






# 2023 - 2024 Major Map


## Biological Sciences, BS

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

Term 1 - A 0 - 8 Credit Hours <b>Critical course signified by</b> 	Hours	Minimum Grade	Notes
 ASU 101-LA: The ASU Experience	1		<ul style="list-style-type: none"> <li>ASU 101 or college-specific equivalent First-Year Seminar required of all first-year students</li> </ul>
 BIO 181: General Biology 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	
Term hours subtotal:	8		

Term 1 - B 8 - 15 Credit Hours <b>Critical course signified by</b> 	Hours	Minimum Grade	Notes
 BIO 182: General Biology II (SG)	4	C	<ul style="list-style-type: none"> <li>View ASU Online first-year student registration information <a href="#">here</a>.</li> <li>Create a resume and <a href="#">Handshake account</a> with the Career &amp; Professional Development Center to explore research or internship opportunities</li> <li>Explore extracurriculars (i.e. service learning, community service, internships, research, student involvement, shadowing, etc.)</li> <li>Join a <a href="#">student organization</a></li> <li>Students transferring Calculus (MAT 270 or MAT 210) will fulfill MAT 251 requirement</li> <li>Students not transferring mathematics courses must take the <a href="#">Mathematics Placement Assessment</a>.</li> </ul>
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"> <li>Select your <a href="#">career interest area</a> and play <a href="#">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	
Term hours subtotal:	7		

Term 2 - B 22 - 29 Credit Hours <b>Critical course signified by</b> 	Hours	Minimum Grade	Notes
CHM 116: General Chemistry II (SQ)	4	C	<ul style="list-style-type: none"> <li>If interested in health-related professional programs, research the <a href="#">timeline</a> for admissions preparation</li> </ul>

STP 231: Statistics for Life Science (CS)

3

C

! Complete ENG 101 OR ENG 105 OR ENG 107 course(s).

Term hours subtotal: 7

and general admission requirements.

- 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 <b>Critical course signified by</b>	Hours	Minimum Grade	Notes
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! BIO 340: General Genetics

4

C

Humanities, Arts and Design (HU) AND Historical Awareness (H)

3

Term hours subtotal: 7

- 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.

Term 3 - B 36 - 42 Credit Hours <b>Critical course signified by</b>	Hours	Minimum Grade	Notes
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Literacy and Critical Inquiry (L)

3

Social-Behavioral Sciences (SB) AND Global Awareness (G)

3

! Complete First-Year Composition requirement.

! Complete Mathematics (MA) requirement.

Term hours subtotal: 6

- Meet with the [Career & Professional Development Center](#) to learn how to develop professional skills

Term 4 - A 42 - 48 Credit Hours <b>Critical course signified by</b>	Hours	Minimum Grade	Notes
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! BIO 345: Evolution

3

C

CHM 231: Elementary Organic Chemistry (SQ)

3

C

Term hours subtotal: 6

- Develop your [professional online presence](#)
- Pre-health students should take CHM 233 and CHM 237 instead of CHM 231 and CHM 235. See the [pre-health website](#) for more information
- If CHM 233 is taken, then CHM 234 must be taken the following semester
- 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.

Term 4 - B 48 - 55 Credit Hours	Hours	Minimum Grade	Notes
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Humanities, Arts and Design (HU)

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Term hours subtotal: 7

Summer 4 55 - 56 Credit Hours	Hours	Minimum Grade	Notes
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CHM 235: Elementary Organic Chemistry Laboratory (SQ)	1	C	<ul style="list-style-type: none"> <li>ASU Online students will complete all experiments for the CHM 235 organic chemistry lab at the Tempe Campus of ASU during a one-week session in summer. Lab reports will be completed in later weeks during the same summer term.</li> <li>Pre-health students will complete CHM 237 and CHM 238 organic chemistry labs instead of CHM 235.</li> </ul>
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Term hours subtotal: 1

Term 5 - A 56 - 63 Credit Hours	Hours	Minimum Grade	Notes
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PHY 101: Introduction to Physics (SQ)	4	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) and The College Science and Society courses.</li> <li>If interested in health-related professional programs, use <a href="#">ASU's Health Professions Advising</a> to prepare for application.</li> <li>Pre-health students should take PHY 111 and PHY 113 instead of PHY 101 in this term. See the pre-health <a href="#">website</a> for more information</li> <li>Meet with your advisor to discuss ways to maximize your remaining time at ASU (i.e. pre-health; 4+1 Masters Programs; study abroad)</li> <li>Explore <a href="#">graduate school</a> or full-time <a href="#">career opportunities</a></li> </ul>
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Social-Behavioral Sciences (SB) AND Cultural Diversity in the U.S. (C)	3	
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Term hours subtotal: 7

Term 5 - B 63 - 69 Credit Hours <b>Necessary course signified by</b> 	Hours	Minimum Grade	Notes
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 Upper Division Additional Major Requirement Course	3-4	C	<ul style="list-style-type: none"> <li>Pre-health students should take PHY 112 and PHY 114 instead of an elective this term. See the pre-health <a href="#">website</a> for more information.</li> <li><a href="#">Network</a> in your career interest area.</li> </ul>
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Elective	3	
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Term hours subtotal: 6-7

