










2023 - 2024 Major Map





Biological Sciences (Biomedical Sciences), BS



School/College: The College of Liberal Arts and Sciences
LABSCMBS

Term 1 - A 0 - 8 Credit Hours Critical course signified by 	Hours	Minimum Grade	Notes
 ASU 101-LA: The ASU Experience	1		<ul style="list-style-type: none"> ASU 101 or other First-Year Seminar is required of all first-year students
 BIO 181: General Biology I (SQ)	4	C	
ENG 101: First-Year Composition or ENG 102: First-Year Composition OR ENG 105: Advanced First-Year Composition OR ENG 107: First-Year Composition or ENG 108: First-Year Composition	3	C	
Term hours subtotal:	8		
Term 1 - B 8 - 15 Credit Hours Critical course signified by 	Hours	Minimum Grade	Notes
 BIO 182: General Biology II (SG)	4	C	<ul style="list-style-type: none"> View ASU Online first-year student registration information here. Create a resume and Handshake account with the Career & Professional Development Center to explore research or internship opportunities Explore extracurriculars (i.e. service learning, community service, internships, research, student involvement, shadowing, etc.) Join a student organization Students transferring Calculus (MAT 270 or MAT 210) will fulfill MAT 251 requirement Students not transferring mathematics courses must take the Mathematics Placement Assessment.
MAT 251: Calculus for Life Sciences (MA)	3	C	
Term hours subtotal:	7		
Term 2 - A 15 - 22 Credit Hours	Hours	Minimum Grade	Notes
CHM 113: General Chemistry I (SQ)	4	C	<ul style="list-style-type: none"> Select your career interest area and play me3@ASU
ENG 101: First-Year Composition or ENG 102: First-Year Composition OR ENG 105: Advanced First-Year Composition OR ENG 107: First-Year Composition or ENG 108: First-Year Composition	3	C	
Term hours subtotal:	7		
Term 2 - B 22 - 29 Credit Hours Critical course signified by 	Hours	Minimum Grade	Notes
CHM 116: General Chemistry II (SQ)	4	C	<ul style="list-style-type: none"> If interested in health-related professional programs, research the timeline for admissions preparation and general admission requirements.
STP 231: Statistics for Life Science (CS)	3	C	
 Complete ENG 101 OR ENG 105 OR ENG 107 course(s).			
Term hours subtotal:	7		

- Explore extracurriculars (i.e. service learning, community service, internships, research, student involvement, shadowing, etc.)
- Students transferring General Statistics (STP 226 or PSY 230) will fulfill STP 231 requirement

Term 3 - A 29 - 36 Credit Hours Critical course signified by 	Hours	Minimum Grade	Notes
 BIO 340: General Genetics	4	C	<ul style="list-style-type: none"> • Due to lower-division prerequisites, pre-health students are encouraged to choose upper-division General Studies (HU or SB) and The College Science and Society courses. • It is not recommended to take more than two lab courses in a term. • Review the Career Guide for ASU Online students to learn about available career planning resources.
Elective	3		
Term hours subtotal:	7		

Term 3 - B 36 - 42 Credit Hours Critical course signified by 	Hours	Minimum Grade	Notes
 BIO 345: Evolution	3	C	<ul style="list-style-type: none"> • Meet with the Career & Professional Development Center to learn how to develop professional skills
Social-Behavioral Sciences (SB) AND Cultural Diversity in the U.S. (C)	3		
 Complete First-Year Composition requirement.			
 Complete Mathematics (MA) requirement.			
Term hours subtotal:	6		

Term 4 - A 42 - 48 Credit Hours Critical course signified by 	Hours	Minimum Grade	Notes
 CHM 231: Elementary Organic Chemistry (SQ)	3	C	<ul style="list-style-type: none"> • Develop your professional online presence • Pre-health students should take CHM 233 and CHM 237 instead of CHM 231 and CHM 235. See pre-health website for more information • If CHM 233 and 237 are taken, then CHM 234 and 238 must be taken the following term • Organic Chemistry labs (CHM 237 for CHM 233, and CHM 238 for CHM 234) are required and available at ASU over the summer. Please speak with an advisor for more information.
Science and Society Elective	3	C	
Term hours subtotal:	6		

