# BIOTECHNOLOGY, B.S.

**Begin Campus:** Any Penn State Campus  
**End Campus:** University Park

## Degree Requirements

For the Bachelor of Science degree in Biotechnology, a minimum of 125 credits is required:

### Requirements for the Major

To graduate with a B.S. degree in Biotechnology, a grade of C or better is required in 9 credits of any BIOTC, BMB, or MICRB 400-level course except BMB 442, BMB 443W, BMB 445W, BMB 448, BMB 488, BMB 496, MICRB 421W, MICRB 422, MICRB 447.

To graduate, a student enrolled in the major must earn a grade of C or better in each course designated by the major as a C-required course, as specified by Senate Policy 82-44 (http://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#82-44).

### Common Requirements for the Major (All Options)

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>BIOTC</td>
<td>Medical Microbiology Laboratory</td>
<td>3</td>
</tr>
<tr>
<td>BMB</td>
<td>Introductory Microbiology</td>
<td>3</td>
</tr>
<tr>
<td>MICRB</td>
<td>Principles of Immunology</td>
<td>3</td>
</tr>
<tr>
<td>MICRB</td>
<td>Laboratory of General and Applied Microbiology</td>
<td>3</td>
</tr>
<tr>
<td>PHYS</td>
<td>Introductory Physics I</td>
<td>4</td>
</tr>
<tr>
<td>PSU</td>
<td>First-Year Seminar Science</td>
<td>1</td>
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</table>

**Prescribed Courses:** Require a grade of C or better

### Requirements for the Option

Select an option

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<tr>
<td>BIOTC</td>
<td>Seminar and Practicum in Medical Technology</td>
<td>6-8</td>
</tr>
<tr>
<td>CHEM</td>
<td>Organic Chemistry I</td>
<td>1</td>
</tr>
<tr>
<td>MICRB</td>
<td>Seminar and Practicum in Medical Technology</td>
<td>6</td>
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## Clinical Laboratory Science Option (48 credits)

This option provides both the academic and clinical preparation for students interested in a career as a clinical laboratory scientist. Positions are found in hospital, physician-office, reference, industrial, and research laboratories. To complete baccalaureate degree requirements, students must take a ten-month clinical practicum (MICRB 405A, MICRB 405B, MICRB 405C, MICRB 405D, MICRB 405E, MICRB 405F) at an affiliate hospital for the senior year. (Current affiliations are with Mount Nittany Medical Center, State College and Pennsylvania Hospital, Philadelphia.) Students are recommended for a fixed number of hospital positions on a competitive basis. Cumulative grade-point average and hospital school admission requirements serve as criteria for recommendation. The B.S. degree is awarded at the first commencement following completion of the clinical practicum.

### Additional Courses

Select 14-16 credits from department list C

Select 6 credits from the following:

- Any 400-level BMB/BIOTC/MICRB lecture course
- FDSC 408 Food Microbiology

Additional courses from department list D

### Supporting Courses and Related Areas

Select 14-16 credits from department list C

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- FDSC 408 Food Microbiology

Additional courses from department list D

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Additional Courses

BIOL 322  Genetic Analysis  3
or BIOL 222  Genetics

Select one of the following sequences:  6-8

CHEM 202  Fundamentals of Organic Chemistry I
& CHEM 203  and Fundamentals of Organic Chemistry II

CHEM 210  Organic Chemistry I
& CHEM 212  and Organic Chemistry II
& CHEM 213  and Laboratory in Organic Chemistry

Supporting Courses and Related Areas

Select 1-3 credits from department list  1-3

General Education

Connecting career and curiosity, the General Education curriculum provides the opportunity for students to acquire transferable skills necessary to be successful in the future and to thrive while living in interconnected contexts. General Education aids students in developing intellectual curiosity, a strengthened ability to think, and a deeper sense of aesthetic appreciation. These are requirements for all baccalaureate students and are often partially incorporated into the requirements of a program. For additional information, see the General Education Requirements (https://bulletins.psu.edu/undergraduate/general-education/baccalaureate-degree-general-education-program/) section of the Bulletin and consult your academic adviser.

The keystone symbol appears next to the title of any course that is designated as a General Education course. Program requirements may also satisfy General Education requirements and vary for each program.

Foundations (grade of C or better is required.)

• Quantification (GQ): 6 credits
• Writing and Speaking (GWS): 9 credits

Knowledge Domains

• Arts (GA): 6 credits
• Health and Wellness (GHW): 3 credits
• Humanities (GH): 6 credits
• Social and Behavioral Sciences (GS): 6 credits
• Natural Sciences (GN): 9 credits

Integrative Studies (may also complete a Knowledge Domain requirement)

• Inter-Domain or Approved Linked Courses: 6 credits

University Degree Requirements

First Year Engagement

All students enrolled in a college or the Division of Undergraduate Studies at University Park, and the World Campus are required to take 1 to 3 credits of the First-Year Seminar, as specified by their college First-Year Engagement Plan.

Other Penn State colleges and campuses may require the First-Year Seminar; colleges and campuses that do not require a First-Year Seminar provide students with a first-year engagement experience.

First-year baccalaureate students entering Penn State should consult their academic adviser for these requirements.

Cultures Requirement

6 credits are required and may satisfy other requirements

• United States Cultures: 3 credits
• International Cultures: 3 credits

Writing Across the Curriculum

3 credits required from the college of graduation and likely prescribed as part of major requirements.

Total Minimum Credits

A minimum of 120 degree credits must be earned for a baccalaureate degree. The requirements for some programs may exceed 120 credits. Students should consult with their college or department adviser for information on specific credit requirements.

Quality of Work

Candidates must complete the degree requirements for their major and earn at least a 2.00 grade-point average for all courses completed within their degree program.

Limitations on Source and Time for Credit Acquisition

The college dean or campus chancellor and program faculty may require up to 24 credits of course work in the major to be taken at the location or in the college or program where the degree is earned. Credit used toward degree programs may need to be earned from a particular source or within time constraints (see Senate Policy 83-80 (http://senate.psu.edu/policies-and-rules-for-undergraduate-students/82-00-and-83-00-degree-requirements/#83-80)). For more information, check the Suggested Academic Plan for your intended program.