lab  3/1
- BIOL 3360  Developmental Biology  3
- BIOL 3460  Biology of Infectious Disease  3
- BIOL 3470  Introduction to Immunology  3
- BIOL 4190/4195  Mammalian Histology / Lab  3/1
- BIOL 4300  Molecular Biology  2
- BIOL 4305  Molecular Biology Techniques  2
- BIOL 4350/4355  Animal Behavior/Lab  3/1
- BIOL 4400  Pathophysiology  3
- BIOL 4460/4465  Plant Ecology / Lab  2/1
- BIOL 4810R  Independent Research  1-4
- BIOL 4820R  Independent Research  1-4
- BIOL 4830R  Independent Research  1-4
General Education Requirements

Complete the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 1010</td>
<td>Intro to Writing</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 2010</td>
<td>Intermediate Writing</td>
<td>3</td>
</tr>
</tbody>
</table>

Complete one of the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>LIB 1000</td>
<td>Information Literacy Exam</td>
<td>0</td>
</tr>
<tr>
<td>LIB 1010</td>
<td>Information Literacy</td>
<td>1</td>
</tr>
</tbody>
</table>

Complete the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mathematics GE course</td>
<td>3-5</td>
<td></td>
</tr>
<tr>
<td>Life Sciences GE course</td>
<td>3-5</td>
<td></td>
</tr>
<tr>
<td>Physical Sciences GE course</td>
<td>3-5</td>
<td></td>
</tr>
<tr>
<td>Laboratory Science GE course</td>
<td>0-1</td>
<td></td>
</tr>
<tr>
<td>Fine Arts GE course</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Literature/Humanities GE course</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Exploration GE course</td>
<td>3-5</td>
<td></td>
</tr>
<tr>
<td>Two (2) Global &amp; Cultural Perspectives GE courses</td>
<td>0-6</td>
<td></td>
</tr>
</tbody>
</table>

Complete one of the following American Institutions GE courses (SET requirement):

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HIST 1700</td>
<td>American Civilization</td>
<td>3</td>
</tr>
<tr>
<td>POLS 1100</td>
<td>American Government</td>
<td>3</td>
</tr>
</tbody>
</table>

Complete one of the following Social & Behavioral Sciences GE courses (SET requirement):

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>FCS 1500</td>
<td>Human Development / Lifespan</td>
<td>3</td>
</tr>
<tr>
<td>PSY 1010</td>
<td>General Psychology</td>
<td>3</td>
</tr>
<tr>
<td>PSY 1100</td>
<td>Human Development / Lifespan</td>
<td>3</td>
</tr>
</tbody>
</table>

Biology Program Requirements

Complete the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 1210/15</td>
<td>Principles of Chemistry I / Lab</td>
<td>4/1</td>
</tr>
<tr>
<td>CHEM 1220/25</td>
<td>Principles of Chemistry II / Lab</td>
<td>4/1</td>
</tr>
<tr>
<td>MATH 1050</td>
<td>College Algebra / Pre-Calculus</td>
<td>4</td>
</tr>
</tbody>
</table>

Discipline Core Requirements

Complete the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 1610/1615</td>
<td>Principles of Biology I / Lab</td>
<td>4/1</td>
</tr>
<tr>
<td>BIOL 1620/1625</td>
<td>Principles of Biology II / Lab</td>
<td>4/1</td>
</tr>
<tr>
<td>BIOL 2030</td>
<td>Principles of Genetics</td>
<td>4</td>
</tr>
<tr>
<td>BIOL 2220/2225</td>
<td>General Ecology / Lab</td>
<td>3/1</td>
</tr>
<tr>
<td>BIOL 2400/2405</td>
<td>Plant Kingdom / Lab</td>
<td>3/1</td>
</tr>
<tr>
<td>BIOL 2420/2425</td>
<td>Human Physiology / Lab</td>
<td>3/1</td>
</tr>
<tr>
<td>BIOL 3010</td>
<td>Biological Evolution</td>
<td>3</td>
</tr>
</tbody>
</table>

Complete one of the following sets of courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 3020/3025</td>
<td>Principles of Cell Biology / Lab</td>
<td>3/1</td>
</tr>
<tr>
<td>BIOL 3450/3455</td>
<td>General Microbiology / Lab</td>
<td>3/1</td>
</tr>
</tbody>
</table>

Required Biology Electives

Complete one of the following sets of Botany courses:
**Biology**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 3340/3345</td>
<td>Plant Anatomy / Lab</td>
<td>3/1</td>
</tr>
<tr>
<td>BIOL 4200/4205</td>
<td>Plant Taxonomy / Lab</td>
<td>2/2</td>
</tr>
<tr>
<td>BIOL 4600/4605</td>
<td>Plant Physiology / Lab</td>
<td>3/1</td>
</tr>
</tbody>
</table>

