

MICROBIOLOGY, B.S.

Seven Penn State campuses are scheduled for closure after Spring 2027: DuBois, Fayette, New Kensington, Mont Alto, Shenango, Wilkes-Barre, and York. New students are not being admitted at these campuses.

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 2026-27 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.

General Microbiology Option, Emphasis in Cell Biology and Genetics: 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

Fall	Credits Spring	Credits
First-Year Seminar	1 MICRB 201 ¹	3
CHEM 110 ^{*#†}	3 MICRB 202 or 203 ⁷	2
CHEM 111 ^{*#†}	1 CHEM 112 ^{*#†}	3
MATH 140 ^{*#††}	4 CHEM 113 [†]	1
ENGL 15 or 30H [†]	3 MATH 141, STAT 200, STAT 240, or STAT 250 ^{††6}	3-4
General Education Course	3 CAS 100A, 100B, or 100C [‡]	3
	15	15-16

Second Year

Fall	Credits Spring	Credits
BMB/MICRB 251 ^{1,3,4}	3 BMB/MICRB 252 ^{1,3}	3
CHEM 210	3 BIOL 322 ⁴	3
PHYS 211 or 250 [†]	4 CHEM 212	3
Department List C ⁷	3 CHEM 213W	2
General Education Course	3 PHYS 212 or 251 [†]	4
	16	15

Third Year

Fall	Credits Spring	Credits
BMB 400 ²	2 BMB 402 ²	3
BMB 401 ²	3 BMB 442	3
MICRB 421W	3 MICRB 415 ²	3
MICRB/BMB 450 ²	3 MICRB Elective (List B) ^{2,5,7}	3
General Education Course	3 General Education Course	3
General Education Course (GHW)	1.5 General Education Course (GHW)	1.5
	15.5	16.5

Fourth Year

Fall	Credits Spring	Credits
MICRB 401 ²	3 MICRB Elective (List A) ^{2,5,7}	3
MICRB/PPEM 456 ²	3 MICRB Elective (List B) ^{2,5,7}	3
MICRB Elective (List B) ^{2,5,7}	3 ENGL 202C, 202A, 202B, or 202D [‡]	3
Department List C ⁷	3-4 Department List C ⁷	3-4
General Education Course	3 General Education Course	3
	15-16	16-15

Total Credits 124-125

- * 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 All three courses are required for the major, but a grade of C or better is required in two of the following: MICRB 201, BMB 251/MICRB 251 or BIOL 234 or BIOL 230W, BMB 252/MICRB 252.

² To graduate, a grade of C or better is required in 9 credits of prescribed 400-level courses, excluding BMB 442 and MICRB 421W.

³ Two series of courses can be taken – Cell Biology and Genetics Emphasis: BMB 251 (or BIOL 230W or BIOL 234), BMB 252 and BIOL 322 (or BIOL 222); Cell Biology and Ecology Emphasis: BIOL 114 and BIOL 115 or BIOL 116 (or BIOL 110), BIOL 234 and BIOL 235W or BIOL 236W (or BIOL 230W) and BIOL 224 and BIOL 225W or BIOL 226W (or BIOL 220W). Students must complete one of the three-course series in full. No mixing courses between series.

⁴ There may be an alternative option offered in a different semester. See adviser for more information.

⁵ 12-credit microbiology-based elective requirement from List A (Applied) and List B (Lecture) electives, with a minimum of 3 credits taken from List A. If a student wants more lab experience, more courses can be taken from List A to fulfill the requirement. A maximum of 3 credits of BMB 408/MICRB 408 and a maximum of 4 credits of BMB 488 and/or BMB 496 can be used to fulfill this requirement but will not count toward the 3-cr. minimum of List A category requirement.

⁶ If a student takes the course with the higher amount of credits, the extra credit can apply towards the List C elective category.

⁷ Consult with an academic adviser for options.

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.

