

# BIOLOGY, B.S. (UNIVERSITY COLLEGE)

**Begin Campus:** Any Penn State Campus

**End Campus:** Beaver, Brandywine, Schuylkill, Scranton, York

## Suggested Academic Plan

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2023-24 academic year. To access previous years' suggested academic plans, please visit the archive (<https://bulletins.psu.edu/undergraduate/archive/>) to view the appropriate Undergraduate Bulletin edition (*Note: the archive only contains suggested academic plans beginning with the 2018-19 edition of the Undergraduate Bulletin*).

### Beaver Campus

#### General Option: Biology, B.S. at Beaver Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

#### First Year

| Fall                        | Credits Spring                        | Credits     |
|-----------------------------|---------------------------------------|-------------|
| BIOL 110 <sup>*#</sup>      | 4 BIOL 240W <sup>*#</sup>             | 4           |
| CHEM 108 (Recommended)      | 1 CHEM 112 <sup>*†</sup>              | 3           |
| CHEM 110 <sup>*#†</sup>     | 3 CHEM 113 <sup>†</sup>               | 1           |
| CHEM 111 <sup>†</sup>       | 1 MATH 141 <sup>‡</sup>               | 4           |
| MATH 140 <sup>*†##</sup>    | 4 General Education Course (GA/GS/GH) | 3           |
| ENGL 15 or 30H <sup>‡</sup> | 3 General Education Course (GHW)      | 1.5         |
| BIOL 1                      | 1                                     |             |
| PSU 8                       | 1                                     |             |
|                             | <b>18</b>                             | <b>16.5</b> |

#### Second Year

| Fall                     | Credits Spring             | Credits     |
|--------------------------|----------------------------|-------------|
| BIOL 220W <sup>*#</sup>  | 4 BIOL 230W <sup>*#</sup>  | 4           |
| CHEM 210                 | 3 CHEM 212                 | 3           |
| CAS 100 <sup>†</sup>     | 3 CHEM 213                 | 2           |
| General Education Course | 3 General Education Course | 3           |
| General Education Course | 3 General Education Course | 3           |
|                          | General Education Course   | 1.5         |
|                          | <b>16</b>                  | <b>16.5</b> |

#### Third Year

| Fall                             | Credits Spring                      | Credits |
|----------------------------------|-------------------------------------|---------|
| BIOL 4XX (Group I) <sup>1</sup>  | 3 BIOL 4XX (Group III) <sup>1</sup> | 3       |
| BIOL 4XX (Group II) <sup>1</sup> | 3 BIOL 4XX (Group IV) <sup>1</sup>  | 3       |
| PHYS 250 <sup>2</sup>            | 4 ENGL 202C <sup>‡</sup>            | 3       |
| STAT 200 or 250                  | 3 PHYS 251 <sup>2</sup>             | 4       |
| Elective / Supporting Course     | 3 Elective / Supporting Course      | 3       |

|                          |             |           |
|--------------------------|-------------|-----------|
| General Education Course | 1.5         |           |
|                          | <b>17.5</b> | <b>16</b> |

#### Fourth Year

| Fall                           | Credits Spring                 | Credits   |
|--------------------------------|--------------------------------|-----------|
| BIOL 4XX Group V <sup>1</sup>  | 3 BIOL 4XX                     | 3         |
| BIOL 4XX Group VI <sup>1</sup> | 3 BIOL 4XX                     | 3         |
| General Education Course       | 3 Elective / Supporting Course | 3         |
| Elective / Supporting Course   | 3 Elective / Supporting Course | 3         |
| Elective / Supporting Course   | 3 Elective / Supporting Course | 3         |
|                                | <b>15</b>                      | <b>15</b> |

#### Total Credits 130.5

\* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

# Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

<sup>1</sup> \*BIOL course groupings: **Group I** = Plants & fungi; **Group II** = Evolutionary biology; **Group III** = Genetics; **Group IV** = Ecology; **Group V** = Animal physiology; **Group VI** = Practicum

<sup>2</sup> Students in 2+2 biology program are recommended to take PHYS 250 and PHYS 251 in year 2 rather than year 3

#### University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

## Brandywine Campus

### General Option: Biology, B.S. at Brandywine Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

#### First Year

| Fall                        | Credits Spring             | Credits   |
|-----------------------------|----------------------------|-----------|
| BIOL 110 <sup>*#†</sup>     | 4 BIOL 240W <sup>*#†</sup> | 4         |
| CHEM 110 <sup>*#†</sup>     | 3 CHEM 112 <sup>*†</sup>   | 3         |
| CHEM 111 <sup>†</sup>       | 1 CHEM 113 <sup>†</sup>    | 1         |
| MATH 140B <sup>*#†</sup>    | 4 MATH 141B                | 4         |
| ENGL 15 or 30H <sup>‡</sup> | 3 General Education Course | 3         |
| PSU 16                      | 1                          |           |
|                             | <b>16</b>                  | <b>15</b> |