Term 4 - B 48 - 54 Credit Hours	Hours	Minimum Grade	Notes
BIO 312: Bioethics (HU) OR BIO 416: Biomedical Research Ethics (L)	3	C	<ul style="list-style-type: none"> • BIO 312 or BIO 416 may be used to satisfy the upper-division Science and Society credit for The College.
Humanities, Arts and Design (HU)	3		
Term hours subtotal:	6		

Summer 4 Session 1 54 - 55 Credit Hours	Hours	Minimum Grade	Notes
CHM 235: Elementary Organic Chemistry Laboratory (SQ)	1	C	<ul style="list-style-type: none"> • ASU Online students will complete all experiments for the CHM 235 organic chemistry lab at the ASU Tempe campus
Term hours subtotal:	1		

during a one-week session in summer. Lab reports will be completed in later weeks during the same summer term.

- Pre-health students will complete CHM 237 and CHM 238 organic chemistry labs instead of CHM 235.

Term 5 - A 55 - 62 Credit Hours	Hours	Minimum Grade	Notes
PHY 101: Introduction to Physics (SQ)	4	C	<ul style="list-style-type: none"> • Due to lower-division prerequisites, pre-health students are encouraged to choose upper-division General Studies (HU or SB) and The College Science and Society courses. • If interested in health-related professional programs, use ASU's Health Professions Advising to prepare for applications. • Pre-health students should take PHY 111 and PHY 113 instead of PHY 101 in 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) • Explore graduate school or full-time career opportunities.
Social-Behavioral Sciences (SB) AND Global Awareness (G)	3		
Term hours subtotal:	7		
Term 5 - B 62 - 68 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 112 and PHY 114 instead of an elective this term. See the pre-health website for more information. • Network in your career interest area.
Elective	3		
Term hours subtotal:	6		
Term 6 - A 68 - 74 Credit Hours Necessary course signified by ★	Hours	Minimum Grade	Notes
★ BIO 360: Animal Physiology	3	C	<ul style="list-style-type: none"> • Biochemistry lab BCH 367 is available at ASU over the summer. Please speak with an advisor for more information • Pre-health students should take PHY 112 and PHY 114 instead of an elective in this term. See pre-health website for more information.
Humanities, Arts and Design (HU) AND Historical Awareness (H)	3		
Term hours subtotal:	6		
Term 6 - B 74 - 80 Credit Hours Necessary course signified by ★	Hours	Minimum Grade	Notes
★ BCH 361: Advanced Principles of Biochemistry	3	C	<ul style="list-style-type: none"> • Biochemistry lab BCH 367 is available at ASU over the summer. Please speak with an advisor for more information.
Elective	3		
★ Complete Cultural Diversity in the U.S. (C) AND Global Awareness (G) AND Historical Awareness (H) course(s).			
Term hours subtotal:	6		
Summer 6 Session 2 80 - 84 Credit Hours Necessary course signified by ★	Hours	Minimum Grade	Notes
★ BCH 367: Elementary Biochemistry Laboratory	1	C	

Elective	3
Term hours subtotal:	4

- ASU Online students will complete all experiments for the BCH 367 biochemistry lab at the ASU Tempe campus during a one-week session in summer. Lab reports will be completed in later weeks during the same summer term.

Term 7 - A 84 - 90 Credit Hours Necessary course signified by ★	Hours	Minimum Grade	Notes
BIO 351: Developmental Biology OR BIO 420: Immunology: ★ Molecular and Cellular Foundations OR BIO 440: Functional Genomics OR BIO 462: Endocrine Physiology OR BIO 467: Neurobiology	3	C	<ul style="list-style-type: none"> • Meet with your advisor to verify remaining degree requirements have been met prior to Term 8 • Explore or apply for full-time career opportunities or graduate school
Literacy and Critical Inquiry (L)	3		
Term hours subtotal:	6		

