

# Biology / Secondary Education

## Bachelor of Science (BS.BIOL(SEC))

| Core Requirements                   |                            |   | Credits   | Notes/Instructions  |
|-------------------------------------|----------------------------|---|-----------|---|
| College Sem.                        | Quest for Meaning          | CSEM 100  | 3         | †A student may be required to take ENGL 105 and/or MATH 100 based on placement exams administered prior to their first semester at King's College. ENGL 105 and MATH 100 are 3-credit courses and will count as free electives.<br>†† The Intercultural Competence requirement can be satisfied by taking a 100-level language class for 3 credits or participating in an approved Study Abroad experience. (See college catalog for more information)<br>SBM = Satisfied By Major requirement(s) and credit(s) listed below. |
| Communication & Creative Expression | Writing                    | ENGL 110†   | 3         |   |
|                                     | Oral Communication         | COMM 101  | 3         |   |
|                                     | Literature                 | ENGL 140-149  | 3         |   |
|                                     | The Arts                   | ARTS 100-149  | 3         |   |
| Citizenship                         | History                    | HIST 100-149  | 3         |   |
|                                     | Intercultural              | FREN/GERM/SPAN 100-level or Study Abroad††                        | 3         |   |
|                                     | Global Connections         | ECON 150-199; GEOG 150-199; HIST 150-199; PS 150-199; SOC 150-199 | 3         |   |
| Quantitative & Scientific Reasoning | SBM Quantitative Reasoning | MATH 120+ or higher level   | -         |   |
|                                     | SBM Scientific Endeavor    | NSCI 100  | -         |   |
|                                     | SBM Science in Context     | NSCI 171-199  | -         |   |
|                                     | Human Beh. & Soc. Inst     | ECON 111, 112; GEOG 101, 102; PS 101, PSYC 101, SOC 101           | 3         |   |
| Wisdom, Faith, & the Good Life      | Introduction to Phil.      | PHIL 101  | 3         |   |
|                                     | Phil. Investigations       | PHIL 170-199  | 3         |   |
|                                     | Theology & Wisdom          | THEO 150-159  | 3         |   |
|                                     | Theology & the Good Life   | THEO 160-169  | 3         |   |
| <b>Total Core Credits</b>           |                            |   | <b>39</b> |   |

| Major Requirements         | Credits | Major Requirements                   | Credits | Secondary Education Requirements         | Credits |
|----------------------------|---------|--------------------------------------|---------|--|---------|
| BIOL 113                   | 3       | CHEM 113                             | 3       | EDUC 202                                 | 3       |
| BIOL 113L                  | 1       | CHEM 113L                            | 1       | EDUC 231                                 | 1       |
| BIOL 210 <sup>PR</sup>     | 3       | CHEM 114 <sup>PR</sup>               | 3       | EDUC 232                                 | 1       |
| BIOL 210L <sup>PR</sup>    | 1       | CHEM 114L <sup>PR</sup>              | 1       | EDUC 235 <sup>3</sup>                    | 3       |
| BIOL 213 <sup>PR</sup>     | 3       | CHEM 241 <sup>PR</sup>               | 3       | EDUC 240 <sup>3</sup>                    | 3       |
| BIOL 213L <sup>PR</sup>    | 1       | CHEM 241L <sup>PR</sup>              | 1       | EDUC 270 <sup>3</sup>                    | 3       |
| BIOL 270 <sup>5</sup>      | 1       | CHEM 242 <sup>PR</sup>               | 3       | EDUC 302 <sup>3,4</sup>                  | 3       |
| BIOL 370 <sup>6</sup>      | 2       | CHEM 242L <sup>PR</sup>              | 1       | EDUC 305 <sup>3,4</sup>                  | 3       |
| BIOL 470 <sup>7</sup>      | 2       | MATH 125                             | 4       | EDUC 350 <sup>3,4</sup>                  | 3       |
| BIOL Elective*             | 4       | MATH 128                             | 4       | EDUC 366 <sup>3,4</sup>                  | 3       |
| BIOL Elective*             | 4       | PHYS 111                             | 3       | EDUC 440 <sup>4</sup>                    | 3       |
| BIOL Elective*             | 3       | PHYS 111L                            | 1       | EDUC 467 <sup>3,4</sup>                  | 10      |
| BIOL Elective*             | 3       | PHYS 112 <sup>PR</sup>               | 3       | EDUC 468 <sup>3,4</sup>                  | 2       |
| BIOL 490/RIC <sup>8</sup>  | 4       | PHYS 112L <sup>PR</sup>              | 1       |  |         |
|                            |         | <b>Other Requirements</b>            |         |  |         |
|                            |         | HCE 101 Holy Cross Exp.              | 1       |  |         |
| <b>Total Major Credits</b> |         | <b>Total Major and Other Credits</b> |         | <b>Total Secondary Education Credits</b> |         |
| <b>35</b>                  |         | <b>33</b>                            |         | <b>41</b>                                |         |

