

2022 - 2023 Major Map

Microbiology (Medical Microbiology), BS

School/College: [The College of Liberal Arts and Sciences](#)
LAMICMBS

Term 1 0 - 15 Credit Hours Critical course signified by 	Hours	Minimum Grade	Notes
 BIO 181: General Biology I (SQ)	4	C	<ul style="list-style-type: none"> • LIA 101, ASU 101, or college-specific First-Year Seminar required of all first-year students. • Students transferring General Statistics (STP 226 or PSY 230) will fulfill STP 231 requirement. • Select your Career Interest Communities and play me3@ASU.
 LIA 101: Student Success in The College of Liberal Arts and Sciences	1	C	
CHM 113: General Chemistry I (SQ)	4	C	
ENG 101 or ENG 102: First-Year Composition OR ENG 105: Advanced First-Year Composition OR ENG 107 or ENG 108: First-Year Composition	3	C	
STP 231: Statistics for Life Science (CS)	3	C	
Term hours subtotal:	15		
Term 2 15 - 32 Credit Hours Critical course signified by 	Hours	Minimum Grade	Notes
 BIO 182: General Biology II (SG)	4	C	<ul style="list-style-type: none"> • Join a student organization. • Activate your Handshake account and build out your profile. • Attend a Pre-Health 101 Session. • Explore extracurriculars (i.e. service learning, community service, internships, research, student involvement, shadowing, etc.) • Students transferring Calculus (MAT 270 or MAT 210) will fulfill MAT 251 requirement.
CHM 116: General Chemistry II (SQ)	4	C	
ENG 101 or ENG 102: First-Year Composition OR ENG 105: Advanced First-Year Composition OR ENG 107 or ENG 108: First-Year Composition	3	C	
MAT 251: Calculus for Life Sciences (MA)	3	C	
Social-Behavioral Sciences (SB) AND Global Awareness (G)	3		
 Complete ENG 101 OR ENG 105 OR ENG 107 course(s).			
Term hours subtotal:	17		
Term 3 32 - 46 Credit Hours Critical course signified by 	Hours	Minimum Grade	Notes
 MIC 220: Biology of Microorganisms AND MIC 206: Microbiology Laboratory (SG)	4	C	<ul style="list-style-type: none"> • Pre-health students should take CHM 233 and CHM 237 this term. See the pre-health website for more information. • If CHM 233 and 237 are taken, then CHM 234 and 238 must be taken the following semester. • It is not recommended to take more than two lab courses in a term. • Explore extracurriculars (i.e. service learning, community service, internships, research, student involvement, shadowing, etc.) • Attend a Study Abroad 101 Session. • Explore minors or certificates.
CHM 231: Elementary Organic Chemistry (SQ) AND CHM 235: Elementary Organic Chemistry Laboratory (SQ)	4	C	
Science and Society Elective	3	C	
Humanities, Arts and Design (HU) AND Cultural Diversity in the U.S. (C)	3		
 Complete First-Year Composition requirement.			
 Complete Mathematics (MA) requirement.			
Term hours subtotal:	14		
Term 4 46 - 63 Credit Hours Critical course signified by 	Hours	Minimum Grade	

📌 BIO 340: General Genetics	4	C
Humanities, Arts and Design (HU) AND Historical Awareness (H)	3	
Literacy and Critical Inquiry (L)	3	
Social-Behavioral Sciences (SB)	3	
Elective	4	
Term hours subtotal:	17	

- Pre-health students should take CHM 234 and CHM 238 this term instead of an Elective. See the pre-health [website](#) for more information.
- Explore extracurriculars (i.e. service learning, community service, internships, research, student involvement, shadowing, etc.)
- Meet with the [Career & Professional Development Center](#) to learn how to develop professional skills.

Term 5 63 - 78 Credit Hours Necessary course signified by ★	Hours	Minimum Grade	Notes
★ BIO 353: Cell Biology	3	C	<ul style="list-style-type: none"> • Pre-health students should take PHY 111 and 113 instead of PHY 101 this term. See the pre-health website for more information. • Meet with your advisor to discuss ways to maximize your remaining time at ASU (i.e. pre-health; 4+1 Masters Programs; study abroad).
BCH 361: Advanced Principles of Biochemistry AND BCH 367: Elementary Biochemistry Laboratory	4	C	
PHY 101: Introduction to Physics (SQ)	4	C	
Upper Division Elective	4		
Term hours subtotal:	15		

Term 6 78 - 93 Credit Hours Necessary course signified by ★	Hours	Minimum Grade	Notes
<i>Complete 2 courses:</i>			<ul style="list-style-type: none"> • BIO 312 or BIO 416 will satisfy the upper-division Science and Society requirement for The College of Liberal Arts and Sciences. • Pre-health students should take PHY 112 and 114 instead of an Elective this term. See the pre-health website for more information. • Courses from the Microbes and Biomedicine groups must include at least one course from each category and at least one lab course. • Explore graduate school or full-time career opportunities.
BIO 360: Animal Physiology OR HPS 331: History of Medicine (HU & H) or BIO 318: History of Medicine (HU & H) OR MIC 314: HIV/AIDS: Science, Behavior, and Society or SSH 314: HIV/AIDS: Science, Behavior, and Society OR MIC 421: Experimental Immunology OR MIC 379: Medical Bacteriology OR MIC 485: General Virology	5-6	C	
BIO 312: Bioethics (HU) OR BIO 416: Biomedical Research Ethics (L)	3		
Microbes or Biomedicine Course	4-2	C	
Elective	3		
★ Complete Cultural Diversity in the U.S. (C) AND Global Awareness (G) AND Historical Awareness (H) course(s).			
Term hours subtotal:	15-14		

