Biological Sciences

Bachelor of Science Degree in Biological Sciences, College of Education and Human Services

Biology Education Specialization - Biology Designation for the Illinois Secondary (6-12) Science Teaching License

This specialization prepares students for certification as secondary-school biology teachers. Course requirements match content areas specified by the Illinois State Board of Education for teacher licensure in science with a designation in biology.

Biology Education Specialization

<table>
<thead>
<tr>
<th>Degree Requirements</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>University Core Curriculum Requirements - To include MATH 109; BIOL 211-advanced</td>
<td>41</td>
</tr>
<tr>
<td>UCC Group II Science; CHEM 200/201-advanced UCC Group I Science; PSYC 102-</td>
<td></td>
</tr>
<tr>
<td>Social Science; EDUC 214-advanced UCC Social Science; EDUC 211-advanced UCC</td>
<td></td>
</tr>
<tr>
<td>Multicultural; and PHIL 307I-UCC Humanities. 1</td>
<td></td>
</tr>
<tr>
<td>Biological Sciences Major Requirements 2</td>
<td>55-56</td>
</tr>
<tr>
<td>Life Science</td>
<td></td>
</tr>
<tr>
<td>BIOL 211, BIOL 213 3</td>
<td>5 (+3)</td>
</tr>
<tr>
<td>BIOL 304, BIOL 305, BIOL 306, BIOL 307</td>
<td>12</td>
</tr>
<tr>
<td>BIOL 202, HED 101, HND 101, KIN 101 or PHSL 201, PHSL 208 4</td>
<td>2 (+2)</td>
</tr>
<tr>
<td>MICR 301; or PLB 300; or ZOOL 220</td>
<td>4-5</td>
</tr>
<tr>
<td>Six hours of 400-level electives in BIOL, MICR, PHSL, PLB, or ZOOL</td>
<td>3-4</td>
</tr>
<tr>
<td>BIOL 485, MICR 495, PHSL 490, PLB 480, or ZOOL 482</td>
<td>1</td>
</tr>
<tr>
<td>Mathematics and Statistics</td>
<td></td>
</tr>
<tr>
<td>MATH 109 5</td>
<td>(+3)</td>
</tr>
</tbody>
</table>

1. Mathematics and Statistics

2. Biological Sciences Major Requirements

3. Life Science

4. Mathematics and Statistics
<table>
<thead>
<tr>
<th>Degree Requirements</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 282 or PLB 360 or QUAN 402</td>
<td>3</td>
</tr>
</tbody>
</table>

Physical Science

| CHEM 200, CHEM 201, CHEM 202, CHEM 210, CHEM 211, CHEM 212 | 7 (+3)       |
| GEOL 220 and GEOL 223, or GEOL 221 and GEOL 224, or GEOL 222 and GEOL 223 | 4            |
| PHYS 103, PHYS 203A, PHYS 203B, PHYS 253A, PHYS 253B      | 11           |

Professional Education Sequence

| CI 360, CI 468                                           | 6            |
| EDUC 301, EDUC 302, EDUC 303, EDUC 308, EDUC 313, EDUC 319, EDUC 401A | 24           |

Total | 126-127

1 ENGL 101 and ENGL 102 with a grade of C or better are required for admission to the Teacher Education Program. PHIL 307I should be taken to satisfy three hours of the Humanities requirement of the University Core Curriculum. PSYC 102 is a prerequisite for EDUC 214 and should be taken to satisfy three hours of the Social Science requirement in the University Core Curriculum.

2 A minimum 2.75 grade point average in all Biological Sciences major courses is required.

3 Satisfies the Life Science (Group II) requirement of the University Core Curriculum. BIOL 211, BIOL 212, and BIOL 213 with grades of C or better are required for admission to the Teacher Education Program.

4 Satisfies the Human Health requirement of the University Core Curriculum.

5 Satisfies the Mathematics requirement of the University Core Curriculum.

6 Satisfies the Physical Science (Group I) requirement of the University Core Curriculum.

**Bachelor of Science Degree in Biological Sciences, College of Science**

Designed for Biological Sciences majors planning careers as biomedical researchers, chiropractors, dentists, medical doctors, optometrists, pharmacists, physical therapists, physician assistants, or podiatrists. Pre-professional students must register with the College of Science Pre-Health Professions Advisement Office.

