















## 2024 - 2025 Major Map

### Biochemistry, BS

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

Term 1 0 - 14 Credit Hours Critical course signified by 	Hours	Minimum Grade	Notes
 CHM 117: General Chemistry for Majors I (SCIT OR SQ) AND  CHM 111: General Chemistry Laboratory for Majors I (SCIT OR SQ) OR CHM 113: General Chemistry I (SCIT OR SQ)	4	C	<ul style="list-style-type: none"> <li>ASU 101 or college-specific equivalent First-Year Seminar required of all first-year students.</li> <li>Students placing in lower level math classes can still graduate in four years. See an academic advisor for planning.</li> <li>Select your <b>Career Interest Areas</b> and play <b>me3@ASU</b>.</li> <li>Students are encouraged to take CHM 117 &amp; CHM 111 where possible.</li> </ul>
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	
LIA 101: Student Success in The College of Liberal Arts and Sciences	1		
MAT 270: Calculus with Analytic Geometry I (MATH OR MA) OR MAT 265: Calculus for Engineers I (MATH OR MA)	3-4	C	
Humanities, Arts and Design (HUAD)	3		
Term hours subtotal:	14-15		
Term 2 14 - 28 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"> <li>Research the <b>timeline</b> for health careers and professional program admissions preparation.</li> <li>Students are encouraged to take CHM 118 &amp; CHM 112 where possible.</li> </ul>
 CHM 118: General Chemistry for Majors II (SCIT OR SQ) AND  CHM 112: General Chemistry Laboratory for Majors II (SCIT OR SQ) OR 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 271: Calculus with Analytic Geometry II (MATH OR MA) OR MAT 266: Calculus for Engineers II (MATH OR MA)	3-4	C	
 Complete ENG 101 OR ENG 105 OR ENG 107 course(s).			
Term hours subtotal:	14-15		
Term 3 28 - 43 Credit Hours Critical course signified by 	Hours	Minimum Grade	Notes
 CHM 233: General Organic Chemistry I	3	C	<ul style="list-style-type: none"> <li>Research <b>admission requirements</b> for health-related professional schools.</li> <li>Discuss <b>study abroad opportunities</b> with a School of Molecular Sciences advisor.</li> </ul>
 CHM 237: General Organic Chemistry Laboratory I	1	C	
 PHY 111: General Physics (SCIT OR SQ)	3	C	
BIO 182: General Biology II (SCIT OR SG)	4	C	
PHY 113: General Physics Laboratory (SCIT OR SQ)	1	C	
Quantitative Reasoning (QTRS)	3		
 Complete First-Year Composition requirement. Complete Mathematics (MATH) requirement.			
Term hours subtotal:	15		
Term 4 43 - 60 Credit Hours Critical course signified by 	Hours	Minimum Grade	Notes

📌 PHY 112: General Physics (SCIT OR SQ)	3	C
CHM 234: General Organic Chemistry II	3	C
CHM 238: General Organic Chemistry Laboratory II	1	C
PHY 114: General Physics Laboratory (SCIT OR SQ)	1	C
Governance and Civic Engagement (CIVI)	3	
Humanities, Arts and Design (HUAD)	3	
Sustainability (SUST)	3	
Term hours subtotal:	17	

- Connect with a career advisor by registering for a **Handshake** account.
- Create a first draft **resume**.

Term 5 60 - 75 Credit Hours Necessary course signified by ★	Hours	Minimum Grade	Notes
★ BCH 341: Physical Chemistry with a Biological Focus	3	C	
Upper Division Advanced BIO Elective	3		
American Institutions (AMIT)	3		
Social and Behavioral Sciences (SOBE)	3		
Upper Division Elective	3		
Term hours subtotal:	15		

- Consider applying for a **Pre-Health Internship** to gain hands-on clinical experience. For other types of internship opportunities, students can go to **Handshake** or connect with an academic advisor to discuss options.

Term 6 75 - 90 Credit Hours Necessary course signified by ★	Hours	Minimum Grade	Notes
★ BCH 461: General Biochemistry	3	C	
BCH 463: Biophysical Chemistry	3	C	
Advanced BIO Elective	3-4	C	
Global Communities, Societies and Individuals (GCSI)	3		
Upper Division Elective OR BCH 484: Internship	3		
Term hours subtotal:	15-16		

- This is an ideal semester to **study abroad**. BCH courses may be taken in the final two terms.

Term 7 90 - 105 Credit Hours Necessary course signified by ★	Hours	Minimum Grade	Notes
★ BCH 467: Analytical Biochemistry Laboratory (L)	3	C	
BCH 462: General Biochemistry	3	C	
Science and Society Elective	3	C	
Complete 2 courses:	6		
Upper Division Elective			
Term hours subtotal:	15		

Term 8 105 - 120 Credit Hours Necessary course signified by ★	Hours	Minimum Grade	Notes
★ BCH OR CHM Upper Division Elective	3	C	
Upper Division Science and Society Elective	3	C	
Complete 3 courses:	9		
Upper Division Elective			
Term hours subtotal:	15		

- Upper Division BCH or CHM Elective must be completed at Tempe campus and cannot be met with BCH 361, BCH 367, BCH 371, BCH 372, BCH 373, CHM 341, CHM 460, or CHM 480.
- Apply for **full-time career opportunities**.

- 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.

- With prior approval of an academic advisor in the School of Molecular Sciences, other courses may be used to satisfy the Advanced BIO Elective requirement.

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

Advanced BIO Elective
BIO 201: Human Anatomy and Physiology I (SCIT OR SG)
BIO 202: Human Anatomy and Physiology II (SCIT OR SG)
BIO 302: Cancer--Mother of All Diseases (L)
BIO 325: Oceanography or CHM 385: Oceanography
BIO 340: General Genetics or MBB 347: Molecular Genetics: From Genes to Proteins
BIO 351: Developmental Biology
BIO 353: Cell Biology
BIO 360: Animal Physiology
BIO 440: Functional Genomics
BIO 446: Principles of Human Genetics (L)
BIO 450: Advanced Developmental Biology
BIO 451: Cell Biotechnology: Cell Culture, Immunocytochemistry and Bioimaging
BIO 465: Neurophysiology
MBB 343: Genetic Engineering and Society (L)
MBB 350: Applied Genetics
MIC 205: Microbiology (SCIT OR SG)
MIC 206: Microbiology Laboratory (SCIT OR SG)
MIC 220: Biology of Microorganisms
MIC 360: Bacterial Physiology
MIC 379: Medical Bacteriology
MIC 461: Geomicrobiology

- **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.