













# 2023 - 2024 Major Map

## Biochemistry, BA




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



Term 1 0 - 14 Credit Hours <b>Critical course signified by</b> 	Hours	Minimum Grade	Notes
 CHM 117: General Chemistry for Majors I (SQ) AND CHM 111: General Chemistry Laboratory for Majors I (SQ) OR CHM 113: General Chemistry I (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 into lower level math classes can still graduate in 4 years -- see an academic advisor for planning.</li> <li>Students considering advanced science degrees and those who plan to take advanced math courses should take MAT 270 in place of MAT 251.</li> <li>Select your <a href="#">Career Interest Areas</a> and play <a href="mailto:me3@asu.edu">me3@ASU</a>.</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 251: Calculus for Life Sciences (MA) OR MAT 265: Calculus for Engineers I (MA) OR MAT 270: Calculus with Analytic Geometry I (MA)	3-4	C	
Social-Behavioral Sciences (SB) AND Cultural Diversity in the U.S. (C)	3		
Term hours subtotal:		14-15	
Term 2 14 - 29 Credit Hours <b>Critical course signified by</b> 	Hours	Minimum Grade	Notes
 BIO 181: General Biology I (SQ)	4	C	<ul style="list-style-type: none"> <li><b>ASU Language Placement:</b> Only true beginners are eligible for 101-level courses. All other students are required to take a placement exam, regardless of prior credit earned.</li> <li>Research the <a href="#">timeline</a> for health careers and professional program admissions requirements.</li> </ul>
 CHM 118: General Chemistry for Majors II (SQ) AND CHM 112: General Chemistry Laboratory for Majors II (SQ) OR 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	
Second Language: Requirement satisfied through the following: * Completion of a language course at the intermediate level (202 or equivalent), including American Sign Language IV.	4	C	
 Complete ENG 101 OR ENG 105 OR ENG 107 course(s).			
Term hours subtotal:		15	
Term 3 29 - 45 Credit Hours <b>Critical course signified by</b> 	Hours	Minimum Grade	Notes
 CHM 233: General Organic Chemistry I	3	C	<ul style="list-style-type: none"> <li>Students who are interested in graduate degrees in natural sciences or health-related professional degrees should take PHY 111 and PHY 113 instead of PHY 101 in this term. Then,</li> </ul>
 CHM 237: General Organic Chemistry Laboratory I	1	C	
 PHY 101: Introduction to Physics (SQ)	4	C	


BIO 182: General Biology II (SG)	4	C
Second Language: Requirement satisfied through the following: * Completion of a language course at the intermediate level (202 or equivalent), including American Sign Language IV.	4	C
 Complete First-Year Composition requirement.		
 Complete Mathematics (MA) requirement.		
Term hours subtotal:	16	

complete PHY 112 and PHY 114 in the next term.

- Research [admission requirements for health-related professional schools](#).
- Discuss [study abroad opportunities](#) with a School of Molecular Sciences advisor.

Term 4 45 - 59 Credit Hours <b>Critical course signified by</b> 	Hours	Minimum Grade	Notes
 CHM 234: General Organic Chemistry II	3	C	<ul style="list-style-type: none"> <li>• Due to lower-division prerequisites, pre-health students are encouraged to choose upper-division General Studies (HU or SB) courses.</li> <li>• Connect with a Career Advisor by registering for a <a href="#">Handshake</a> account.</li> </ul>
CHM 238: General Organic Chemistry Laboratory II	1	C	
Second Language: Requirement satisfied through the following: * Completion of a language course at the intermediate level (202 or equivalent), including American Sign Language IV.	4	C	
Computer/Statistics/Quantitative Applications (CS)	3		
Humanities, Arts and Design (HU) AND Historical Awareness (H)	3		
 Complete PHY 101 OR PHY 112 AND PHY 114 course(s).			
Term hours subtotal:	14		

Term 5 59 - 75 Credit Hours <b>Necessary course signified by</b> 	Hours	Minimum Grade	Notes
 BCH 341: Physical Chemistry with a Biological Focus	3	C	<ul style="list-style-type: none"> <li>• CHM 302 and CHM 325 are only offered in the Fall semester and must be completed at the Tempe campus.</li> <li>• Create a first draft <a href="#">resume</a>.</li> </ul>
BCH 461: General Biochemistry	3	C	
CHM 302: Environmental Chemistry OR CHM 325: Analytical Chemistry	3	C	
Second Language: Requirement satisfied through the following: * Completion of a language course at the intermediate level (202 or equivalent), including American Sign Language IV.	4	C	
Upper Division Elective	3		
Term hours subtotal:	16		

Term 6 75 - 90 Credit Hours <b>Necessary course signified by</b> 	Hours	Minimum Grade	Notes
BCH 462: General Biochemistry	3	C	<ul style="list-style-type: none"> <li>• Explore internship opportunities in <a href="#">industry</a> and <a href="#">health fields</a>.</li> <li>• This is an ideal semester to <a href="#">study abroad</a>. BCH 462 may be taken in the final two terms.</li> </ul>
Advanced BIO Elective	3-4	C	
Literacy and Critical Inquiry (L)	3		
Humanities, Arts and Design (HU) AND Global Awareness (G)	3		

- ★ Complete Cultural Diversity in the U.S. (C) AND Global Awareness (G) AND Historical Awareness (H) course(s).

Term hours subtotal: 15-16

<b>Term 7 90 - 105 Credit Hours Necessary course signified by ★</b>	<b>Hours</b>	<b>Minimum Grade</b>	<b>Notes</b>
★ BCH 467: Analytical Biochemistry Laboratory (L)	3	C	<ul style="list-style-type: none"> <li>Upper Division BCH or CHM Electives must be completed at Tempe campus and cannot be met with BCH 361, BCH 367, BCH 371, BCH 372, CHM 341, CHM 460, or CHM 480.</li> </ul>
BCH OR CHM Upper Division Elective	3	C	
Upper Division Humanities, Arts and Design (HU) OR Upper Division Social-Behavioral Sciences (SB)	3		
Social-Behavioral Sciences (SB)	3		
Upper Division Elective OR BCH 484: Internship	3		
Term hours subtotal:	15		

<b>Term 8 105 - 120 Credit Hours Necessary course signified by ★</b>	<b>Hours</b>	<b>Minimum Grade</b>	<b>Notes</b>
★ BCH OR CHM Upper Division Elective	3	C	<ul style="list-style-type: none"> <li>Apply for full-time career opportunities.</li> </ul>
Complete 4 courses: Upper Division Elective	12		
Term hours subtotal:	15		

- 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 (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 431: Genes, Development, and Evolution (L)

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MIC 205: Microbiology (SG)

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MIC 206: Microbiology Laboratory (SG)

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MIC 220: Biology of Microorganisms

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MIC 461: Geomicrobiology

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### 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.