**MICROBIOLOGY, B.S.**

Begin Campus: Any Penn State Campus

End Campus: University Park

**Suggested Academic Plan**

The suggested academic plan(s) listed on this page are the plan(s) that are in effect during the 2021-22 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 contain suggested academic plans beginning with the 2018-19 edition of the Undergraduate Bulletin).

**Microbiology, B.S. at University Park 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

<table>
<thead>
<tr>
<th>Term</th>
<th>Course Code(s)</th>
<th>Credits</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall</td>
<td>PSU 16</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CHEM 110†</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>CHEM 111†</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MATH 140 or 140B†</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ENGL 15, 30H, or ESL 15 †</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>General Education Course</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

** Credits: 15 **

<table>
<thead>
<tr>
<th>Term</th>
<th>Course Code(s)</th>
<th>Credits</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Second Year</td>
<td>PICRB 251 1</td>
<td>3</td>
<td>PICRB 252 1</td>
</tr>
<tr>
<td></td>
<td>CHEM 210</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PHYS 250</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Department List C (Consult with an academic adviser for alternative options)</td>
<td>3</td>
<td>PHYS 251 (Consult with an academic adviser for alternative options)</td>
</tr>
<tr>
<td></td>
<td>General Education Course</td>
<td>3</td>
<td>BIOL 322</td>
</tr>
</tbody>
</table>

** Credits: 16 **

<table>
<thead>
<tr>
<th>Term</th>
<th>Course Code(s)</th>
<th>Credits</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall</td>
<td>BMB 400 2</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td></td>
<td>BMB 401 2</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PICRB 401 (Consult with an academic adviser for alternative options) 2</td>
<td>3</td>
<td>PICRB 412 or 415 (Consult with an academic adviser for alternative options) 2</td>
</tr>
<tr>
<td></td>
<td>PICRB 421W</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

** Credits: 16 **

<table>
<thead>
<tr>
<th>Term</th>
<th>Course Code(s)</th>
<th>Credits</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fourth Year</td>
<td>PICRB 450 (Consult with an academic adviser for alternative options) 2</td>
<td>2</td>
<td>PICRB 400-Level Selections (Consult with an academic adviser for options) 2</td>
</tr>
<tr>
<td></td>
<td>PICRB 400-Level Selections (Consult with an academic adviser for options) 2</td>
<td>5</td>
<td>PICRB 410 or 415 (Consult with an academic adviser for alternative options) 2</td>
</tr>
<tr>
<td></td>
<td>BMB 428 2</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Department List C (consult with an academic adviser for options)</td>
<td>4</td>
<td>ENGL 202C, 202A, 202B, or 202D †</td>
</tr>
<tr>
<td></td>
<td>General Education Course (GHW)</td>
<td>1.5</td>
<td>Department List C (consult with an academic adviser for options)</td>
</tr>
<tr>
<td></td>
<td>General Education Course</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

** Credits: 15.5 **

** 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

1 To graduate, a grade of C or better is required in two of the following courses: Introductory Microbiology (PICRB 201), Molecular and Cell Biology I (BMB 251)/Molecular and Cell Biology I (MICRB 251), and/or Molecular and Cell Biology II (BMB 252)/Molecular and Cell Biology II (MICRB 252).

2 To graduate, a grade of C or better is required in 9 credits of any BMB or MICRB 400-level course except those listed in the requirements for the major (consult with an academic adviser for clarification)

**University Requirements and General Education Notes:**

US and IL are abbreviations used to designate courses that satisfy University 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.

GWS, GQ, GHW, GN, GA, GH, and GS are abbreviations used to identify General Education program courses. General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS, and Integrative Studies). Foundations courses (GWS and GQ) require a grade of ‘C’ or better.

Integrative Studies courses are required for the General Education program. N is the suffix at the end of a course number used to designate an Inter-Domain course and Z is the suffix at the end of a course number used to designate a Linked course.
All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and replace both ENGL 30H and CAS 100. Each course is 3 credits.
Microbiology, B.S. at University Park Campus (MATH 22 Start)

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

<table>
<thead>
<tr>
<th>Fall</th>
<th>Credits</th>
<th>Spring</th>
<th>Credits</th>
<th>Summer</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 110†</td>
<td>4</td>
<td>CHEM 110 *#†</td>
<td>3</td>
<td>CHEM 112 *#†</td>
<td>3</td>
</tr>
<tr>
<td>MATH 22†</td>
<td>3</td>
<td>CHEM 111 *#†</td>
<td>1</td>
<td>CHEM 113†</td>
<td>1</td>
</tr>
<tr>
<td>MATH 26†</td>
<td>3</td>
<td>MATH 140 *#†</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ENGL 15, ESL 15, or ENGL 30H‡</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>General Education Course</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>16</td>
<td></td>
<td>14</td>
<td></td>
<td>4</td>
</tr>
</tbody>
</table>

