









2011 - 2012 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 100: The Living World (SQ) OR BIO 181: General Biology I (SQ) OR BIO 182: General Biology II (SG)	4	C	<ul style="list-style-type: none"> • An SAT, ACT, Accuplacer, or TOEFL score determines placement into first-year composition courses • ASU Math Placement Exam score determines placement in Mathematics course • ASU 101 or College specific equivalent First Year Seminar required of all freshman students. • CHM 113 must be completed by end of term 2 • If student tests into MAT 106 then BIO 100 is recommended
CHM 113: General Chemistry I (SQ) OR Social-Behavioral Sciences (SB) OR Humanities, Arts and Design (HU)	4-3	C	
ENG 101 or ENG 102: First-Year Composition OR ENG 105: Advanced First-Year Composition OR ENG 107 or ENG 108: English for Foreign Students	3	C	
LIA 194: Intro to Liberal Arts and Sciences	1		
STP 231: Statistics for Life Science (CS)	3	C	
Term hours subtotal:	15-14		

Term 2 15 - 32 Credit Hours Critical course signified by 	Hours	Minimum Grade	Notes
 BIO 181: General Biology I (SQ) OR BIO 182: General Biology II (SG)	4	C	<ul style="list-style-type: none"> • CHM 116 must be completed by end of term 3
 CHM 113: General Chemistry I (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: English for Foreign Students	3	C	
MAT 251: Calculus for Life Sciences (MA) OR MAT 170: Precalculus (MA)	3	C	
Social-Behavioral Sciences (SB) AND Global Awareness (G) OR Social-Behavioral Sciences (SB) AND Cultural Diversity in the U.S. (C) OR Social-Behavioral Sciences (SB) AND Historical Awareness (H)	3		
 Complete CHM 113 course(s).			
Term hours subtotal:	17		

Term 3 32 - 46 Credit Hours Critical course signified by 	Hours	Minimum Grade	Notes
 BIO 181: General Biology I (SQ) OR BIO 182: General Biology II (SG)	4	C	
CHM 116: General Chemistry II (SQ) OR CHM 231: Elementary Organic Chemistry (SQ) AND CHM 235: Elementary Organic Chemistry Laboratory (SQ) OR CHM 233: General Organic Chemistry I AND CHM 237: General Organic Chemistry Laboratory I	4	C	

MAT 251: Calculus for Life Sciences (MA) OR Humanities, Arts and Design (HU) AND Cultural Diversity in the U.S. (C) OR Humanities, Arts and Design (HU) AND Global Awareness (G) OR Humanities, Arts and Design (HU) AND Historical Awareness (H)	3	C
CLAS Science and Society Elective OR BIO 340: Fundamentals of Genetics	3-4	C
❗ Complete First-Year Composition requirement.		
❗ Complete Mathematics (MA) requirement.		
❗ Complete CHM 116 course(s).		

Term hours subtotal: 14-15

Term 4 46 - 63 Credit Hours Critical course signified by ❗	Hours	Minimum Grade	Notes
❗ BIO 340: Fundamentals of Genetics OR BIO 345: Organic Evolution	4-3	C	
BIO 360: Animal Physiology OR BIO 446: Principles of Human Genetics (L) OR MBB 247: Principles of Molecular and Cellular Biology II OR MBB 440: Functional Genomics OR MIC 420: Immunology: Molecular and Cellular Foundations	3-4	C	
CHM 231: Elementary Organic Chemistry (SQ) AND CHM 235: Elementary Organic Chemistry Laboratory (SQ) OR CHM 233: General Organic Chemistry I AND CHM 237: General Organic Chemistry Laboratory I OR CHM 234: General Organic Chemistry II AND CHM 238: General Organic Chemistry Laboratory II	4	C	
Literacy and Critical Inquiry (L)	3		
Social-Behavioral Sciences (SB) AND Global Awareness (G) OR Social-Behavioral Sciences (SB) AND Cultural Diversity in the U.S. (C) OR Social-Behavioral Sciences (SB) AND Historical Awareness (H) OR Humanities, Arts and Design (HU) AND Global Awareness (G) OR Humanities, Arts and Design (HU) AND Cultural Diversity in the U.S. (C) OR Humanities, Arts and Design (HU) AND Historical Awareness (H)	3		