### Total Credits Required for Graduation = 148

\*In addition to the Major Sequence requirements, a Biology Major must also complete a minimum of five (5) upper-level courses (minimum of three with lab). In addition, one of these courses must be research intensive (consult with Biology advisor).

| Biology Electives* <sup>PR</sup>                 |   |  |
|--|---|--|
| BIOL 310 Computer Modeling in Biology & Env. Sci | BIOL 349 Animal Behavior                | BIOL 416 Parasitology                    |
| BIOL 314 Microbiology                            | BIOL 350 Developmental Biology          | BIOL 420 Botany                          |
| BIOL 323 Genetics                                | BIOL 353 Biochemistry                   | BIOL 430 Ecology                         |
| BIOL 326 Immunology                              | BIOL 355 Comparative Vertebrate Anatomy | BIOL 447 Physiology                      |
| BIOL 330 Introductory Bioinformatics             |   | BIOL 450 Molecular Genetics: DNA Science |
| BIOL 336 Cell Biology                            | BIOL 401 Special Topics in Env. Science |  |

**NOTE:** All Secondary Teacher Certification candidates must complete six credits of college level mathematics and six credits of college level English:

|                        |          |                |
|------------------------|----------|----------------|
| <b>Math Courses</b>    | MATH 125 | MATH 128       |
| <b>English Courses</b> | ENGL 110 | ENGL 140 - 149 |

The Pennsylvania Department of Education requires secondary teachers to have a degree in the content area for certification. Students seeking secondary certification must meet with his/her specific content area department for content area courses required for the degree. The Education Division is not responsible for content area or Core courses for secondary certification candidates.

See reverse side for a suggested sequence

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## Suggested Sequence

A suggested course sequence of degree requirements is listed below. Refer to the college catalog for course titles, descriptions, and prerequisites. Always consult your Academic Advisor when planning and scheduling your classes.

