**Life Sciences (7-12)**

**Teacher Licensure Requirements**

**Program Requirements**

**Gen Ed:** Satisfactory completion of all general education requirements (generally 55 sem hrs).

**Major:** Satisfactory completion of a major in Biology (42 or 41 sem hrs for B.A. degree as described below) plus coursework in related sciences (24 sem hrs) for a total of 66 sem hrs in the sciences. For students seeking a B.S. degree, see the current academic catalog for courses required beyond what is listed below.

**Education:** Satisfactory completion of a minor in education (34 sem hrs) as described below. Before being admitted to the Teacher Education Program, the student must first demonstrate Math competency by earning a grade of C- or higher in a 4 sem hr course that fulfills the general education quantitative reasoning requirement (courses designated with a "Q").

*Note:* All courses in the teaching field must be passed with grades of C- or higher. See the Academic Catalog for additional requirements for admission and continuance in the program. Courses may not be offered every year. Be sure to check with the department for schedule of course offerings.

**Required in Biology** (42 sem hrs)

<table>
<thead>
<tr>
<th>AREA I: Fundamental Courses in Biology</th>
</tr>
</thead>
<tbody>
<tr>
<td>____ Biol 170/171 Concepts of Biology: Biological Information (5)</td>
</tr>
<tr>
<td>____ Biol 180/181 Concepts of Biology: Energy &amp; Resources in Biology (5)</td>
</tr>
<tr>
<td>(Note: Courses can be taken in either order)</td>
</tr>
<tr>
<td>____ Biol 255 Biological Literacy (4)</td>
</tr>
</tbody>
</table>

| AREA II: A minimum of 4 hours each from Groups 1, 2 & 3, and 9 hours from Group 4. Two of these upper-level courses must fulfill the botanical/zoological requirement of the Biology major by examining both plant and non-human animal life. |

- **Group 1: Molecules, Organelles, Cells**
  - ____ Biol 210 Molecular Neurobiology (5)
  - ____ Biol 214 Developmental Biology (5)
  - ____ Biol 215 Genetics (5)
  - ____ Biol 310 Molecular Biology (5)
  - ____ Biol 312 The Cell (5)
  - ____ Biol 316 Molecular Genetics (5)

- **Group 2: Tissues, Organs, Systems**
  - ____ Biol 325 Human Anatomy and Physiology I (5)

- **Group 3: Organisms**
  - ____ Biol 230 Woody Plants (4)
  - ____ Biol 231 Vertebrate Zoology (5)
  - ____ Biol 232 Herpetology (5)
  - ____ Biol 233 Ornithology (5)
  - ____ Biol 234 Morphology of Nonvasc Plants (5)
  - ____ Biol 235 Morphology & Taxonomy of Vascular Plants (5)
  - ____ Biol 237 Microbiology (5)
  - ____ Biol 238 Entomology (5)
  - ____ Biol 239 Marine Invertebrates (5)

**Group 4: Populations, Communities, Ecosystems**

- ____ Biol 347 Evolution (4)

Plus one from the following courses:

- ____ Biol 245 Wildlife Management (5)
- ____ Biol 247 Marine Ecology (5)
- ____ Biol 248 Compar Comm: Bahamas (5)
- ____ Biol 249 Compar Comm: N. Forests (5)
- ____ Biol 341 Limnology (5)
- ____ Biol 342 Stream Ecology (5)
- ____ Biol 346 Ecology (5)

**Area III:**

Note: This requirement is satisfied by the two courses completed in Area II, Group 4.

**Area IV: Senior Capstone**

- ____ Biol 406 Senior Capstone Seminar (4)

**Required in Related Sciences** (24 sem hrs)

The following courses in "related sciences" are required for purposes of teacher licensure.

<table>
<thead>
<tr>
<th>AREA V: Required in Chemistry</th>
</tr>
</thead>
<tbody>
<tr>
<td>____ Chem 121 Models of Chem. Systems (5)</td>
</tr>
<tr>
<td>____ Chem 162 Chem Struc. &amp; Analysis (5)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>AREA VI: Supporting Science</th>
</tr>
</thead>
<tbody>
<tr>
<td>From Geology, 5 sem hrs from the following</td>
</tr>
<tr>
<td>____ Geol 150 Physical Geology (5)</td>
</tr>
<tr>
<td>____ Geol 160 Environmental Geology (5)</td>
</tr>
<tr>
<td>From Physics, 9 sem hrs</td>
</tr>
<tr>
<td>____ Phys 107 Astronomy (4)</td>
</tr>
<tr>
<td>____ Phys 200 Mechanics and Waves (5)</td>
</tr>
</tbody>
</table>

(continued)
**Required in Education** (34 sem hours)

Note: All education courses must be passed with grades of C- or higher. See Academic Catalog for additional requirements for admission to and continuance in the program.

**Entry-Level Courses**

- Educ 103 S Sociological Perspectives in Education (4)
- or, Educ 104 R Philosophical Perspectives in Education (4)
- Educ 112 Human Development & Learning Theory: Middle Childhood thr Young Adult (2)
- Educ 120 Introduction to Students with Special Needs (2)
  (Educ 112 and 120 are to be taken concurrently)

**Advanced Courses**

Admission to the Teacher Education Program is required. Apply no later than midterm prior to enrollment in the first course.

- Educ 304 Responsive Schools for the Middle Grades (2)
  *(Offered Fall & Spring semesters; Spring scheduling preferred.)*
- Educ 306 Teaching and Learning in the High School (4)
  *(Offered Spring semesters only)*
- Educ 312 Reading and Writing in Content Areas (4)
  *(Offered Fall semesters only)*

**Student Teaching Term**

Application for permission to student teach must be submitted early spring term of the junior year. The student teaching term will consist of methods courses, followed by the full-time student teaching placement. Other coursework, if taken, must be scheduled for late afternoon or evenings during the term.

- Educ 342 Including Students with Special Needs in Middle & Secondary Classes (2)
- Educ 348 Teaching Science in Secondary Schools (2)
- Educ 495 Student Teaching (12)

**Additional Education Requirements:**

- Successful completion of State Board of Education Examinations (Praxis II)
  *(Complete during the senior year)*

**Note:** Changes in this program of study must be approved by the Chairperson of the major department and the Director of Teacher Licensure, Wittenberg University.