Term hours subtotal: 17

Term 5 63 - 79 Credit Hours	Hours	Minimum Grade	Notes
Complete 2 courses: BIO 351: Developmental Biology OR BIO 353: Cell Biology OR BCH 361: Principles of Biochemistry	6	C	• Complete two courses from BIO 351, BIO 353, and BCH 361
PHY 101: Introduction to Physics (SQ) OR PHY 111: General Physics (SQ) AND PHY 113: General Physics Laboratory (SQ)	4	C	
BIO 345: Organic Evolution OR Upper Division Elective	3	C	
Social-Behavioral Sciences (SB) OR Humanities, Arts and Design (HU) OR CHM 234: General Organic Chemistry II AND CHM 238: General Organic Chemistry Laboratory II	3-4	C	

Term hours subtotal: 16-17

Term 6 79 - 93 Credit Hours	Hours	Minimum Grade	Notes
BIO 351: Developmental Biology OR BIO 353: Cell Biology OR BCH 361: Principles of Biochemistry	3	C	• Complete remaining course from BIO 351, BIO 353, and BCH 361
PHY 112: General Physics (SQ) AND PHY 114: General Physics Laboratory (SQ)	4	C	
Upper Division Major Laboratory/Research Elective Course OR Lower Division Major Laboratory/Research Elective Course	1-4	C	
Upper Division Social-Behavioral Sciences (SB) OR Upper Division Humanities, Arts and Design (HU)	3		
Elective OR CLAS Science and Society Elective	3	C	

Term hours subtotal: 14-17

Term 7 93 - 108 Credit Hours	Hours	Minimum Grade	Notes
Upper Division Major General Elective Course	3	C	
Upper Division Major Laboratory/Research Elective Course	3	C	
Upper Division CLAS Science and Society Elective	3	C	
Upper Division Literacy and Critical Inquiry (L)	3		
Upper Division Elective	3		
Term hours subtotal:	15		

Term 8 108 - 120 Credit Hours	Hours	Minimum Grade	Notes
BIO 360: Animal Physiology OR BIO 446: Principles of Human Genetics (L) OR MBB 440: Functional Genomics OR MIC 420: Immunology: Molecular and Cellular Foundations	3	C	<ul style="list-style-type: none"> 4 hours of Laboratory/Research Elective Courses are required among at least two courses
Upper Division Major General Elective Course	3	C	
Upper Division Elective	6		
Term hours subtotal:	12		

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

Major Laboratory Electives Courses	Major Genral Electives
BCH 367: Elementary Biochemistry Laboratory	BIO 302: Cancer and Heart Disease (L)
BIO 342: General Genetics Laboratory	BIO 312: Bioethics (HU)
BIO 352: Laboratory in Vertebrate Developmental Anatomy	BIO 320: Fundamentals of Ecology
BIO 451: Cell Biotechnology Laboratory	BIO 346: The Darwinian Revolution
BIO 453: Animal Histology	BIO 355: Introduction to Computational Molecular Biology (CS)
MBB 343: Genetic Engineering and Society (L)	MBB 355: Introduction to Computational Molecular Biology (CS)
MBB 350: Applied Genetics	BIO 406: Computer Applications in Biology (CS)
PLB 350: Applied Genetics	PLB 432: Computer Applications in Biology (CS)
MIC 206: Microbiology Laboratory (SG)	BIO 415: Biometry (CS)
MIC 302: Advanced Bacteriology Laboratory (L)	BIO 416: Professional Values in Science (L)
MIC 421: Experimental Immunology	BIO 431: Genes, Development, and Evolution (L)
PLB 308: Plant Physiology	BIO 440: Functional Genomics
BIO 495: Undergraduate Research	MBB 440: Functional Genomics
MIC 495: Undergraduate Research	BIO 446: Principles of Human Genetics (L)
MBB 495: Undergraduate Research	BIO 455: Introduction to Comparative Genomics
PLB 495: Undergraduate Research	BIO 462: Endocrine Physiology
	BIO 467: Neurobiology
	HPS 322: History of Science (HU & H)

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HPS 323: History of Science (HU & H)
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HPS 330: History of Biology: Conflicts and
Controversies
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HPS 331: History of Medicine (H) AND
MIC 360: Bacterial Physiology
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MIC 426: Medical Immunology
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MIC 427: Immunoneuropsychology:
Research Foundation (L)
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MIC 485: General Virology
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BIO 464: Photobiology
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PLB 440: Photobiology
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BIO 494: Advanced Animal Behavior,
Advanced Study Practicum, Advanced Study
Practicum: Laboratory Assistance, Advanced
Study Practicum: Lecture
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MIC 220: Biology of Microorganisms
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Total Hours: 120

Upper Division Hours: 45 minimum

Major GPA: 2.50 minimum

Cumulative GPA: 2.50 minimum

Total hrs at ASU: 30 minimum

Hrs Resident Credit for

Academic Recognition: 56 minimum

Total Community College Hrs: 64 maximum

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 2011 - 2012 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.