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 satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

General Microbiology Option, Emphasis in Cell Biology and Ecology: 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		
Fall	Credits Spring	Credits
First-Year Seminar	1 MICRB 201 ¹	3
BIOL 110, 114 and 115, or 114 and 116 [†]	4-5 MICRB 202 or 203 ⁷	2
CHEM 110 ^{*#†}	3 CHEM 112 ^{*#†}	3
CHEM 111 ^{*#†}	1 CHEM 113 [†]	1
MATH 140 ^{*#††}	4 MATH 141, STAT 200, STAT 240, or STAT 250 ^{††6}	3-4
ENGL 15, 30H, or ESL 15 [†]	3 CAS 100A, 100B, or 100C [‡]	3
16-17		15-16
Second Year		
Fall	Credits Spring	Credits
BIOL 220W, 224 and 225W, or 224 and 226W ^{†1,3}	4-5 BIOL 230W, 234 and 235W, or 234 and 236W ^{†1,3}	4-5
CHEM 210	3 CHEM 212	3
PHYS 211 or 250 [†]	4 CHEM 213W	2
Department List C ⁷	1 PHYS 212 or 251 [†]	4
General Education Course	3 General Education Course	3
15-16		16-17
Third Year		
Fall	Credits Spring	Credits
BMB 400 ²	2 BMB 402 ²	3
BMB 401 ²	3 BMB 442	3
MICRB 421W	3 MICRB 415 ²	3
MICRB/BMB 450 ²	3 MICRB Elective (List B) ^{2,5,7}	3
General Education Course	3 General Education Course	3
General Education Course (GHW)	1.5 General Education Course (GHW)	1.5
15.5		16.5
Fourth Year		
Fall	Credits Spring	Credits
MICRB 401 ²	3 MICRB Elective (List A) ^{2,5,7}	3
MICRB/PPEM 456 ²	3 MICRB Elective (List B) ^{2,5,7}	3
MICRB Elective (List B) ^{2,5,7}	3 ENGL 202C, 202A, 202B, or 202D [†]	3
Department List C ⁷	3-4 Department List C ⁷	3
General Education Course	3 General Education Course	3
16-15		15
Total Credits 125-128		

* 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 All three courses are required for the major, but a grade of C or better is required in two of the following: MICRB 201, BIOL 224 and BIOL 225W or BIOL 226W (or BIOL 220W) and BIOL 234 and BIOL 235W or BIOL 236W (or BIOL 230W).

² To graduate, a grade of C or better is required in 9 credits of prescribed 400-level courses, excluding BMB 442 and MICRB 421W.

³ Two series of courses can be taken – Cell Biology and Genetics Emphasis: BMB 251 (or BIOL 230W or BIOL 234), BMB 252 and BIOL 322 (or BIOL 222); Cell Biology and Ecology Emphasis: BIOL 114 and BIOL 115 or BIOL 116 (or BIOL 110), BIOL 234 and BIOL 235W or BIOL 236W (or BIOL 230W) and BIOL 224 and BIOL 225W or BIOL 226W (or BIOL 220W). Students must complete one of the three-course series in full. No mixing courses between series.

⁴ There may be an alternative option offered in a different semester. See adviser for more information.

⁵ 12-credit microbiology-based elective requirement from List A (Applied) and List B (Lecture) electives, with a minimum of 3 credits taken from List A. Although, if a student wants more lab experience, more courses can be taken from List A to fulfill the requirement. A maximum of 3 credits of BMB 408/MICRB 408 and a maximum of 4 credits of BMB 488 and/or BMB 496 can be used to fulfill this requirement but will not count toward the 3-cr. minimum of List A category requirement.

⁶ If a student takes the course with the higher amount of credits, the extra credit can apply towards the List C elective category.

⁷ Consult with an academic adviser for options.

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.

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 satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Medical Microbiology Option: 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

Fall	Credits Spring	Credits
First-Year Seminar	1 MICRB 201 ¹	3
CHEM 110 ^{*#†}	3 MICRB 202 or 203 ⁷	2
CHEM 111 ^{*#†}	1 CHEM 112 ^{*#†}	3
MATH 140 ^{*†#†}	4 CHEM 113 [†]	1
ENGL 15, 30H, or ESL 15 [†]	3 MATH 141, STAT 200, STAT 240, or STAT 250 ^{††6}	3-4
General Education Course	3 CAS 100A, 100B, or 100C [‡]	3
	15	15-16

Second Year

Fall	Credits Spring	Credits
BMB/MICRB 251 ^{1,3,4}	3 BMB/MICRB 252 ^{1,3}	3
CHEM 210	3 BIOL 322 ⁴	3
PHYS 211 or 250 [†]	4 CHEM 212	3
Department List C ⁷	3 CHEM 213W	2
General Education Course	3 PHYS 212 or 251 [†]	4
	16	15