#### Second Year

| Fall                     | Credits Spring             | Credits   |
|--------------------------|----------------------------|-----------|
| BIOL 220W <sup>*#†</sup> | 4 BIOL 230W <sup>*#†</sup> | 4         |
| CHEM 210                 | 3 CHEM 212                 | 3         |
| CHEM 213                 | 1 CHEM 213                 | 1         |
| CAS 100 <sup>‡</sup>     | 3 ENGL 202 <sup>‡</sup>    | 3         |
| General Education Course | 3 General Education Course | 3         |
|                          | <b>14</b>                  | <b>14</b> |

#### Third Year

| Fall                     | Credits Spring             | Credits   |
|--------------------------|----------------------------|-----------|
| 4XX BIOL                 | 3 4XX BIOL                 | 3         |
| 4XX BIOL                 | 3 PHYS 251                 | 4         |
| PHYS 250                 | 4 General Education Course | 3         |
| STAT 200                 | 4 Elective                 | 3         |
| General Education Course | 3 Elective                 | 3         |
|                          | <b>17</b>                  | <b>16</b> |

#### Fourth Year

| Fall                     | Credits Spring           | Credits   |
|--------------------------|--------------------------|-----------|
| 4XX BIOL                 | 3 4XX BIOL               | 3         |
| 4XX BIOL                 | 3 Elective               | 2         |
| Elective                 | 3 Elective               | 3         |
| Elective                 | 3 Elective               | 3         |
| General Education Course | 3 Elective               | 3         |
|                          | General Education Course | 3         |
|                          | <b>15</b>                | <b>17</b> |

#### Total Credits 124

\* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

# Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

#### University Requirements and General Education Notes:

**Vertebrate Physiology Option: Biology, B.S. at Brandywine Campus**

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

| <b>First Year</b>           |                            |                |
|-----------------------------|----------------------------|----------------|
| <b>Fall</b>                 | <b>Credits Spring</b>      | <b>Credits</b> |
| BIOL 110*                   | 4 BIOL 240W*               | 4              |
| CHEM 110*                   | 3 CHEM 112*                | 3              |
| CHEM 111                    | 1 CHEM 113                 | 1              |
| ENGL 15 or 30H <sup>‡</sup> | 3 MATH 141                 | 4              |
| MATH 140B*                  | 4 General Education Course | 3              |
| PSU 16                      | 1                          |                |
|                             | <b>16</b>                  | <b>15</b>      |
| <b>Second Year</b>          |                            |                |
| <b>Fall</b>                 | <b>Credits Spring</b>      | <b>Credits</b> |
| BIOL 220W*                  | 4 BIOL 230W*               | 4              |
| CHEM 210                    | 3 CHEM 212                 | 3              |
| CHEM 213                    | 1 CHEM 213                 | 1              |
| CAS 100 <sup>‡</sup>        | 3 ENGL 202 <sup>‡</sup>    | 3              |
| General Education Course    | 3 General Education Course | 3              |
|                             | <b>14</b>                  | <b>14</b>      |
| <b>Third Year</b>           |                            |                |
| <b>Fall</b>                 | <b>Credits Spring</b>      | <b>Credits</b> |
| BMB 401                     | 3 BMB 402                  | 3              |
| 4XX BIOL                    | 3 4XX BIOL                 | 3              |
| PHYS 250                    | 4 PHYS 251                 | 4              |
| STAT 200                    | 4 General Education Course | 3              |
| General Education Course    | 3 Elective                 | 3              |
|                             | <b>17</b>                  | <b>16</b>      |
| <b>Fourth Year</b>          |                            |                |
| <b>Fall</b>                 | <b>Credits Spring</b>      | <b>Credits</b> |
| 4XX BIOL                    | 3 BIOL 472                 | 3              |
| 4XX BIOL                    | 3 BIOL 473                 | 2              |
| Elective                    | 3 Elective                 | 3              |
| Elective                    | 3 Elective                 | 3              |
| General Education Course    | 3 Elective                 | 3              |
|                             | General Education Course   | 3              |
|                             | <b>15</b>                  | <b>17</b>      |