Term 6 - A 69 - 75 Credit Hours <b>Necessary course signified by</b> 	Hours	Minimum Grade	Notes
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 Upper Division Additional Major Requirement Course	3	C	<ul style="list-style-type: none"> <li>Work with your academic advisor to align your additional major requirements and major elective courses with your career aspirations</li> <li>Use <a href="#">Handshake</a> to research employment opportunities</li> </ul>
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Science and Society Elective	3	C
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Term hours subtotal: 6


Term 6 - B 75 - 82 Credit Hours <b>Necessary course signified by</b> 	Hours	Minimum Grade	Notes
 Upper Division Additional Major Requirement Course	3	C	
 Major Laboratory Research Course	1-4	C	
Elective	3		
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 Complete Cultural Diversity in the U.S. (C) AND Global Awareness (G) AND Historical Awareness (H) course(s).			
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Term hours subtotal:		7-10	

Term 7 - A 82 - 87 Credit Hours	Hours	Minimum Grade	Notes
Upper Division Major Laboratory Research Course	2-4	C	<ul style="list-style-type: none"> <li>Meet with your advisor to verify remaining degree requirements have been met prior to Term 8</li> <li><b>Explore</b> or apply for full-time career opportunities or graduate school</li> </ul>
Upper Division Humanities, Arts and Design (HU) OR Upper Division Social-Behavioral Sciences (SB)	3		
Term hours subtotal:		5-7	

Term 7 - B 87 - 96 Credit Hours <b>Necessary course signified by</b> 	Hours	Minimum Grade	Notes
 Upper Division Major Elective Course	3	C	
Upper Division Elective	3		
Elective	3		
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Term hours subtotal:		9	

Term 8 - A 96 - 102 Credit Hours	Hours	Minimum Grade	Notes
Upper Division Science and Society Elective	3	C	<ul style="list-style-type: none"> <li>Explore other resources available through ASU's <b>Career and Professional Development Center</b></li> </ul>
Upper Division Literacy and Critical Inquiry (L)	3		
Term hours subtotal:		6	

Term 8 - B 102 - 108 Credit Hours <b>Necessary course signified by</b> 	Hours	Minimum Grade	Notes
 Upper Division Major Elective Course	3	C	<ul style="list-style-type: none"> <li>Gather <b>professional references</b></li> </ul>
Upper Division Elective	3		
Term hours subtotal:		6	

Term 9 - A 108 - 114 Credit Hours <b>Necessary course signified by</b> 	Hours	Minimum Grade	Notes
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★ Upper Division Additional Major Requirement Course	3	C
Elective	3	
Term hours subtotal:		6

Term 9 - B 114 - 120 Credit Hours Necessary course signified by ★	Hours	Minimum Grade	Notes
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★ Upper Division Additional Major Requirement Course	3	C	<ul style="list-style-type: none"> <li>Continue to apply for full-time career opportunities or graduate school</li> </ul>
Elective	3		
Term hours subtotal:		6	

- 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 Course	Major Electives	Additional Major Requirements Courses
BCH 367: Elementary Biochemistry Laboratory	BCH 361: Advanced Principles of Biochemistry	<b>Ethics, History, and Philosophy of Science</b>
BIO 321: Introductory Ecology Laboratory	BIO OR HPS OR MBB OR MIC 3** Elective	BIO 311: Biology and Society or HPS 340: Biology and Society
BIO 342: General Genetics Laboratory	BIO OR HPS OR MBB OR MIC 4** Elective	BIO 312: Bioethics (HU) or PHI 320: Bioethics (HU)
BIO 357: Cell and Molecular Biology Laboratory		BIO 318: History of Medicine (HU & H) or HPS 331: History of Medicine (HU & H)
BIO 361: Animal Physiology Laboratory		BIO 416: Biomedical Research Ethics (L) or HPS 410: Biomedical Research Ethics (L)
BIO 370: Vertebrate Zoology		HPS 314: Philosophy of Science (HU) or PHI 314: Philosophy of Science (HU)
BIO 415: Statistical Models for Biology (CS)		<b>Ecology, Conservation Biology and Evolution</b>
BIO 475: Advanced Human Anatomy		BIO 320: Fundamentals of Ecology
BIO 484: Internship		BIO 322: Conservation of Biodiversity
BIO 492: Honors Directed Study or MIC 492: Honors Directed Study or MBB 492: Honors Directed Study		BIO 422: Ecosystem Ecology
BIO 495: Undergraduate Research		BIO 423: Population and Community Ecology
MIC 220: Biology of Microorganisms AND MIC 206: Microbiology Laboratory (SG)		<b>Microbiology, Molecular, &amp; Cellular Biology</b>
		BCH 361: Advanced Principles of Biochemistry
		BIO 351: Developmental Biology
		BIO 353: Cell Biology

BIO 420: Immunology: Molecular and Cellular Foundations or MIC 420: Immunology: Molecular and Cellular Foundations

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BIO 440: Functional Genomics

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

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### **Organismal Biology**

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BIO 331: Animal Behavior

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BIO 360: Animal Physiology

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BIO 370: Vertebrate Zoology

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BIO 462: Endocrine Physiology

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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.