Term 7 - B 90 - 96 Credit Hours Necessary course signified by ★	Hours	Minimum Grade	Notes
BIO 351: Developmental Biology OR BIO 420: Immunology: ★ Molecular and Cellular Foundations OR BIO 440: Functional Genomics OR BIO 462: Endocrine Physiology OR BIO 467: Neurobiology	3	C	
Upper Division Literacy and Critical Inquiry (L)	3		
Term hours subtotal:	6		

Term 8 - A 96 - 99 Credit Hours	Hours	Minimum Grade	Notes
Elective	3		<ul style="list-style-type: none"> • Explore other resources available through ASU's Career and Professional Development Center
Term hours subtotal:	3		

Term 8 - B 99 - 105 Credit Hours Necessary course signified by ★	Hours	Minimum Grade	Notes
★ Upper Division Biomedical Research Course OR Upper Division Medicine in Society Course	3	C	<ul style="list-style-type: none"> • Some upper-division Medicine in Society and Biomedical Research Courses require prerequisites, which may be taken as electives. • Courses from the Medicine in Society and Biomedical Research groups must include at least one course from each group and at least one lab course. • Research employment opportunities or graduate school programs • Gather professional references
Upper Division Humanities, Arts and Design (HU) OR Upper Division Social-Behavioral Sciences (SB)	3		
Term hours subtotal:	6		

Term 9 - A 105 - 113 Credit Hours Necessary course signified by ★	Hours	Minimum Grade	Notes
★ Upper Division Biomedical Research Course OR Upper Division Medicine in Society Course	3	C	<ul style="list-style-type: none"> • Courses from the Medicine in Society and Biomedical Research groups must include at least one course from each group and at least one lab course. • Some upper-division Medicine in Society and Biomedical Research Courses require prerequisites, which may be taken as electives.
Complete 2 courses:	5		
Elective			
Term hours subtotal:	8		

Term 9 - B 113 - 120 Credit Hours	Hours	Minimum Grade	Notes
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- Meet with your **advisor** to verify remaining degree requirements have been met
- Continue to apply for **full-time career opportunities or graduate school**

- Students must take at least one course from the Medicine in Society group and at least one course from the Biomedical Research group, and at least one of those must be a lab course.
- Some upper-division Medicine in Society courses require lower-division prerequisites, which may be taken as electives. See list of Suggested Electives provided.
- 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)

Biomedical Research	Medicine in Society	Suggested Electives
BIO 342: General Genetics Laboratory	ASB 301: Global History of Health (SB & G & H) or HST 301: Global History of Health (SB & G & H) or SSH 301: Global History of Health (SB & G & H)	ASB 100: Introduction to Global Health (SB & G)
BIO 357: Cell and Molecular Biology Laboratory		ASB 102: Introduction to Cultural Anthropology (SB & G)
BIO 361: Animal Physiology Laboratory	ASB 443: Cross-Cultural Studies in Global Health ((L or SB) & G) or SSH 403: Cross-Cultural Studies in Global Health ((L or SB) & G)	ASB 222: Buried Cities and Lost Tribes ((HU or SB) & G & H)
BIO 370: Vertebrate Zoology		ASM 104: Bones, Stones, and Human Evolution (SB or SG)
BIO 415: Statistical Models for Biology (CS)	ASB 452: Community Partnerships for Global Health (SB) or SSH 402: Community Partnerships for Global Health (SB)	BIO 331: Animal Behavior
BIO 439: Computing for Research	ASB 462: Medical Anthropology: Culture and Health (SB & C)	HST 101: Global History Since 1500 (HU & H & G) or SGS 111: Global History Since 1500 (HU & H & G)
BIO 475: Advanced Human Anatomy	ASM 345: Disease and Human Evolution	
BIO 484: Internship	ASM 403: Evolutionary Medicine and Global Health	
BIO 495: Undergraduate Research	ASM 414: Urban, Environmental and Health Challenges (SB)	
	BIO 494: Introduction To Clinical Healthcare	
	HPS 331: History of Medicine (HU & H)	
	MIC 314: HIV/AIDS: Science, Behavior, and Society	

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 2023 - 2024 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.