Third Year

Fall	Credits Spring	Credits
BMB 400 ²	2 BMB 402 ²	3
BMB 401 ²	3 BMB 442	3
MICRB 421W	3 MICRB 410 ²	3
MICRB/BMB 450 ²	3 Department List C ⁷	3
General Education Course	3 General Education Course	3
General Education Course (GHW)	1.5 General Education Course (GHW)	1.5
	15.5	16.5

Fourth Year

Fall	Credits Spring	Credits
MICRB 401 ²	3 MICRB 412 ²	3
MICRB/PPM 456 ²	3 MICRB 415 ^{2,4}	3
MICRB Elective (List B) ^{2,5,7}	3 MICRB Elective (List A) ^{2,5,7}	3
Department List C ⁷	3-4 ENGL 202C, 202A, 202B, or 202D [‡]	3
General Education Course	3 Department List C ⁷	0-1
	General Education Course	3
	15-16	16-15

Total Credits 124-125

* 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 All three courses are required for the major, but a grade of C or better is required in two of the following: MICRB 201, BMB 251/MICRB 251 or BIOL 234 or BIOL 230W, BMB 252/MICRB 252.

² To graduate, a grade of C or better is required in 9 credits of prescribed 400-level courses, excluding BMB 442 and MICRB 421W.

⁴ There may be an alternative option offered in a different semester. See adviser for more information.

⁵ 6-credit microbiology-based elective requirement from List A (Applied) and List B (Lecture) electives, with a minimum 3 credits taken from List A. If a student wants more lab experience, more courses can be taken from List A to fulfill the requirement. A maximum of 3 credits of BMB 408/MICRB 408 and a maximum of 3 credits of BMB 488 and/or BMB 496 can be used to fulfill this requirement but will not count toward the 3-credit minimum of the List A category requirement.

⁶ If a student takes the course with the higher amount of credits, the extra credit can apply towards the List C elective category.

⁷ Consult with an academic adviser for options.

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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 satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

General Microbiology Option, Emphasis in Cell Biology and Ecology: 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

Fall	Credits Spring	Credits
First-Year Seminar	1 CHEM 112 ^{*#†}	3
BIOL 110, 114 and 115, or 114 and 116 [†]	4-5 CHEM 113 [†]	1
CHEM 110 ^{*#†}	3 MATH 141, STAT 200, STAT 240, or STAT 250 ^{††6}	3-4
CHEM 111 ^{*#†}	1 CAS 100A, 100B, or 100C [‡]	3
MATH 140 ^{*#††}	4 Department List C ⁷	3
ENGL 15, 30H, or ESL 15 [†]	3 General Education Course	3
16-17		16-17

Second Year

Fall	Credits Spring	Credits
BIOL 220W, 224 and 225W, or 224 and 226W ^{†1,3}	4-5 BIOL 230W, 234 and 235W, or 234 and 236W ^{†1,3}	4-5
CHEM 210	3 CHEM 212	3
PHYS 211 or 250 [†]	4 CHEM 213W	2
Department List C ⁷	1 PHYS 212 or 251 [†]	4
General Education Course	3 General Education Course	3
General Education Course (GHW)	1.5	
16.5-17.5		16-17

Third Year

Fall	Credits Spring	Credits
MICRB 201 ¹	3 BMB 400 ²	2
MICRB 202 ⁷	2 BMB 402 ²	3
BMB 401 ²	3 BMB 442	3
MICRB/BMB 450 ²	3 MICRB Elective (List B) ^{2,5,7}	3
Department List C ⁷	1-2 General Education Course	3
General Education Course	3 General Education Course (GHW)	1.5
16-15		15.5

Fourth Year

Fall	Credits Spring	Credits
MICRB 401 ²	3 MICRB 415 ²	3
MICRB 421W	3 MICRB Elective (List A) ^{2,5,7}	3
MICRB/PPEM 456 ²	3 MICRB Elective (List B) ^{2,5,7}	3
MICRB Elective (List B) ^{2,5,7}	3 ENGL 202C, 202A, 202B, or 202D [†]	3
General Education Course	3 Department List C ⁷	2
15		14

Total Credits 125-128

* 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 All three courses are required for the major, but a grade of C or better is required in two of the following: MICRB 201, BIOL 224 and BIOL 225W or BIOL 226W (or BIOL 220W) and BIOL 234 and BIOL 235W or BIOL 236W (or BIOL 230W).

² To graduate, a grade of C or better is required in 9 credits of prescribed 400-level courses, excluding BMB 442 and MICRB 421W.