### Second Year

<table>
<thead>
<tr>
<th>Fall</th>
<th>Credits</th>
<th>Spring</th>
<th>Credits</th>
<th>Summer</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MICRB 201²</td>
<td>3</td>
<td>BIOL 230W¹²</td>
<td></td>
<td>PHYS 251 (Consult with an academic adviser for alternative options)¹</td>
<td>4</td>
</tr>
<tr>
<td>MICRB 202</td>
<td>2</td>
<td>CHEM 212</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CHEM 210</td>
<td>3</td>
<td>CHEM 213</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MATH 141¹¹</td>
<td>4</td>
<td>PHYS 250 (Consult with an academic adviser for alternative options)¹</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>General Education Course</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>15</td>
<td></td>
<td>16</td>
<td></td>
<td>4</td>
</tr>
</tbody>
</table>

### Third Year

<table>
<thead>
<tr>
<th>Fall</th>
<th>Credits</th>
<th>Spring</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL 222³</td>
<td>3</td>
<td>BMB 402³</td>
<td>3</td>
</tr>
<tr>
<td>BMB 252²</td>
<td>3</td>
<td>BMB 442</td>
<td>3</td>
</tr>
<tr>
<td>BMB 401³</td>
<td>3</td>
<td>MICRB 412 or 415 (Consult with an academic adviser for alternative options)³</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>15</td>
<td></td>
<td>16</td>
</tr>
</tbody>
</table>

### Fourth Year

<table>
<thead>
<tr>
<th>Fall</th>
<th>Credits</th>
<th>Spring</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMB 428³</td>
<td>3</td>
<td>BMB 400³</td>
<td>2</td>
</tr>
<tr>
<td>MICRB 401 (Consult with an academic adviser for alternative options)³</td>
<td>3</td>
<td>MICRB 410 or 415 (Consult with an academic adviser for alternative options)³</td>
<td>3</td>
</tr>
<tr>
<td>MICRB 450 (Consult with an academic adviser for alternative options)³</td>
<td>3</td>
<td>MICRB 447 (Consult with an academic adviser for options)</td>
<td>1</td>
</tr>
<tr>
<td>MICRB 400-Level Selections (Consult with an academic adviser for options)³</td>
<td>3</td>
<td>MICRB 400-Level Selections (Consult with an academic adviser for options)³</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 202C, 202A, 202B, or 202D‡</td>
<td>3</td>
<td>General Education Course (GHW)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>15</td>
</tr>
</tbody>
</table>

**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

1. 6 credits of MATH 22, MATH 26, MATH 140, or MATH 141 require a grade of C or better for General Education.
2. To graduate, a grade of C or better is required in two of the following courses: Introductory Microbiology (MICRB 201), Molecular and Cell Biology I BMB 251/Molecular and Cell Biology I (MICRB 251) or Biology: Molecules and Cells (BIOL 230W), and/or Molecular and Cell Biology II (BMB 252)/Molecular and Cell Biology II (MICRB 252).
3. To graduate, a grade of C or better is required in 9 credits of any BMB or MICRB 400-level course except those listed in the requirements for the major (consult with an academic adviser for clarification).
4. BIOL 222 is an approved substitute for BIOL 322.

University Requirements and General Education Notes:
US and IL are abbreviations used to designate courses that satisfy University 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.

GWS, GQ, GHW, GN, GA, GH, and GS are abbreviations used to identify General Education program courses. General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS, and Integrative Studies). Foundations courses (GWS and GQ) require a grade of ‘C’ or better.

Integrative Studies courses are required for the General Education program. N is the suffix at the end of a course number used to designate an Inter-Domain course and Z is the suffix at the end of a course number used to designate a Linked course.