**Total Credits 124**

\* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

# Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

**University Requirements and General Education Notes:**

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

## Schuylkill Campus

### Ecology Option: Biology, B.S. at Schuylkill Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

#### First Year

| Fall                                 | Credits Spring             | Credits     |
|--------------------------------------|----------------------------|-------------|
| BIOL 110 <sup>*#†</sup>              | 4 BIOL 240W <sup>*#†</sup> | 4           |
| CHEM 110 <sup>*#†</sup>              | 3 CHEM 112 <sup>*†</sup>   | 3           |
| CHEM 111 <sup>†</sup>                | 1 CHEM 113 <sup>†</sup>    | 1           |
| ENGL 15, 30H, or ESL 15 <sup>†</sup> | 3 MATH 141B <sup>†</sup>   | 4           |
| MATH 140B <sup>*†#1</sup>            | 4 General Education Course | 3           |
| PSU 16                               | 1 General Education Course | 1.5         |
|                                      | <b>16</b>                  | <b>16.5</b> |

#### Second Year

| Fall                     | Credits Spring  | Credits   |
|--------------------------|---|-----------|
| BIOL 220W <sup>*#†</sup> | 4 General Education Course  | 3         |
| BIOL 230W <sup>*#†</sup> | 4 BIOL 463  | 3         |
| STAT 200 <sup>†</sup>    | 4 CAS 100 <sup>†</sup>  | 3         |
| General Education Course | 3 General Education Course  | 3         |
| General Education Course | 1.5 Elective-supporting course<br>(consult with academic adviser for options) | 3         |
|                          | <b>16.5</b>   | <b>15</b> |

#### Third Year

| Fall   | Credits Spring   | Credits   |
|--|--|-----------|
| BIOL 4XX (consult with academic adviser for options)                       | 3 BIOL 4XX (consult with academic adviser for options)                       | 3         |
| STAT 462 or 464  | 3 ENGL 202C <sup>†</sup>   | 3         |
| CHEM 210   | 3 CHEM 212   | 3         |
| General Education Course   | 3 CHEM 213   | 2         |
| Elective- supporting course<br>(consult with academic adviser for options) | 3 Elective- supporting course<br>(consult with academic adviser for options) | 3         |
|  | <b>15</b>  | <b>14</b> |

#### Fourth Year

| Fall  | Credits Spring  | Credits |
|---|---|---------|
| BIOL 4XX (consult with academic adviser for options)                        | 3 BIOL 4XX (consult with academic adviser for options)                        | 3       |
| Elective - supporting course<br>(consult with academic adviser for options) | 4 Elective - supporting course<br>(consult with academic adviser for options) | 4       |
| General Education Course  | 3 General Education Course  | 3       |
| PHYS 250 <sup>†</sup>   | 4 PHYS 251 <sup>†</sup>   | 4       |

BIOL 4XX (consult with academic adviser for options) 3

**17**

**14**

#### Total Credits 124

\* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

# Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

<sup>1</sup> If ALEKS placement is not for MATH 140, then a student may need to start with a pre-requisite MATH course (MATH 21, MATH 22, MATH 26)

#### University Requirements and General Education Notes:

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W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

**General Option: Biology, B.S. at Schuylkill Campus**

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**First Year**

| Fall                            | Credits Spring                   | Credits     |
|---------------------------------|----------------------------------|-------------|
| BIOL 110 <sup>*#</sup>          | 4 BIOL 240W <sup>*#</sup>        | 4           |
| CHEM 110 <sup>*#</sup>          | 3 CAS 100 <sup>†</sup>           | 3           |
| CHEM 111                        | 1 CHEM 112 <sup>*</sup>          | 3           |
| ENGL 15 or 30H <sup>‡</sup>     | 3 CHEM 113                       | 1           |
| MATH 140 or 140B <sup>*#1</sup> | 4 MATH 141 or 141B               | 4           |
| PSU 16                          | 1 General Education Course (GHW) | 1.5         |
|                                 | <b>16</b>                        | <b>16.5</b> |

**Second Year**

| Fall                           | Credits Spring  | Credits   |
|--------------------------------|---|-----------|
| BIOL 220W <sup>*#</sup>        | 4 BIOL 4xx (consult with an Academic Adviser for options) | 3         |
| BIOL 230W <sup>*#</sup>        | 4 ENGL 202C <sup>‡</sup>                                  | 3         |
| General Education Course (GHW) | 1.5 STAT 200  | 4         |
| General Education Course       | 3 General Education Course                                | 3         |
| General Education Course       | 3 General Education Course                                | 3         |
|                                | <b>15.5</b>   | <b>16</b> |

**Third Year**

| Fall   | Credits Spring   | Credits   |
|--|--|-----------|
| CHEM 210   | 3 CHEM 212   | 3         |
| BIOL 4XX (consult with academic adviser for options)                   | 3 CHEM 213   | 2         |
| BIOL 4XX (consult with academic adviser for options)                   | 3 Elective-supporting Course (consult with academic adviser for options) | 3         |
| General Education Course   | 3 Elective-supporting Course (consult with academic adviser for options) | 3         |
| Elective-supporting Course (consult with academic adviser for options) | 3 General Education Course   | 3         |
|  | <b>15</b>  | <b>14</b> |