³ Two series of courses can be taken – Cell Biology and Genetics Emphasis: BMB 251 (or BIOL 230W or BIOL 234), BMB 252 and BIOL 322 (or BIOL 222); Cell Biology and Ecology Emphasis: BIOL 114 and BIOL 115 or BIOL 116 (or BIOL 110), BIOL 234 and BIOL 235W or BIOL 236W (or BIOL 230W) and BIOL 224 and BIOL 225W or BIOL 226W (or BIOL 220W). Students must complete one of the three-course series in full. No mixing courses between series.

⁴ There may be an alternative option offered in a different semester. See adviser for more information.

⁵ 12-credit microbiology-based elective requirement from List A (Applied) and List B (Lecture) electives, with a minimum of 3 credits taken from List A. Although, if a student wants more lab experience, more courses can be taken from List A to fulfill the requirement. A maximum of 3 credits of BMB 408/MICRB 408 and a maximum of 4 credits of BMB 488 and/or BMB 496 can be used to fulfill this requirement but will not count toward the 3-cr. minimum of List A category requirement.

⁶ If a student takes the course with the higher amount of credits, the extra credit can apply towards the List C elective category.

⁷ Consult with an academic adviser for options.

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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 satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.

Medical Microbiology Option: Microbiology, B.S. at Commonwealth Campuses

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First Year

Fall	Credits Spring	Credits
BIOL 110, 114 and 115, or 114 and 116 [†]	4-5 BIOL 230W or 234 ^{†1}	4
CHEM 110 ^{*#†}	3 CHEM 112 ^{*#†}	3
CHEM 111 ^{*#†}	1 CHEM 113 [†]	1
MATH 140 ^{*†#†}	4 MATH 141, STAT 200, STAT 240, or STAT 250 ^{††6}	3-4
ENGL 15, 30H, or ESL 15 [†]	3 CAS 100A, 100B, or 100C [†]	3
	General Education Course (GHW)	1.5
15-16		15.5-16.5

Second Year

Fall	Credits Spring	Credits Summer	Credits
CHEM 210	3 CHEM 212	3 BMB 401 ²	3
PHYS 211 or 250 [†]	4 CHEM 213W	2	
ENGL 202C, 202A, 202B, or 202D [†]	3 PHYS 212 or 251 [†]	4	
General Education Course	6 General Education Course	6	
16		15	3

Third Year

Fall	Credits Spring	Credits Summer	Credits
BIOL 222 ^{3,4}	3 BMB 400 ²	2 MICRB 410 ²	3
BMB/MICRB 252 ¹	3 BMB 402 ²	3	
MICRB 201 ¹	3 BMB 442	3	
MICRB 202	2 MICRB 412 ^{2,7}	3	
General Education Course	3 General Education Course	3	
General Education Course (GHW)	1.5		
15.5		14	3

Fourth Year

Fall	Credits Spring	Credits
MICRB 401 ²	3 MICRB 415 ^{2,4,7}	3

MICRB 421W	3 MICRB Elective (List A) ^{2,5,7}	3
MICRB/BMB 450 ²	3 MICRB Elective (List B) ^{2,5,7}	3
MICRB/PPEM 456 ²	3 Department List C ⁷	4-5
Department List C ⁷	2	
14		14-13

Total Credits 125-126

* 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 All three courses are required for the major, but a grade of C or better is required in two of the following: MICRB 201, BMB 251/MICRB 251 or BIOL 234 or BIOL 230W, BMB 252/MICRB 252.

² To graduate, a grade of C or better is required in 9 credits of prescribed 400-level courses, excluding BMB 442 and MICRB 421W.

⁴ There may be an alternative option offered in a different semester. See adviser for more information.

⁵ 6-credit microbiology-based elective requirement from List A (Applied) and List B (Lecture) electives, with a minimum 3 credits taken from List A. If a student wants more lab experience, more courses can be taken from List A to fulfill the requirement. A maximum of 3 credits of BMB 408/MICRB 408 and a maximum of 3 credits of BMB 488 and/or BMB 496 can be used to fulfill this requirement but will not count toward the 3-credit minimum of the List A category requirement.

⁶ If a student takes the course with the higher amount of credits, the extra credit can apply towards the List C elective category.

⁷ Consult with an academic adviser for options.

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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.

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 satisfy a portion of that General Education requirement. If the student's program prescribes GWS these courses will replace both ENGL 15/ENGL 30H and CAS 100A/CAS 100B/CAS 100C. Each course is 3 credits.