| Fall  |    | Credits     | Spring  |  | Credits     |
|---|----|-------------|---|--|-------------|
| BIOL 113 <sup>2</sup> Evolution & Diversity   |    | 3           | BIOL 210 <sup>PR</sup> Organisms & Their Ecosystems   |  | 3           |
| BIOL 113L Evolution & Diversity Lab   |    | 1           | BIOL 210L <sup>PR</sup> Organisms & Their Ecosystems Lab  |  | 1           |
| CHEM 113 <sup>2</sup> General Chemistry I   |    | 3           | CHEM 114 <sup>PR</sup> General Chemistry II   |  | 3           |
| CHEM 113L General Chemistry I Lab   |    | 1           | CHEM 114L <sup>PR</sup> General Chemistry II Lab  |  | 1           |
| Core Course <sup>1</sup>  |    | 3           | MATH 125 <sup>2</sup> Calculus I  |  | 4           |
| Core Course <sup>1</sup>  |    | 3           | EDUC 202 – Educ. Phil, Issues & Trends  |  | 3           |
| HCE 101 Holy Cross Experience   |    | 1           |   |  |             |
|   |    | <b>15</b>   |   |  | <b>15</b>   |
| Fall  |    | Credits     | Spring  |  | Credits     |
| BIOL 213 <sup>PR</sup> Cell & Molecular Biology   |    | 3           | BIOL 270 <sup>5</sup> Sophomore Seminar   |  | 1           |
| BIOL 213L <sup>PR</sup> Cell & Molecular Biology Lab  |    | 1           | BIOL Elective*  |  | 3           |
| CHEM 241 <sup>PR</sup> Organic Chemistry I  |    | 3           | CHEM 242 <sup>PR</sup> Organic Chemistry II   |  | 3           |
| CHEM 241L <sup>PR</sup> Organic Chemistry I Lab   |    | 1           | CHEM 242L <sup>PR</sup> Organic Chemistry II Lab  |  | 1           |
| MATH 128 Intro to Statistics and Data Analysis  |    | 4           | Core Course <sup>1</sup>  |  | 3           |
| CORE  |    | 3           | EDUC 240 <sup>3</sup> Sec. Multicult., Linguistic & Inst. Meth.   |  | 3           |
| EDUC 235 <sup>3</sup> Sec. Development, Cognition, & Learn  |    | 3           | CORE  |  | 3           |
|   |    | <b>18**</b> |   |  | <b>17**</b> |
| <b>Admission to Candidacy</b> (Complete and return “Application for Teacher Education Program Candidacy” to the Education Department no sooner than the completion of 48 credits and no later than 65 credits.) |    |             |   |  |             |
| Fall  |    | Credits     | Spring  |  | Credits     |
| PHYS 111 Physics for the Life Sciences I  |    | 3           | PHYS 112 <sup>PR</sup> Physics for the Life Sciences II   |  | 3           |
| PHYS 111L Physics for the Life Sciences I Lab   |    | 1           | PHYS 112L <sup>PR</sup> Physics for the Life Sciences II Lab  |  | 1           |
| BIOL Elective*  |    | 3           | BIOL Elective*  |  | 3           |
| BIOL 370 <sup>6</sup> Junior Seminar  |    | 2           | BIOL Elective Lab*  |  | 1           |
| Core Course <sup>1</sup>  |    | 3           | EDUC 305  |  | 3           |
| Core Course <sup>1</sup>  |    | 3           | Core Course <sup>1</sup>  |  | 3           |
| EDUC 270  |    | 3           | Core Course <sup>1</sup>  |  | 3           |
|   |    | <b>18**</b> |   |  | <b>18**</b> |
| Fall  |    | Credits     | Spring  |  | Credits     |
| BIOL 490 or RIC <sup>8</sup> Elective with lab*   |    | 4           | BIOL 470 <sup>7</sup> Senior Seminar  |  | 2           |
| Core Course <sup>1</sup>  |    | 3           | BIOL Elective*  |  | 3           |
| Core Course <sup>1</sup>  |    | 3           | BIOL Elective Lab*  |  | 1           |
| Core Course <sup>1</sup>  |    | 3           | Core Course <sup>1</sup>  |  | 3           |
| EDUC 302 <sup>3,4</sup> Secondary Science Methods   |    | 3           | EDUC 350 <sup>3,4</sup> Secondary Classroom Management  |  | 3           |
| EDUC 231 and EDUC 232   |    | 2           | EDUC 366 <sup>3,4</sup> Methods For Teaching Diverse Learners   |  | 3           |
|   |    | <b>18</b>   |   |  | <b>15</b>   |
| Fall  |    | Credits     | <b>Students who wish to finish in four (4) years<br/>(including Student Teaching)<br/>MUST take summer courses.</b> |  |             |
| EDUC 467 <sup>3,4</sup> Observation & Student Teach. (Sec.)   | 10 |             |   |  |             |
| EDUC 468 <sup>3,4</sup> Student Teaching Seminar  | 2  |             |   |  |             |
| EDUC 440 <sup>4</sup> Inclusive Education   | 3  |             |   |  |             |
| <b>Take Praxis II</b>   |    | <b>15</b>   |   |  |             |
| <b>Total Credits Required for Graduation = 145</b>  |    |             |   |  |             |

**NOTES:**  
 \*\* Students are encouraged to take some Core courses during the summer months to help “lighten” their course load during a semester.  
<sup>1</sup> Choose one course from each of the Core Requirements listed on the reverse side.  
<sup>2</sup> Course may satisfy both a Major and a Core requirement. MATH 125 satisfies the Quantitative Reasoning Core requirement; BIOL 113 and CHEM 113 satisfies the Scientific Endeavor and Science in Context Core requirements.  
<sup>3</sup> Updated Child Abuse & Criminal Record & FBI Clearances **REQUIRED** for EDUC 235, EDUC 240, EDUC 270, EDUC 302, EDUC 305, EDUC 350, EDUC 366, EDUC 440, EDUC 467, and EDUC 468.  
<sup>4,5</sup> Sophomore Seminar – Spring Semester of Sophomore Year  
<sup>6</sup> Junior Seminar – Fall or Spring Semester of Junior Year  
<sup>7</sup> Senior Seminar – Spring Semester of Senior Year  
<sup>8</sup> Research requirement: Biology 490 or Biology Elective that is designated as a Research intensive course (RIC)  
<sup>PR</sup> Course has a prerequisite – check college catalog.