**Biomedical Science Specialization**

<table>
<thead>
<tr>
<th>Degree Requirements</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>University Core Curriculum Requirements</td>
<td>39</td>
</tr>
</tbody>
</table>
## Degree Requirements

<table>
<thead>
<tr>
<th>Biological Sciences Major Requirements</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 211, BIOL 212, BIOL 213</td>
<td>9 (+3)</td>
</tr>
<tr>
<td>BIOL 305, BIOL 306, BIOL 409</td>
<td>9</td>
</tr>
<tr>
<td>CHEM 200, CHEM 201, CHEM 202, CHEM 210, CHEM 211, CHEM 212, CHEM</td>
<td>12(+3)</td>
</tr>
<tr>
<td>340, CHEM 341</td>
<td></td>
</tr>
<tr>
<td>CHEM 442 and CHEM 443, or CHEM 350 and CHEM 351</td>
<td>5</td>
</tr>
<tr>
<td>MATH 108 and MATH 109, or MATH 111 or MATH 141 or MATH 150</td>
<td>1-3(+3)</td>
</tr>
<tr>
<td>MATH 282 or QUAN 402 or PLB 360</td>
<td>3</td>
</tr>
<tr>
<td>MICR 301, MICR 302</td>
<td>7</td>
</tr>
<tr>
<td>BIOL 485 or MICR 495 or PHSL 490 or PLB 480 or ZOOL 482</td>
<td>1</td>
</tr>
<tr>
<td>PHSL 310</td>
<td>3(+2)</td>
</tr>
<tr>
<td>PHYS 203A, PHYS 203B, PHYS 253A, PHYS 253B</td>
<td>8</td>
</tr>
<tr>
<td>Twelve hours of life science electives chosen from the following:</td>
<td>12</td>
</tr>
<tr>
<td>BIOL 304, MICR 403, MICR 421, MICR 425, MICR 441, MICR 453, MICR</td>
<td></td>
</tr>
<tr>
<td>460, MICR 470, MICR 477, MICR 480, MICR 481; PHSL 301, PHSL 320,</td>
<td></td>
</tr>
<tr>
<td>PHSL 401A, PHSL 401B, PHSL 410A, PHSL 410B, PHSL 430, PHSL 433,</td>
<td></td>
</tr>
<tr>
<td>PHSL 434, PHSL 450, PHSL 462, PHSL 470, PHSL 492; PLB 317, PLB 419,</td>
<td></td>
</tr>
<tr>
<td>PLB 425, PLB 427, PLB 438, PLB 455, PLB 471, PLB 475; ZOOL 407,</td>
<td></td>
</tr>
<tr>
<td>ZOOL 409, ZOOL 418, ZOOL 426, ZOOL 432, ZOOL 433, ZOOL 434, ZOOL</td>
<td></td>
</tr>
<tr>
<td>438, ZOOL 450, ZOOL 472</td>
<td></td>
</tr>
<tr>
<td>Electives</td>
<td>3-5</td>
</tr>
</tbody>
</table>

### Total

| Total                                                               | 120          |

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1. Supportive skills courses are not required for students with three years of foreign language in high school, but computer science and technical writing courses are recommended.

2. Students must have a grade point averages of 2.0 or better in these biological science requirements. Satisfies the three-hour University Core Curriculum Group II Science requirement.
3 Students must have a grade point averages of 2.0 or better in these biological science requirements.
4 Satisfies the three-hour University Core Curriculum Group I Science requirement.
5 Satisfies the three-hour University Core Curriculum Mathematics requirement. Students should consult with the Pre-Health Professions Advisement Office about additional mathematics recommendations for particular programs.
6 Students must have a grade point averages of 2.0 or better in these biological science requirements.
7 Students are strongly encouraged to obtain research experience under the supervision of a faculty mentor. To prepare for an undergraduate research project, students should consider enrolling in UNIV 301A. Credit for research experience can be obtained by enrolling in MICR 490, PHSL 492, PLB 493A-C, or ZOOL 492.

**Bachelor of Science Degree in Biological Sciences, College of Science**

Ecology is an important topic for students wishing to pursue careers in any aspect of the natural sciences, including environmental science, ecosystem management, teaching, and basic research. The track in ecology is also appropriate for students planning to pursue graduate studies in the natural sciences. Students pursuing the Ecology track can specialize in Environmental Studies by selecting the corresponding minor.

