2015 - 2016 Major Map
Complexity Science, BS

School/College: College of Global Futures
LAAMLBS

This program's name has changed effective Fall 2025. The previous name was Applied Mathematics for the Life and Social Sciences.

Term 1 0 - 15 Credit Hours Critical course signified by	Hours	Minimum Grade	Notes
AML 100: Introduction to Applied Mathematics for the Life and Social Sciences (MA)	3	C	• 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. • Minimum grade of C required in all MAT and STP classes; grade of B or better strongly correlated with timely graduation
BIO 181: General Biology I (SQ)	4	C	
MAT 270: Calculus with Analytic Geometry I (MA)	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	
LIA 101: Student Success in the College of Liberal Arts and Sciences	1		
Minimum 2.00 GPA in STP and MAT.			
Term hours subtotal:	15		

Term 2 15 - 32 Credit Hours Critical course signified by	Hours	Minimum Grade	Notes
CSE 100: Principles of Programming with C++ (CS) OR CSE 110: Principles of Programming with Java (CS)	3	C	• Minimum grade of C required in all MAT and STP classes; grade of B or better strongly correlated with timely graduation. • Use the SB course in this term as an entry to upper division work in the Social Science track.
BIO 182: General Biology II (SG)	4	C	
MAT 271: Calculus with Analytic Geometry II (MA)	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	
ASB 102: Culture in a Globalizing World (SB & G) OR PSY 101: Introduction to Psychology (SB) OR SOC 101: Introductory Sociology (SB) OR POS 110: Government and Politics (SB) OR CDE 232: Human Development (SB) OR JUS 105: Introduction to Justice Studies (SB) OR Social-Behavioral Sciences (SB)	3		
Complete ENG 101 OR ENG 105 OR ENG 107 course(s).			
Minimum 2.00 GPA in STP and MAT.			
Term hours subtotal:	17		

Term 3 32 - 48 Credit Hours Critical course signified by	Hours	Minimum Grade	Notes
MAT 272: Calculus with Analytic Geometry III (MA)	4	C	• Minimum grade of C required in all MAT and STP classes; grade of B or better strongly correlated with timely graduation
Literacy and Critical Inquiry (L)	3		
Humanities, Arts and Design (HU)	3		
Global Awareness (G)	3		
CLAS Science and Society Elective	3	C	
Complete First-Year Composition requirement.			
Complete Mathematics (MA) requirement.			
Minimum 2.00 GPA in STP and MAT.			
Term hours subtotal:	16		

Term 4 48 - 63 Credit Hours Critical course signified by	Hours	Minimum Grade	Notes
AML 253: Introduction to Mathematical Tools and Modeling for the Life and Social Sciences	3	C	• Minimum grade of C required in all MAT and STP classes; grade of B or better strongly correlated with timely graduation. • Use the SB course in this term as an entry to upper division work in the Social Science track.
MAT 274: Elementary Differential Equations (MA) OR MAT 275: Modern Differential Equations (MA)	3	C	
ASB 102: Culture in a Globalizing World (SB & G) OR PSY 101: Introduction to Psychology (SB) OR SOC 101: Introductory Sociology (SB) OR POS 110: Government and Politics (SB) OR CDE 232: Human Development (SB) OR JUS 105: Introduction to Justice Studies (SB) OR Social-Behavioral Sciences (SB)	3		
Historical Awareness (H)	3		
Major Elective	3	C	
Minimum 2.00 GPA in STP and MAT.			
Term hours subtotal:	15		

Term 5 63 - 78 Credit Hours Necessary course signified by	Hours	Minimum Grade	Notes
Upper Division Life Science course	3	C	• Minimum grade of C required in all MAT and STP classes; grade of B or better strongly correlated with timely graduation
Upper Division Social Science course	3	C	
Major Elective	3	C	
Humanities, Arts and Design (HU)	3		
Elective	3		
Minimum 2.00 GPA in STP and MAT.			

	Term hours subtotal:	15	

Term 6 78 - 93 Credit Hours Necessary course signified by ★		**Hours**	**Minimum Grade**	**Notes**
★	MAT 342: Linear Algebra OR MAT 343: Applied Linear Algebra	3	C	
★	Upper Division Life Science course	3	C	
★	Upper Division Applied Mathematics	3	C	
	Cultural Diversity in the U.S. (C)	3		
	Upper Division Elective	3		
	Minimum 2.00 GPA in STP and MAT.			
	Term hours subtotal:	15		

Term 7 93 - 108 Credit Hours Necessary course signified by ★		**Hours**	**Minimum Grade**	**Notes**
★	Upper Division Applied Mathematics	3	C	
★	Upper Division Social Science course	3	C	
	Upper Division Literacy and Critical Inquiry (L)	3		
	Upper Division Humanities, Arts and Design (HU) OR Upper Division Social-Behavioral Sciences (SB)	3		
	Upper Division CLAS Science and Society Elective	3	C	
	Minimum 2.00 GPA in STP and MAT.			
	Term hours subtotal:	15		

Term 8 108 - 120 Credit Hours Necessary course signified by ★		**Hours**	**Minimum Grade**	**Notes**
★	AML 406: Directed Reading and Research in Applied Mathematics for the Life and Social Sciences	3	C	
	Complete 3 courses: Upper Division Elective	9		
	Minimum 2.00 GPA in STP and MAT.			
	Term hours subtotal:	12		

- All students pursuing a B.S. or B.S.P. degree in the College of Liberal Arts and Sciences must complete two courses from the Science and Society list found at https://clas.asu.edu/advising-and-academic-services/science-and-society. At least one of the two courses must be upper division. Students must earn a C or better in the courses, and no more than one of the two can also be used to simultaneously fill a requirement of the major, minor or related area. Science and Society courses cannot also be used to fill the general studies HU, SB, SQ or SG requirements.