**Fourth Year**

| Fall   | Credits Spring   | Credits |
|--|--|---------|
| PHYS 250   | 4 PHYS 251   | 4       |
| BIOL 4XX (consult with academic adviser for options) | 3 BIOL 4XX (consult with academic adviser for options)                   | 3       |
| BIOL 4XX (consult with academic adviser for options) | 3 Elective-supporting Course (consult with academic adviser for options) | 3       |

|  |  |           |
|--|--|-----------|
| Elective-supporting Course (consult with academic adviser for options) | 3 Elective-supporting Course (consult with academic adviser for options) | 3         |
| Elective-supporting Course (consult with academic adviser for options) | 3 Elective-supporting Course (consult with academic adviser for options) | 3         |
|  | <b>16</b>  | <b>16</b> |

**Total Credits 125**

\* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

# Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

<sup>1</sup> If placement is not for MATH 140, then review math courses will be needed (MATH 21, MATH 22, & MATH 26).

**University Requirements and General Education Notes:**

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General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

**Integrative Studies (either Inter-domain or Linked Courses):**

Integrative Studies may be completed within the 30 Knowledge Domain credits and must be completed with either Inter-domain or Linked courses, not a combination of both. For Inter-domain courses, credit may apply to both Knowledge Domain designations but does not reduce the total number of credits within the Knowledge Domains and at least 3 credits of single-domain coursework are required in each of the 5 Knowledge Domains. Linked courses used for the Integrative Studies requirement must represent two different Knowledge Domains.

### Genetics and Developmental Biology Option: Biology, B.S. at Schuylkill Campus

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#### First Year

| Fall                                 | Credits Spring              | Credits     |
|--------------------------------------|-----------------------------|-------------|
| BIOL 110 <sup>*##†</sup>             | 4 BIOL 240W <sup>*##†</sup> | 4           |
| CHEM 110 <sup>*##†</sup>             | 3 CHEM 112 <sup>*†</sup>    | 3           |
| CHEM 111 <sup>†</sup>                | 1 CHEM 113 <sup>†</sup>     | 1           |
| ENGL 15, 30H, or ESL 15 <sup>‡</sup> | 3 MATH 141B <sup>‡</sup>    | 4           |
| MATH 140B <sup>*†#1</sup>            | 4 General Education Course  | 3           |
| PSU 16                               | 1 General Education Course  | 1.5         |
|                                      | <b>16</b>                   | <b>16.5</b> |

#### Second Year

| Fall                      | Credits Spring             | Credits   |
|---------------------------|----------------------------|-----------|
| BIOL 220W <sup>*##†</sup> | 4 BIOL 322                 | 3         |
| BIOL 230W <sup>*##†</sup> | 4 General Education Course | 3         |
| CHEM 210                  | 3 CAS 100 <sup>‡</sup>     | 3         |
| General Education Course  | 3 CHEM 212                 | 3         |
| General Education Course  | 1.5 CHEM 213               | 2         |
|                           | <b>15.5</b>                | <b>14</b> |

#### Third Year

| Fall   | Credits Spring   | Credits   |
|--|--|-----------|
| BMB 401  | 3 BMB 402  | 3         |
| STAT 200 <sup>†</sup>  | 4 ENGL 202C <sup>‡</sup>   | 3         |
| Elective-supporting course<br>(consult with academic<br>adviser for options) | 3 BMB 400  | 3         |
| General Education Course   | 3 MICRB 201<br>& MICRB 202   | 5         |
| General Education Course   | 3 Elective - supporting course<br>(consult with academic<br>adviser for options) | 3         |
|  | <b>16</b>  | <b>17</b> |

#### Fourth Year

| Fall   | Credits Spring   | Credits   |
|--|--|-----------|
| BIOL 460H  | 4 BIOL 4XX (consult with<br>academic adviser for<br>options)                     | 3         |
| BIOL 4XX (consult with<br>academic adviser for<br>options) | 3 Elective - supporting course<br>(consult with academic<br>adviser for options) | 3         |
| General Education Course                                   | 3 General Education Course   | 3         |
| PHYS 250 <sup>†</sup>                                      | 4 PHYS 251 <sup>†</sup>  | 4         |
|  | BIOL 430   | 3         |
|  | <b>14</b>  | <b>16</b> |

**Total Credits 125**

# Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

<sup>1</sup> If ALEKS placement is not for MATH 140, then a student may need to start with a pre-requisite MATH course (MATH 21, MATH 22, MATH 26)