**Ecology Specialization**

<table>
<thead>
<tr>
<th>Degree Requirements</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>University Core Curriculum Requirements</td>
<td>39</td>
</tr>
<tr>
<td>College of Science Academic Requirements - Biological Sciences-completed with the Biological Sciences major Mathematics-completed with the Biological Sciences major Physical Sciences-completed with the Biological Sciences major Supportive Skills: at least six credit hours chosen from CS 105 or CS 200B or CS 201 or CS 202; ENGL 290, ENGL 291 or ENGL 391; or any two semester sequence of a foreign language</td>
<td>6</td>
</tr>
<tr>
<td>Biological Sciences Major Requirements</td>
<td>72</td>
</tr>
<tr>
<td>BIOL 211, BIOLO 212, BIOL 213</td>
<td>9 (+3)</td>
</tr>
<tr>
<td>BIOL 304, BIOL 305, BIOL 307</td>
<td>9</td>
</tr>
<tr>
<td>CHEM 200, CHEM 201, CHEM 202, CHEM 210, CHEM 211, CHEM 212, CHEM 340, CHEM 341, CHEM 350</td>
<td>15(+3)</td>
</tr>
<tr>
<td>MATH 141</td>
<td>1(+3)</td>
</tr>
<tr>
<td>MATH 282 or PLB 360 or QUAN 402</td>
<td>3</td>
</tr>
<tr>
<td>MICR 301</td>
<td>4</td>
</tr>
<tr>
<td>PHSL 310</td>
<td>3(+2)</td>
</tr>
<tr>
<td>Degree Requirements</td>
<td>Credit Hours</td>
</tr>
<tr>
<td>------------------------------------------------------------------------------------</td>
<td>--------------</td>
</tr>
<tr>
<td>PHYS 203A and PHYS 253A, or PHYS 205A and PHYS 255A</td>
<td>4</td>
</tr>
<tr>
<td>PLB 300</td>
<td>4</td>
</tr>
<tr>
<td>ZOOL 220</td>
<td>5</td>
</tr>
<tr>
<td>Life Science electives: At least seven hours of</td>
<td>7</td>
</tr>
<tr>
<td>Microbiology, Plant Biology or Zoology 400-level courses,</td>
<td></td>
</tr>
<tr>
<td>including one of: MICR 423, MICR 454, MICR 470, MICR 477; PHSL 433, PHSL 434;</td>
<td></td>
</tr>
<tr>
<td>PLB 416, PLB 435, PLB 440, PLB 443, PLB 444, PLB 445, PLB 451, PLB 452; ZOOL 410,</td>
<td></td>
</tr>
<tr>
<td>ZOOL 411, ZOOL 415, ZOOL 435, ZOOL 440, ZOOL 443, ZOOL 444, ZOOL 445, ZOOL 448,</td>
<td></td>
</tr>
<tr>
<td>ZOOL 468, ZOOL 469, ZOOL 471, ZOOL 490</td>
<td></td>
</tr>
<tr>
<td>Ecology electives: at least five credits chosen from the</td>
<td>5</td>
</tr>
<tr>
<td>following (including at least one lab course): ANTH 410K; FOR 331, FOR 402, FOR</td>
<td></td>
</tr>
<tr>
<td>406, FOR 415, FOR 452, FOR 454A-D; GEOG 439; GEOL 425, GEOL 428; PLB 303I, PLB</td>
<td></td>
</tr>
<tr>
<td>351; CSEM 240, CSEM 370, CSEM 441; ZOOL 351</td>
<td></td>
</tr>
<tr>
<td>MICR 490 or PLB 492 or PLB 493A or ZOOL 491 or ZOOL 492 or ZOOL 493 or ZOOL 496 or</td>
<td>3</td>
</tr>
<tr>
<td>ZOOL 497</td>
<td></td>
</tr>
<tr>
<td>Electives</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>120</td>
</tr>
</tbody>
</table>

1 The supportive skills requirement may also be met by one of the following: (a) completing three years of one language in high school with a grade of C or better; or (b) earning eight credit hours of 100-level course in one language by proficiency examination.

2 Students must have a grade point average of 2.0 or better in these requirements for biological sciences. Satisfies the three-hour University Core Curriculum Group II Science requirement.

3 Satisfies the three-hour University Core Curriculum Group II Science requirement.

4 Satisfies the three-hour University Core Curriculum Group I Science requirement.

5 Satisfies the three-hour University Core Curriculum Mathematics requirement.

6 Students must have a grade point average of 2.0 or better in these requirements for biological sciences.

**Biological Sciences Minor**

A minor in Biological Sciences consists of a minimum of 21 hours and must include BIOL 211, BIOL 212, BIOL 213 (12 hours), and nine hours of BIOL 304, BIOL 305, BIOL 306, BIOL 307, BIOL 409 or BIOL 415. A student with a major in one of the four life sciences may not take a minor in Biological Sciences. Program must approve all minors.

**Certificate Program in Histotechnology**

See Histotechnology.
Southern Illinois University
Carbondale, IL 62901
Phone: (618) 453-2121

Catalog Year Statement:
Students starting their collegiate training during the period of time covered by this catalog (see bottom of this page) are subject to the curricular requirements as specified herein. The requirements herein will extend for a seven calendar-year period from the date of entry for baccalaureate programs and three years for associate programs. Should the University change the course requirements contained herein subsequently, students are assured that necessary adjustments will be made so that no additional time is required of them.