



2024 - 2025 Major Map



Biological Sciences (Genetics, Cell and Developmental Biology), BS



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


Term 1 0 - 15 Credit Hours Critical course signified by !	Hours	Minimum Grade	Notes
! BIO 181: General Biology I (SCIT OR SQ)	4	C	<ul style="list-style-type: none"> LIA 101, ASU 101, or other 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 area and play me3@ASU.
! LIA 101: Student Success in The College of Liberal Arts and Sciences	1		
CHM 113: General Chemistry I (SCIT OR 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 (QTRS OR 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 (SCIT OR SG)	4	C	<ul style="list-style-type: none"> Join a student organization Create a resume and Handshake account with the Career & Professional Development Center Explore extracurriculars (i.e. service learning, community service, internships, research, student involvement, shadowing, etc.) Attend a Pre-Health 101 Session Students transferring Calculus (MAT 270 or MAT 210) will fulfill MAT 251 requirement
CHM 116: General Chemistry II (SCIT OR 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 (MATH OR MA)	3	C	
Social and Behavioral Sciences (SOBE)	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
! BIO 340: General Genetics OR MBB 347: Molecular Genetics: From Genes to Proteins	4	C	<ul style="list-style-type: none"> Some pre-health students may need CHM 233 and CHM 237 instead of CHM 231 and CHM 235 this term. See 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. On-campus students are encouraged to take MBB 347 to satisfy the genetics requirement. Explore extracurriculars (i.e. service learning, community service, internships, research, student involvement, shadowing, etc.) Attend a Study Abroad 101 Session
CHM 231: Elementary Organic Chemistry (SCIT OR SQ)	3	C	
CHM 235: Elementary Organic Chemistry Laboratory (SCIT OR SQ)	1	C	
Science and Society Elective	3	C	
Humanities, Arts and Design (HUAD)	3		
! Complete First-Year Composition requirement.			
! Complete Mathematics (MATH) requirement.			
Term hours subtotal:	14		



- Explore [minors or certificates](#)

Term 4 46 - 61 Credit Hours Critical course signified by 	Hours	Minimum Grade	Notes
 BIO 345: Evolution	3	C	<ul style="list-style-type: none"> • Some pre-health students may need CHM 234 and CHM 238 instead of an elective this term. See pre-health website for more information. • If CHM 233 and 237 are taken, then CHM 234 and 238 must be taken the following semester • 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
Governance and Civic Engagement (CIVI)	3		
Humanities, Arts and Design (HUAD)	3		
<i>Complete 2 courses:</i>	6		
Elective			
Term hours subtotal:	15		

Term 5 61 - 78 Credit Hours Necessary course signified by 	Hours	Minimum Grade	Notes
<i>Complete 2 courses:</i>			<ul style="list-style-type: none"> • Some pre-health students may need PHY 111 and PHY 113 instead of PHY 101 this term. See pre-health website for more information • BIO 351 is typically only taught in the Fall semester • Meet with your advisor to discuss ways to maximize your remaining time at ASU (i.e. pre-health; Accelerated Masters Programs; study abroad)
 BIO 351: Developmental Biology OR BIO 353: Cell Biology OR BCH 361: Advanced Principles of Biochemistry	6	C	
PHY 101: Introduction to Physics (SCIT OR SQ)	4	C	
Sustainability (SUST)	3		
Upper Division Elective	4		
Term hours subtotal:	17		

Term 6 78 - 93 Credit Hours Necessary course signified by 	Hours	Minimum Grade	Notes
 BIO 351: Developmental Biology OR BIO 353: Cell Biology OR BCH 361: Advanced Principles of Biochemistry	3	C	<ul style="list-style-type: none"> • Some pre-health students may need PHY 112 and PHY 114 instead of an elective this term. See pre-health website for more information • Use Handshake to research employment opportunities or explore graduate school
BIO 308: Plant Physiology OR BIO 360: Animal Physiology OR MIC 420: Immunology: Molecular and Cellular Foundations or BIO 420: Immunology: Molecular and Cellular Foundations OR MBB 440: Functional Genomics or BIO 440: Functional Genomics	3	C	
Global Communities, Societies and Individuals (GCSI)	3		
Upper Division Elective	3		
Elective	3		
Term hours subtotal:	15		

Term 7 93 - 107 Credit Hours Necessary course signified by 	Hours	Minimum Grade	Notes
 Upper Division Major Laboratory/Research Course	2-4	C	<ul style="list-style-type: none"> • Meet with your advisor to verify remaining degree requirements have been met prior to Term 8
Upper Division Major Elective	3	C	
Upper Division Science and Society Elective	3	C	
American Institutions (AMIT)	3		
Upper Division Elective	3		
Term hours subtotal:	14-16		

Term 8 107 - 120 Credit Hours Necessary course signified by 	Hours	Minimum Grade	Notes
 Major Laboratory/Research Course	1	C	

BIO 308: Plant Physiology OR BIO 360: Animal Physiology OR MIC 420: Immunology: Molecular and Cellular Foundations or BIO 420: Immunology: Molecular and Cellular Foundations OR MBB 440: Functional Genomics or BIO 440: Functional Genomics	3	C
Upper Division Major Elective	2-4	C
Upper Division Elective	3	
Elective	4	
Term hours subtotal:	13-15	

- 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)

Major Laboratory/Research Courses	Major Electives
BCH 367: Elementary Biochemistry Laboratory	BCH 367: Elementary Biochemistry Laboratory
BIO 308: Plant Physiology	BIO OR HPS OR MBB OR MIC 3** Elective
BIO 342: General Genetics Laboratory	BIO OR HPS OR MBB OR MIC 4** Elective
BIO 352: Laboratory in Vertebrate Developmental Anatomy	
BIO 354: Cell Biology Laboratory	
BIO 357: Cell and Molecular Biology Laboratory	
BIO 361: Animal Physiology Laboratory	
BIO 370: Vertebrate Zoology	
BIO 390: Medical/Dental Field Placement or BIO 484: Internship or MIC 484: Internship	
BIO 415: Statistical Models for Biology (QTRS OR CS)	
BIO 439: Computing for Research	
BIO 451: Cell Biotechnology: Cell Culture, Immunocytochemistry and Bioimaging	
BIO 475: Advanced Human Anatomy	
BIO 492: Honors Directed Study or MBB 492: Honors Directed Study or MIC 492: Honors Directed Study	
BIO 495: Undergraduate Research or MBB 495: Undergraduate Research or MIC 495: Undergraduate Research	
MBB 343: Genetic Engineering and Society (L) or BIO 343: Genetic Engineering and Society (L)	
MBB 350: Applied Genetics	

MIC 206: Microbiology Laboratory (SCIT
OR SG) AND MIC 220: Biology of
Microorganisms

MIC 302: Advanced Bacteriology
Laboratory (L)

MIC 421: Experimental Immunology

- **Total Hours:** 120
- **Upper Division Hours:** 45 minimum
- **University Undergraduate Graduation Requirements**

Notes:

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.

General Studies designations listed next to courses on the major map were valid for the 2024 - 2025 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.