#### University Requirements and General Education Notes:

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W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

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\* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

**Vertebrate Physiology Option: Biology, B.S. at Schuylkill Campus**

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

**First Year**

| Fall                                 | Credits Spring             | Credits     |
|--------------------------------------|----------------------------|-------------|
| BIOL 110 <sup>**†</sup>              | 4 BIOL 240W <sup>**†</sup> | 4           |
| CHEM 110 <sup>**†</sup>              | 3 CHEM 112 <sup>**†</sup>  | 3           |
| CHEM 111 <sup>†</sup>                | 1 CHEM 113 <sup>†</sup>    | 1           |
| ENGL 15, 30H, or ESL 15 <sup>‡</sup> | 3 MATH 141B <sup>‡</sup>   | 4           |
| MATH 140B <sup>*‡#1</sup>            | 4 General Education Course | 3           |
| PSU 16                               | 1 General Education Course | 1.5         |
|                                      | <b>16</b>                  | <b>16.5</b> |

**Second Year**

| Fall                     | Credits Spring             | Credits   |
|--------------------------|----------------------------|-----------|
| BIOL 220W <sup>**†</sup> | 4 STAT 200 <sup>†</sup>    | 4         |
| BIOL 230W <sup>**†</sup> | 4 General Education Course | 3         |
| CHEM 210                 | 3 CAS 100 <sup>‡</sup>     | 3         |
| General Education Course | 3 CHEM 212                 | 3         |
| General Education Course | 1.5 CHEM 213               | 2         |
|                          | <b>15.5</b>                | <b>15</b> |

**Third Year**

| Fall   | Credits Spring   | Credits   |
|--|--|-----------|
| BMB 401  | 3 BMB 402  | 3         |
| BIOL 4XX (consult with academic adviser for options)                     | 3 ENGL 202C <sup>‡</sup>   | 3         |
| Elective - supporting course (consult with academic adviser for options) | 3 BIOL 4XX (consult with academic adviser for options)                     | 3         |
| General Education Course   | 3 General Education Course   | 3         |
| General Education Course   | 3 Elective - supporting course (consult with academic adviser for options) | 3         |
|  | <b>15</b>  | <b>15</b> |

**Fourth Year**

| Fall   | Credits Spring   | Credits |
|--|--|---------|
| BIOL 472   | 3 BIOL 4XX (consult with academic adviser for options)                     | 3       |
| BIOL 473   | 2 Elective - supporting course (consult with academic adviser for options) | 3       |
| BIOL 4XX (consult with academic adviser for options) | 3 Elective - supporting course (consult with academic adviser for options) | 3       |
| PHYS 250 <sup>†</sup>                                | 4 PHYS 251 <sup>†</sup>  | 4       |

|  |  |           |
|--|--|-----------|
| Elective - supporting course (consult with academic adviser for options) | 3 Elective - supporting course (consult with academic adviser for options) | 2         |
|  | <b>15</b>  | <b>15</b> |

**Total Credits 123**

\* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

# Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

<sup>1</sup> If ALEKS placement is not for MATH 140, then a student may need to start with a pre-requisite MATH course (MATH 21, MATH 22, MATH 26)

**University Requirements and General Education Notes:**

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.



## Scranton Campus

### General Option: Biology, B.S. at Scranton Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

#### First Year

| Fall                            | Credits Spring                    | Credits     |
|---------------------------------|-----------------------------------|-------------|
| BIOL 110 <sup>*#</sup>          | 4 BIOL 230W or 240W <sup>*#</sup> | 4           |
| CHEM 110 <sup>*#†</sup>         | 3 CHEM 112 <sup>*†</sup>          | 3           |
| CHEM 111 <sup>†</sup>           | 1 CHEM 113 <sup>†</sup>           | 1           |
| ENGL 15 or 30H                  | 3 CAS 100                         | 3           |
| MATH 140 or 140B <sup>*#†</sup> | 4 MATH 141 or 141B <sup>†</sup>   | 4           |
| PSU 8                           | 1 General Education Course (GHW)  | 1.5         |
|                                 | <b>16</b>                         | <b>16.5</b> |

#### Second Year

| Fall                       | Credits Spring                    | Credits   |
|----------------------------|-----------------------------------|-----------|
| BIOL 220W <sup>*#</sup>    | 4 BIOL 230W or 240W <sup>*#</sup> | 4         |
| PHYS 250 (GN) <sup>†</sup> | 4 PHYS 251 (GN) <sup>†</sup>      | 4         |
| CHEM 210                   | 3 CHEM 212<br>& CHEM 213          | 5         |
| General Education Course   | 3 STAT 200                        | 4         |
| General Education Course   | 3                                 |           |
|                            | <b>17</b>                         | <b>17</b> |

