2024 - 2025 Major Map

Applied Mathematics, BS

School/College: New College of Interdisciplinary Arts and Sciences
ASMATBS

Term 1 0 - 14 Credit Hours Critical course signified by ❗	Hours	Minimum Grade	Notes
❗ MAT 270: Calculus with Analytic Geometry I (MATH OR MA)	4	C	• MAT 265 may be accepted in place of MAT 270. This may change the number of elective credits required for completion of the degree.
ACO 101: Introduction to Computer Science (QTRS OR CS) OR CSE 110: Principles of Programming (QTRS OR CS)	3	C	• ASU 101 or college-specific First-Year Seminar required of all first-year students. NEW 101 satisfies this requirement.
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	• IAS 300 (three credit hours) is required for all transfer students in New College.
NEW 101: The ASU New College Experience OR IAS 300: Career Strategies and Personal Resilience (L or SB)	1-3		• Select your Career Interest Community and play me3@ASU.
Humanities, Arts and Design (HUAD)	3		• Activate your Handshake account and build out your profile.
Term hours subtotal:	14-16		

Term 2 14 - 30 Credit Hours Critical course signified by ❗	Hours	Minimum Grade	Notes
❗ MAT 271: Calculus with Analytic Geometry II (MATH OR MA)	4	C	• Create a first draft resume.
ACO 102: Object-Oriented Programming (QTRS OR CS) OR CSE 205: Object-Oriented Programming and Data Structures (QTRS OR CS)	3	C	• Join a student club or professional organization.
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	• Secure a part-time job or volunteer experience.
Global Communities, Societies and Individuals (GCSI)	3		
Social and Behavioral Sciences (SOBE)	3		
❗ Complete ENG 101 OR ENG 105 OR ENG 107 course(s).			
Term hours subtotal:	16		

Term 3 30 - 44 Credit Hours Critical course signified by ❗	Hours	Minimum Grade	Notes
❗ MAT 272: Calculus with Analytic Geometry III (MATH OR MA)	4	C	• MAT 267 may be accepted in place of MAT 272. This may change the number of elective credits required for completion of the degree.
STP 280: Probability and Statistics for Researchers (QTRS OR CS)	3	C	• Develop your research skills.
Governance and Civic Engagement (CIVI)	3		• Develop your professional skills.
Scientific Thinking in Natural Sciences (SCIT)	4		• Interested in pre-professional pathways? Explore our pre-health and pre-law websites.
❗ Complete First-Year Composition requirement.			
Complete Mathematics (MATH) requirement.			
Term hours subtotal:	14		

		Minimum

Term 4 44 - 60 Credit Hours Critical course signified by ⚠	Hours	Grade	Notes
⚠ MAT 275: Modern Differential Equations (MATH OR MA)	3	C	• Explore an internship, an IGLE international experience, or ASU study abroad.
STP 281: Statistical Analysis for Researchers	3	C	
Humanities, Arts and Design (HUAD)	3		
Scientific Thinking in Natural Sciences (SCIT)	4		
Elective	3		
Term hours subtotal:	16		

Term 5 60 - 75 Credit Hours Necessary course signified by ⭐	Hours	Minimum Grade	Notes
⭐ MAT 300: Mathematical Structures (L)	3	C	• Thinking about graduate school? Consider registering for a grad school test prep course and explore accelerated master's degrees.
⭐ MAT 343: Applied Linear Algebra	3	C	
Sustainability (SUST)	3		• Develop your professional online presence.
Upper Division Elective	3		
Elective	3		
Term hours subtotal:	15		

Term 6 75 - 90 Credit Hours Necessary course signified by ⭐	Hours	Minimum Grade	Notes
⭐ MAT 371: Advanced Calculus I	3	C	• Use Handshake to research employment opportunities.
MAT 350: Techniques and Applications of Applied Mathematics	3	C	
MAT 421: Applied Computational Methods (MATH OR CS)	3	C	• Complete an in person or virtual practice interview.
American Institutions (AMIT)	3		
Upper Division Elective	3-0		
Term hours subtotal:	15-12		

Term 7 90 - 105 Credit Hours Necessary course signified by ⭐	Hours	Minimum Grade	Notes
⭐ MAT 452: Introduction to Chaos and Nonlinear Dynamics	3	C	• Gather professional references.
Complete 2 courses: Upper Division Applied Math Elective	6	C	
Complete 2 courses: Upper Division Global and Civic Engagement Requirement: satisfied through completion of 6 credits of upper-division courses with a Global Communities, Societies and Individuals (GCSI) or Governance and Civic Engagement (CIVI) designation, in addition to the courses used to meet the university General Studies requirements; or completion of 3 credits from an ASU-approved Global Education program. Adjustment to upper-division and elective hours is required if a lower-division Global Education course is used.	6	C	
Term hours subtotal:	15		

Term 8 105 - 120 Credit Hours Necessary course signified by ⭐	Hours	Minimum Grade	Notes
⭐ MAT 450: Mathematical Models in Biology OR MAT 451: Mathematical Modeling (CS)	3	C	• Apply for full-time career opportunities.
Upper Division Applied Math Elective	3	C	
Upper Division Elective OR LSC 484: Internship	3		
Complete 2 courses: Elective	6		
Term hours subtotal:	15		

- Complete nine credits of Upper Division Applied Math Electives. Maximum of six credit hours of MAT 499 are allowed. If also taking MAT 492, then only three credit hours of MAT 499 are allowed. Grade of C or better is required.

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

Upper Division Applied Math Electives
ACO 320: Database Systems
ACO 331: Network Forensics Analysis
ACO 420: Big Data Systems
ACO 421: Data Mining and Warehousing
ACO 422: XML and Databases
ACO 423: Data Science
LSC 388: STEM Research Fundamentals
MAT 419: Introduction to Linear Optimization (CS)
MAT 422: Mathematical Methods in Data Science
MAT 429: Optimization
MAT 443: Introduction to Abstract Algebra
MAT 445: Theory of Numbers
MAT 450: Mathematical Models in Biology or MAT 451: Mathematical Modeling (CS)
MAT 461: Applied Complex Analysis
MAT 462: Applied Partial Differential Equations
MAT 472: Intermediate Real Analysis I
MAT 484: Internship
MAT 492: Honors Directed Study
MAT 494: Special Topics
MAT 499: Individualized Instruction
STP 310: Design and Analysis of Experiments
STP 311: Regression and Time Series Analyses
STP 421: Probability
STP 427: Mathematical Statistics
STP 450: Nonparametric Statistics

- **Total Hours:** 120
- **Upper Division Hours:** 45 minimum
- University Undergraduate Graduation Requirements

Notes:

Mathematics Placement Assessment score determines placement in first mathematics course.

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.