**Complete two of the following sets of Zoology courses:**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 3140/3145</td>
<td>Comp. Vertebrate Anatomy / Lab</td>
<td>3/1</td>
</tr>
<tr>
<td>BIOL 3200/3205</td>
<td>Invertebrate Zoology / Lab</td>
<td>3/1</td>
</tr>
<tr>
<td>BIOL 4230/4235</td>
<td>General Parasitology / Lab</td>
<td>3/1</td>
</tr>
<tr>
<td>BIOL 4260/4265</td>
<td>Herpetology / Lab</td>
<td>2/1</td>
</tr>
<tr>
<td>BIOL 4270/4275</td>
<td>Ichthyology / Lab</td>
<td>2/1</td>
</tr>
<tr>
<td>BIOL 4350/4355</td>
<td>Animal Behavior / Lab</td>
<td>3/1</td>
</tr>
<tr>
<td>BIOL 4380/4385</td>
<td>Ornithology / Lab</td>
<td>2/1</td>
</tr>
<tr>
<td>BIOL 4411/4415</td>
<td>Mammalogy / Lab</td>
<td>3/1</td>
</tr>
<tr>
<td>BIOL 4440/4445</td>
<td>General Entomology / Lab</td>
<td>3/1</td>
</tr>
</tbody>
</table>

**Graduation Requirements**

1. Complete a minimum of 120 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 DSC for institutional residency.
4. Cumulative GPA 2.75 or higher.
5. Grade C or higher (not C-) in each Biology Program Requirement, Core Discipline Requirement, and Biology Elective Requirement course.
6. Grade C- or higher in each pre-professional and professional Education course.
7. 3.0 GPA in pre-professional and professional courses.

**Secondary Education Pre-Professional Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDUC 1010</td>
<td>Foundations/Intro to Education</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 2010</td>
<td>Intro to Exceptional Learners</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 2400</td>
<td>Foundations of Multicultural &amp; ESL.</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 2500</td>
<td>Tech / Educ. / Electronic Portfolio</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 3110</td>
<td>Educational Psychology</td>
<td>3</td>
</tr>
</tbody>
</table>

**Secondary Education Teaching (SET) Program Admission**

To be admitted to the SET program and enroll in Professional courses, students must have completed all pre-professional Education classes with 3.0 or higher GPA with no D credit, 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 Professional Requirements**

**Semester I**

Complete the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCED 3720</td>
<td>Reading / Writing in Content Areas</td>
<td>3</td>
</tr>
<tr>
<td>SCED 4100</td>
<td>Curriculum, Instruction, Assessment</td>
<td>3</td>
</tr>
<tr>
<td>SCED 4600</td>
<td>Classroom Management</td>
<td>3</td>
</tr>
</tbody>
</table>

**Complete one of the following:**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 4130</td>
<td>Biology Teaching Methods</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCED 4700</td>
<td>Content Methods Course</td>
<td>3</td>
</tr>
</tbody>
</table>

**Semester II**

Complete the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>SCED 4900</td>
<td>Secondary Student Teaching</td>
<td>10</td>
</tr>
<tr>
<td>SCED 4989</td>
<td>Student Teacher Seminar</td>
<td>2</td>
</tr>
</tbody>
</table>
Bachelor of Science in Biology with Integrated Science, Secondary Education

129 credits

The Bachelor of Science in Biology with Integrated Science, Secondary Education degree has seven basic curricular components:

1. General Education and Institutional Requirements (some may also be included in program requirements)
2. Integrated Science requirements
3. Biology major core courses
4. Additional Integrated Science requirements
5. Upper-division Biology elective requirements
6. Lab safety certification course
7. Secondary Education Teaching (SET) Pre-Professional and Professional courses

DSC General Education & Institutional Requirements

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

Institutional Requirement

Complete one of the following:

- CIS 1200  Computer Literacy 3
- CIS 1201  Computer Literacy Exam 0
- CS 1400/CS 1410  Computer Programming 6

General Education Requirements

Complete the following:

- ENGL 1010  Intro to Writing 3
- ENGL 2010  Intermediate Writing 3

Complete one of the following:

- LIB 1000  Information Literacy Exam 0
- LIB 1010  Information Literacy 1

Complete the following:

- Mathematics GE course 3-5
- Life Sciences GE course 3-5
- Physical Sciences GE course 3-5
- Laboratory Science GE course 0-1
- Fine Arts GE course 3
- Literature/Humanities GE course 3
- Exploration GE course 3-5
- Two (2) Global & Cultural Perspectives GE courses 0-6

Complete one of the following American Institutions GE courses (SET requirement):