#### Third Year

| Fall                           | Credits Spring                        | Credits   |
|--------------------------------|---------------------------------------|-----------|
| BIOL 4XX Group VI - BIOL 421   | 3 BIOL 4XX Group I - Plants and Fungi | 3         |
| Elective Supporting Course     | 3 General Education Course            | 3         |
| General Education Course       | 3 General Education Course            | 3         |
| Elective Supporting Course     | 3 Elective Supporting Course          | 3         |
| Elective                       | 3 Elective                            | 3         |
| General Education Course (GHW) | 1.5                                   |           |
|                                | <b>16.5</b>                           | <b>15</b> |

#### Fourth Year

| Fall                                     | Credits Spring                         | Credits   |
|--|--|-----------|
| ENGL 202C                                | 3 BIOL 4XX Group IV - Ecology          | 3         |
| BIOL 4XX Group II - Evolutionary Biology | 3 BIOL 4XX Group V - Animal Physiology | 3         |
| BIOL 4XX Group III - BIOL 422            | 3 Elective Supporting Course           | 3         |
| Elective Supporting Course               | 3 Elective Supporting Course           | 3         |
| General Education Course                 | 3 Elective                             | 3         |
|  | <b>15</b>                              | <b>15</b> |

#### Total Credits 128

† Course satisfies General Education and degree requirement

#### University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

#### Major Requirements Notes:

Students may take PHYS 211, PHYS 212, PHYS 213, & PHYS 214 in place of PHYS 250 & PHYS 251. See adviser.

BIOL 220W is only offered in the fall semesters.

BIOL 421 is only offered every fall in odd years.

Students must take a minimum of 18 credits of 400-level biology courses with at least 3 credits from each of the following groups (each course may be used to satisfy a requirement in only one group) (sem: 5-8).

Group I (Plants and Fungi); Group II Evolutionary Biology; Group III (Genetics and Development); Group IV (Ecology); Group V (Animal Physiology); Group VI (Practicum). Courses offered to complete these major requirements may be offered on a rotating basis.

\* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

# Course is an Entrance to Major requirement



## York Campus

### General Biology Option: Biology, B.S. at York Campus

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

#### First Year

| Fall                           | Credits Spring             | Credits   |
|--------------------------------|----------------------------|-----------|
| BIOL 110*                      | 4 BIOL 220W*               | 4         |
| CHEM 110*                      | 3 CHEM 112*                | 3         |
| CHEM 111                       | 1 CHEM 113                 | 1         |
| ENGL 15 or 30H <sup>‡</sup>    | 3 General Education Course | 3         |
| General Education Course (GHW) | 1.5 MATH 140B*             | 4         |
| <b>12.5</b>                    |                            | <b>15</b> |

#### Second Year

| Fall                    | Credits Spring    | Credits   |
|-------------------------|-------------------|-----------|
| BIOL 230W*              | 4 BIOL 240W*      | 4         |
| MICRB 201 (or Elective) | 3 BIOL 322        | 3         |
| CHEM 210                | 3 CHEM 212        | 3         |
| CAS 100 <sup>‡</sup>    | 3 CHEM 213        | 2         |
| MATH 141B*              | 4 PHYS 250 or 211 | 4         |
| <b>17</b>               |                   | <b>16</b> |

#### Third Year

| Fall                     | Credits Spring                         | Credits      |
|--------------------------|--|--------------|
| BIOL 4XX Group I         | 3 PHYS 213<br>& PHYS 214 (or Elective) | 3-4          |
| ENGL 202C <sup>‡</sup>   | 3 STAT 200 or 250                      | 3-4          |
| Elective                 | 3 BIOL 4XX Group II                    | 3            |
| PHYS 251 or 212*         | 4 General Education Course             | 3            |
| General Education Course | 3 Elective                             | 3            |
| <b>16</b>                |  | <b>15-17</b> |

#### Fourth Year

| Fall                           | Credits Spring             | Credits   |
|--------------------------------|----------------------------|-----------|
| BIOL 4XX Group III             | 3 BIOL 4XX Group V         | 3         |
| BIOL 4XX Group IV              | 3 BIOL 4XX Group VI        | 3         |
| General Education Course       | 3 General Education Course | 3         |
| Elective                       | 6 General Education Course | 3         |
| General Education Course (GHW) | 1.5 Elective               | 3         |
| <b>16.5</b>                    |                            | <b>15</b> |

#### Total Credits 123-125

\* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

# Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

#### University Requirements and General Education Notes:

**Advising Notes:**

- The above academic plan is a suggestion only and may not reflect the course offerings available each semester. Students should work closely with their academic adviser to plan coursework, as course offerings each semester are subject to change.