Term 7 93 - 105 Credit Hours Necessary course signified by ★	Hours	Minimum Grade	Notes
★ MIC 401: Research Paper (L)	1	C	<ul style="list-style-type: none"> • MIC 401 requires the completion of an individualized instruction form and meeting with a faculty reader before the semester begins. • Courses from the Microbes and Biomedicine groups must include one lab course • Thinking about graduate school? Consider registering for a grad school test prep course. • Use Handshake to research employment opportunities. • Meet with your advisor to verify remaining degree requirements have been met prior to Term 8.
Microbes or Biomedicine Course	2-4	C	
Upper Division Literacy and Critical Inquiry (L)	3		
<i>Complete 2 courses:</i>	6		
Upper Division Elective			
Term hours subtotal:	12-14		

Term 8 105 - 120 Credit Hours Necessary course signified by ★	Hours	Minimum Grade	Notes
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★ MIC 420: Immunology: Molecular and Cellular Foundations OR BIO 420: Immunology: Molecular and Cellular Foundations	3	
Upper Division Humanities, Arts and Design (HU) OR Upper Division Social-Behavioral Sciences (SB)	3	C
<i>Complete 2 courses:</i> Upper Division Elective	6	
Elective	3	
Term hours subtotal:	15	

- Continue to **apply** for full-time career opportunities or graduate school.

- All students pursuing a BS or BSP degree in The College of Liberal Arts and Sciences must complete two courses from the Science and Society list found at <https://thecollege.asu.edu/resources/science-society>. At least one of the two courses must be upper-division and students must earn a C or better in the courses. Both Science and Society courses (i.e., all six credits) may count towards any major, minor, related fields, and ASU General Studies requirements.

Hide Course List(s)/Track Group(s)

Biomedicine	Microbes
ASB 462: Medical Anthropology: Culture and Health (SB & C)	BIO 390: Medical/Dental Field Placement or BIO 484: Internship or MIC 484: Internship
BIO 302: Cancer--Mother of All Diseases (L)	BIO 492: Honors Directed Study or MBB 492: Honors Directed Study or MIC 492: Honors Directed Study
BIO 343: Genetic Engineering and Society (L) or MBB 343: Genetic Engineering and Society (L)	BIO 495: Undergraduate Research or MBB 495: Undergraduate Research or MIC 495: Undergraduate Research
BIO 345: Evolution	MIC 302: Advanced Bacteriology Laboratory (L)
BIO 351: Developmental Biology	MIC 314: HIV/AIDS: Science, Behavior, and Society
BIO 451: Cell Biotechnology: Cell Culture, Immunocytochemistry and Bioimaging	MIC 360: Bacterial Physiology
MIC 445: Techniques in Molecular Biology/Genetics or MBB 445: Techniques in Molecular Biology/Genetics	MIC 379: Medical Bacteriology
MIC 446: Techniques in Molecular Biology/Genetics Lab or MBB 446: Techniques in Molecular Biology/Genetics Lab	MIC 425: Advanced Immunology
MIC 494: Biotechnology Viruses as Tools or BIO 494: Biotechnology Viruses as Tools	MIC 441: Bacterial Genetics
MIC 494: Novel Models for Host-Microbe Interactions	MIC 442: Bacterial Genetics Laboratory
	MIC 485: General Virology
	MIC 494: Human Pathogenic Viruses

Notes:

- First-Year Composition: All students are placed in ENG 101 unless submission of SAT, ACT, Accuplacer, IELTS, or TOEFL score, or college-level transfer credit or test credit equivalent to ASU's first-year composition course(s), determine otherwise. Students on Polytechnic, Downtown Phoenix and West Campuses are encouraged to complete the Directed Self-Placement survey to choose the first-year composition option they believe best suits their needs. Visit: <https://cisa.asu.edu/DSP>
- Mathematics Placement Assessment score determines placement in first mathematics course.

Please keep in mind that the applicability of a specific transfer course toward an ASU degree program depends on the requirements of the department, division, college or school in which you are enrolled at ASU. Transfer agreements that guarantee the completion of university level requirements do not necessarily meet college and major requirements. Please consult with an advisor for more information.

Total Hours: 120

Upper Division Hours: 45 minimum

Major GPA: 2.00 minimum

Cumulative GPA: 2.00 minimum

Total hrs at ASU: 30 minimum

Hrs Resident Credit for

Academic Recognition: 56 minimum

Total Community College Hrs: 64 maximum

Total College Residency Hrs: 12 minimum

General University Requirements Legend

General Studies Core Requirements:

- Literacy and Critical Inquiry (L)
- Mathematical Studies (MA)
- Computer/Statistics/Quantitative Applications (CS)
- Humanities, Arts and Design (HU)
- Social-Behavioral Sciences (SB)
- Natural Science - Quantitative (SQ)
- Natural Science - General (SG)

General Studies Awareness Requirements:

- Cultural Diversity in the U.S. (C)
- Global Awareness (G)
- Historical Awareness (H)

First-Year Composition

General Studies designations listed next to courses on the major map were valid for the 2022 - 2023 academic year. Please refer to the course catalog for current General Studies designations at time of class registration. General Studies credit is applied according to the designation the course carries at the time the class is taken.