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

Major Electives
AML 441: Mathematical Concepts and Tools in Sustainability
AML 484: Internship
AML 492: Honors Directed Study
AML 493: Honors Thesis (L)
AML 498: Pro-Seminar (L)
AML 499: Individualized Instruction
ASB 430: Social Simulation (CS)
ASM 345: Disease and Human Evolution
ASM 465: Quantification and Analysis for Anthropologists (CS)
BIO 320: Fundamentals of Ecology
BIO 321: Introductory Ecology Laboratory
BIO 406: Computer Applications in Biology (CS)
BIO 410: Techniques in Conservation Biology and Ecology (L)
BIO 411: Quantitative Methods in Conservation and Ecology
BIO 415: Biometry (CS)
BIO 417: Experimental Design
BIO 423: Population and Community Ecology
BIO 424: Dynamic Modeling in Social and Ecological Systems
BIO 455: Introduction to Comparative Genomics
BIO 456: Bioinformatics and Molecular Evolution
GCU 496: Geographic Research Methods (L)
GIS 205: Geographic Information Technologies (CS)
GIS 341: Introduction to Cartography and Georepresentation (CS)
GIS 470: Statistics for Geographers (CS)
GIS 471: Geographic Information

Upper Division Applied Mathematics
AML 441: Mathematical Concepts and Tools in Sustainability
MAT 300: Mathematical Structures (L)
MAT 343: Applied Linear Algebra
MAT 351: Mathematical Methods for Genetic Analysis (CS)
MAT 355: Introduction to Computational Molecular Biology (CS)
MAT 362: Advanced Mathematics for Engineers and Scientists
MAT 371: Advanced Calculus I
MAT 451: Mathematical Modeling (CS)

Upper Division Social Science
ASB 430: Social Simulation (CS)
ASM 345: Disease and Human Evolution
ASM 465: Quantification and Analysis for Anthropologists (CS)
GCU 496: Geographic Research Methods (L)
GIS 341: Introduction to Cartography and Georepresentation (CS)
GIS 470: Statistics for Geographers (CS)
GIS 471: Geographic Information Analysis
JUS 301: Research in Justice Studies (SB)
JUS 302: Statistical Analysis for Justice Studies (CS)
POS 301: Empirical Political Inquiry (SB)
POS 401: Political Statistics (CS)
POS 485: Political Economy (SB)
SOC 331: Environmental Sociology (SB & G)
SOC 390: Social Statistics I (CS)
SOC 391: Research Methods (L or SB)
SOC 443: Sociology of Corporations (SB & G)
SOC 448: Epidemics and Society (SB & G)

Analysis

HCD 300: Biostatistics (CS)

JUS 301: Research in Justice Studies (SB)

JUS 302: Statistical Analysis for Justice Studies (CS)

MAT 300: Mathematical Structures (L)

MAT 343: Applied Linear Algebra

MAT 351: Mathematical Methods for Genetic Analysis (CS)

MAT 355: Introduction to Computational Molecular Biology (CS)

MAT 362: Advanced Mathematics for Engineers and Scientists

MAT 371: Advanced Calculus I

MAT 451: Mathematical Modeling (CS)

PBH 300: Biostatistics (CS)

POS 301: Empirical Political Inquiry (SB)

POS 401: Political Statistics (CS)

POS 485: Political Economy (SB)

SOC 331: Environmental Sociology (SB & G)

SOC 390: Social Statistics I (CS)

SOC 391: Research Methods (L or SB)

SOC 443: Sociology of Corporations (SB & G)

SOC 448: Epidemics and Society (SB & G)

STP 226: Elements of Statistics (CS)

STP 231: Statistics for Life Science (CS)

STP 326: Intermediate Probability (CS)

STP 420: Introductory Applied Statistics (CS)

STP 421: Probability

Upper Division Life Science

BIO 320: Fundamentals of Ecology

BIO 321: Introductory Ecology Laboratory

BIO 406: Computer Applications in Biology (CS)

BIO 410: Techniques in Conservation Biology and Ecology (L)

BIO 411: Quantitative Methods in Conservation and Ecology

BIO 415: Biometry (CS)

BIO 417: Experimental Design

BIO 423: Population and Community Ecology

BIO 424: Dynamic Modeling in Social and Ecological Systems

BIO 455: Introduction to Comparative Genomics

BIO 456: Bioinformatics and Molecular Evolution

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

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 2015 - 2016 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.