**Genetics and Developmental Biology Option: Biology, B.S. at York Campus**

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

**First Year**

| Fall                           | Credits Spring             | Credits   |
|--------------------------------|----------------------------|-----------|
| BIOL 110*                      | 4 BIOL 220W*               | 4         |
| CHEM 110*                      | 3 CHEM 112*                | 3         |
| CHEM 111                       | 1 CHEM 113                 | 1         |
| ENGL 15 or 30H <sup>‡</sup>    | 3 General Education Course | 3         |
| General Education Course (GWH) | 1.5 MATH 140B*             | 4         |
|                                | <b>12.5</b>                | <b>15</b> |

**Second Year**

| Fall                 | Credits Spring    | Credits   |
|----------------------|-------------------|-----------|
| BIOL 230W*           | 4 BIOL 240W*      | 4         |
| MICRB 201            | 3 BIOL 322        | 3         |
| CHEM 210             | 3 CHEM 212        | 3         |
| CAS 100 <sup>‡</sup> | 3 CHEM 213        | 2         |
| MATH 141B            | 4 PHYS 250 or 211 | 4         |
|                      | <b>17</b>         | <b>16</b> |

**Third Year**

| Fall                     | Credits Spring                         | Credits      |
|--------------------------|--|--------------|
| BIOL 430                 | 3 STAT 200 or 250                      | 3-4          |
| ENGL 202C <sup>‡</sup>   | 3 PHYS 213<br>& PHYS 214 (or Elective) | 3-4          |
| BMB 401                  | 3 BMB 402                              | 3            |
| PHYS 251 or 212          | 4 Elective                             | 3            |
| General Education Course | 3 General Education Course             | 3            |
|                          | <b>16</b>                              | <b>15-17</b> |

**Fourth Year**

| Fall                           | Credits Spring             | Credits   |
|--------------------------------|----------------------------|-----------|
| BIOL 4XX Group I               | 3 BIOL 4XX Group I         | 3         |
| BIOL 4XX Group II              | 3 BIOL 4XX Group III       | 3         |
| Elective                       | 6 General Education Course | 3         |
| General Education Course       | 3 General Education Course | 3         |
| General Education Course (GHW) | 1.5 Elective               | 3         |
|                                | <b>16.5</b>                | <b>15</b> |

**Total Credits 123-125**

\* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

# Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

**University Requirements and General Education Notes:**

US and IL are abbreviations used to designate courses that satisfy Cultural Diversity Requirements (United States and International Cultures).

W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

**Advising Notes:**

- The above academic plan is a suggestion only and may not reflect the course offerings available each semester. Students should work closely with their academic adviser to plan coursework, as course offerings each semester are subject to change.

**General Biology Option, 2+2 Plan: Biology, B.S. at York Campus**

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

**First Year**

| Fall                           | Credits Spring    | Credits   |
|--------------------------------|-------------------|-----------|
| BIOL 110*                      | 4 BIOL 240W*      | 4         |
| CHEM 110*                      | 3 CHEM 112*       | 3         |
| CHEM 111                       | 1 CHEM 113        | 1         |
| ENGL 15 or 30H <sup>‡</sup>    | 3 PHYS 250 or 211 | 4         |
| MATH 140*                      | 4 MATH 141        | 4         |
| General Education Course (GHW) | 1.5               |           |
|                                | <b>16.5</b>       | <b>16</b> |

**Second Year**

| Fall                          | Credits Spring                           | Credits      |
|-------------------------------|--|--------------|
| BIOL 230W*                    | 4 BIOL 220W*                             | 4            |
| MICRB 201 (or Biology Option) | 3 PHYS 213 (or Elective)                 | 2            |
| PHYS 251 or 212               | 4 PHYS 214 (or Elective)                 | 2            |
| CHEM 210                      | 3 CHEM 212                               | 3            |
| CAS 100 <sup>‡</sup>          | 3 CHEM 213 (or General Education Course) | 2-3          |
|                               | Biology Option                           | 3            |
|                               | <b>17</b>                                | <b>16-17</b> |

**Third Year**

| Fall                                   | Credits Spring             | Credits      |
|--|----------------------------|--------------|
| ENGL 202C <sup>‡</sup>                 | 3 Biology Option           | 3            |
| CHEM 213 (or General Education Course) | 2-3 STAT 200 or 250        | 3-4          |
| BIOL 4XX Group I                       | 3 Elective                 | 3            |
| BIOL Option                            | 3 BIOL 4XX Group II        | 3            |
| General Education Course               | 3 General Education Course | 3            |
|  | <b>14-15</b>               | <b>15-16</b> |