- HIST 1700  American Civilization 3
- POLS 1100  American Government 3

Complete one of the following Social & Behavioral Sciences GE courses (SET requirement):

FCS 1500  Human Development / Lifespan 3
PSY 1010  General Psychology 3
PSY 1100  Human Development / Lifespan 3

Biology Program Requirements

Complete the following:

- CHEM 1210/15  Principles of Chemistry I / Lab 4/1
- CHEM 1220/25  Principles of Chemistry II / Lab 4/1
- PHYS 2010/2015  College Physics I / Lab 4/1

Complete one of the following:

- MATH 1050 and MATH 1060  College Algebra / Pre-Calculus 4
- MATH 1065  Pre-Calculus / Trigonometry 5

Discipline Core Requirements

Complete the following:

- BIOL 1610/1615  Principles of Biology I / Lab 4/1
- BIOL 1620/1625  Principles of Biology II / Lab 4/1
- BIOL 2030  Principles of Genetics 4
- BIOL 2220/2225  General Ecology / Lab 3/1
- BIOL 2400/2405  Plant Kingdom / Lab 3/1
- BIOL 2420/2425  Human Physiology / Lab 3/1
- BIOL 3010  Biological Evolution 3

Complete one of the following sets of courses:

- BIOL 3020/3025  Principles of Cell Biology / Lab 3/1
- BIOL 3450/3455  General Microbiology / Lab 3/1

Required Biology Electives

Complete one of the following sets of Zoology courses:

- BIOL 3140/3145  Comp. Vertebrate Anatomy / Lab 3/1
- BIOL 3200/3205  Invertebrate Zoology / Lab 3/1
- BIOL 4230/4235  General Parasitology / Lab 3/1
- BIOL 4260/4265  Herpetology / Lab 2/1
- BIOL 4270/4275  Ichthyology / Lab 2/1
- BIOL 4350/4355  Animal Behavior/Lab 3/1
- BIOL 4380/4385  Ornithology / Lab 2/1
- BIOL 4411/4415  Mammalogy / Lab 3/1
- BIOL 4440/4445  General Entomology / Lab 3/1

Integrated Science Requirements

Complete the following:

- GEO 1110/1115  Physical Geology / Lab 3/1
- GEOG 1020/25  Introduction to Weather / Lab 3/1
- PHYS 1040/1045  Elementary Astronomy / Lab 3/1

Lab Safety Requirement
Complete the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCI 2600</td>
<td>Lab Safety for Teachers</td>
<td>1</td>
</tr>
</tbody>
</table>

### Secondary Education Pre-Professional Courses

Complete the following pre-professional courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDUC 1010</td>
<td>Foundations/Intro to Education</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 2010</td>
<td>Intro to Exceptional Learners</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 2400</td>
<td>Foundations of Multicultural &amp; ESL</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 2500</td>
<td>Tech / Educ. / Electronic Portfolio</td>
<td>3</td>
</tr>
<tr>
<td>EDUC 3110</td>
<td>Educational Psychology</td>
<td>3</td>
</tr>
</tbody>
</table>

### Secondary Education Teaching (SET) Program Admission

To be admitted to the SET program and enroll in Professional courses, students must have completed all pre-professional Education classes with 3.0 or higher GPA with no D credit 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 Professional Requirements

**Semester I**

Complete the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCED 3720</td>
<td>Reading / Writing in Content Areas</td>
<td>3</td>
</tr>
<tr>
<td>SCED 4100</td>
<td>Curriculum, Instruction, Assessment</td>
<td>3</td>
</tr>
<tr>
<td>SCED 4600</td>
<td>Classroom Management</td>
<td>3</td>
</tr>
</tbody>
</table>

Complete **one** of the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 4130</td>
<td>Biology Teaching Methods</td>
<td>3</td>
</tr>
<tr>
<td>SCED 4700</td>
<td>Content Methods Course</td>
<td>3</td>
</tr>
<tr>
<td>SCI 4700</td>
<td>Secondary Sci Teaching Methods</td>
<td>3</td>
</tr>
</tbody>
</table>

**Semester II**

Complete the following:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCED 4900</td>
<td>Secondary Student Teaching</td>
<td>10</td>
</tr>
<tr>
<td>SCED 4989</td>
<td>Student Teacher Seminar</td>
<td>2</td>
</tr>
</tbody>
</table>

### Graduation Requirements

1. Complete a minimum of 127 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 DSC for institutional residency.
4. Cumulative GPA 2.75 or higher.
5. Grade C or higher (not C-) in each Biology Program Requirement, Core Discipline Requirement, and Biology Elective Requirement courses.
6. Grade C- or higher in each pre-professional and professional Education and Secondary Education course.
7. 3.0 GPA in pre-professional and professional courses.