All incoming Schreyer Honors College first-year students at University Park will take ENGL 137H/CAS 137H in the fall semester and ENGL 138T/CAS 138T in the spring semester. These courses carry the GWS designation and replace both ENGL 30H and CAS 100. Each course is 3 credits.
Microbiology, B.S. at Commonwealth Campuses

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

<table>
<thead>
<tr>
<th>Credits</th>
<th>Fall</th>
<th>Spring</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>CHEM 110†‡</td>
<td>3 BIOL 230W†¹</td>
<td>4</td>
</tr>
<tr>
<td>3</td>
<td>CHEM 111†‡</td>
<td>1 CHEM 112†‡</td>
<td>3</td>
</tr>
<tr>
<td>1</td>
<td>MATH 140†‡†</td>
<td>4 CHEM 113‡</td>
<td>1</td>
</tr>
<tr>
<td>4</td>
<td>BIOL 110†</td>
<td>4 MATH 141†‡</td>
<td>4</td>
</tr>
<tr>
<td>3</td>
<td>ENGL 15, ESL 15, or ENGL 30H‡</td>
<td>3 CAS 100A, 100B, or 100C‡</td>
<td>3</td>
</tr>
<tr>
<td>1.5</td>
<td>General Education Course (GHW)</td>
<td>1.5 General Education Course (GHW)</td>
<td>1.5</td>
</tr>
<tr>
<td><strong>16.5</strong></td>
<td><strong>16.5</strong></td>
<td><strong>16.5</strong></td>
<td><strong>16.5</strong></td>
</tr>
</tbody>
</table>

Second Year

<table>
<thead>
<tr>
<th>Credits</th>
<th>Fall</th>
<th>Spring</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>MICRB 201¹</td>
<td>3 BIOL 322 or 222²</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td>MICRB 202</td>
<td>2 CHEM 212</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>CHEM 210</td>
<td>3 CHEM 213</td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td>PHYS 250 (Consult with an academic adviser for alternative options)†</td>
<td>4 PHYS 251 (Consult with an academic adviser for alternative options)†</td>
<td>4</td>
</tr>
<tr>
<td>1</td>
<td>General Education Course</td>
<td>3 General Education Course</td>
<td>3</td>
</tr>
<tr>
<td><strong>15</strong></td>
<td><strong>15</strong></td>
<td><strong>15</strong></td>
<td><strong>15</strong></td>
</tr>
</tbody>
</table>

Third Year

<table>
<thead>
<tr>
<th>Credits</th>
<th>Fall</th>
<th>Spring</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>BMB 252¹</td>
<td>3 BMB 402²</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td>BMB 401²</td>
<td>3 BMB 442</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td>MICRB 421W</td>
<td>3 MICRB 412 or 415 (Consult with an academic adviser for alternative options)²</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>MICRB 401 (Consult with an academic adviser for alternative options)²</td>
<td>3 MICRB 422 (Consult with an academic adviser for alternative options)²</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>General Education Course</td>
<td>3 General Education Course</td>
<td>3</td>
</tr>
<tr>
<td>1</td>
<td>Department List C (Consult with an academic adviser for options)</td>
<td>1 Department List C (Consult with an academic adviser for options)</td>
<td>1</td>
</tr>
<tr>
<td><strong>16</strong></td>
<td><strong>16</strong></td>
<td><strong>16</strong></td>
<td><strong>16</strong></td>
</tr>
</tbody>
</table>

Fourth Year

<table>
<thead>
<tr>
<th>Credits</th>
<th>Fall</th>
<th>Spring</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>BMB 428²</td>
<td>3 BMB 400²</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>MICRB 410 or 450 (Consult with an academic adviser for alternative options)²</td>
<td>3 MICRB 412 or 415 (Consult with an academic adviser for alternative options)²</td>
<td>3</td>
</tr>
<tr>
<td>1</td>
<td>MICRB 400-Level Selections (Consult with an academic adviser for options)²</td>
<td>3 MICRB 447 (Consult with an academic adviser for options)²</td>
<td>1</td>
</tr>
</tbody>
</table>

**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

1 To graduate, a grade of C or better is required in two of the following courses: Introductory Microbiology (MICRB 201), Molecular and Cell Biology I (BMB 251)/Molecular and Cell Biology I (MICRB 251) or Biology: Molecules and Cells (BIOI 230W), and/or Molecular and Cell Biology II (BMB 252)/Molecular and Cell Biology II (MICRB 252).

2 To graduate, a grade of C or better is required in 9 credits of any BMB or MICRB 400-level course except those listed in the requirements for the major (consult with an academic adviser for clarification).

3 BIOL 222 is an approved substitute for BIOL 322.

University Requirements and General Education Notes:

US and IL are abbreviations used to designate courses that satisfy University 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.

GWS, GQ, GHW, GN, GA, GH, and GS are abbreviations used to identify General Education program courses. General Education includes Foundations (GWS and GQ) and Knowledge Domains (GHW, GN, GA, GH, GS, and Integrative Studies). Foundations courses (GWS and GQ) require a grade of ‘C’ or better.

Integrative Studies courses are required for the General Education program. N is the suffix at the end of a course number used to designate an Inter-Domain course and Z is the suffix at the end of a course number used to designate a Linked course.