**Fourth Year**

| Fall                     | Credits Spring             | Credits |
|--------------------------|----------------------------|---------|
| BIOL 4 XX Group III      | 3 BIOL 4XX Group V         | 3       |
| BIOL 4XX Group IV        | 3 BIOL 4 XX Group VI       | 3       |
| General Education Course | 3 Elective                 | 3       |
| Biology Option           | 6 General Education Course | 6       |

|                                |             |           |
|--------------------------------|-------------|-----------|
| General Education Course (GHW) | 1.5         |           |
|                                | <b>16.5</b> | <b>15</b> |

**Total Credits 126-129**

- \* Course requires a grade of C or better for the major
- ‡ Course requires a grade of C or better for General Education
- # Course is an Entrance to Major requirement
- † Course satisfies General Education and degree requirement

**University Requirements and General Education Notes:**

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W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.

**Genetics and Developmental Biology Option, 2+2 Plan: Biology, B.S. at York Campus**

The course series listed below provides **only one** of the many possible ways to move through this curriculum. The University may make changes in policies, procedures, educational offerings, and requirements at any time. This plan should be used in conjunction with your degree audit (accessible in LionPATH as either an **Academic Requirements** or **What If** report). Please consult with a Penn State academic adviser on a regular basis to develop and refine an academic plan that is appropriate for you.

**First Year**

| <b>Fall</b>                    | <b>Credits Spring</b> | <b>Credits</b> |
|--------------------------------|-----------------------|----------------|
| BIOL 110*                      | 4 BIOL 240W*          | 4              |
| CHEM 110*                      | 3 CHEM 112*           | 3              |
| CHEM 111                       | 1 CHEM 113            | 1              |
| ENGL 15 or 30H <sup>‡</sup>    | 3 PHYS 250 or 211     | 4              |
| MATH 140*                      | 4 MATH 141            | 4              |
| General Education Course (GWH) | 1.5                   |                |
|                                | <b>16.5</b>           | <b>16</b>      |

**Second Year**

| <b>Fall</b>                   | <b>Credits Spring</b>    | <b>Credits</b> |
|-------------------------------|--------------------------|----------------|
| BIOL 230W*                    | 4 BIOL 220W*             | 4              |
| MICRB 201 (or Biology Option) | 3 PHYS 213 (or Elective) | 2              |
| PHYS 251 or 212               | 4 PHYS 214 (or Elective) | 2              |
| CHEM 210                      | 3 CHEM 212               | 3              |
| CAS 100 <sup>‡</sup>          | 3 CHEM 213               | 2              |
| General Education Course      | 3 BIOL 322               | 3              |
|                               | <b>20</b>                | <b>16</b>      |

**Third Year**

| <b>Fall</b>                            | <b>Credits Spring</b>      | <b>Credits</b> |
|--|----------------------------|----------------|
| ENGL 202C <sup>‡</sup>                 | 3 Biology Option           | 3              |
| BMB 401                                | 3 STAT 200 (or STAT 250)   | 4              |
| CHEM 213 (or General Education Course) | 2-3 BMB 402                | 3              |
| Biology Option                         | 3 BIOL 4 XX Group I        | 3              |
| General Education Course               | 3 General Education Course | 3              |
|  | <b>14-15</b>               | <b>16</b>      |

**Fourth Year**

| <b>Fall</b>                    | <b>Credits Spring</b>      | <b>Credits</b> |
|--------------------------------|----------------------------|----------------|
| BIOL 430                       | 3 BIOL 4 XX Group II       | 3              |
| BIOL 4 XX Group I              | 3 BIOL 4 XX Group III      | 3              |
| Biology Option                 | 6 General Education Course | 6              |
| General Education Course       | 3 Electives                | 6              |
| General Education Course (GHW) | 1.5                        |                |
|                                | <b>16.5</b>                | <b>18</b>      |

**Total Credits 133-134**

\* Course requires a grade of C or better for the major

‡ Course requires a grade of C or better for General Education

# Course is an Entrance to Major requirement

† Course satisfies General Education and degree requirement

**University Requirements and General Education Notes:**

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W, M, X, and Y are the suffixes at the end of a course number used to designate courses that satisfy University Writing Across the Curriculum requirement.

General Education includes Foundations (GWS and GQ), Knowledge Domains (GHW, GN, GA, GH, GS) and Integrative Studies (Inter-domain) requirements. N or Q (Honors) is the suffix at the end of a course number used to help identify an Inter-domain course, but the inter-domain attribute is used to fill audit requirements. Foundations courses (GWS and GQ) require a grade of 'C' or better.