DEPARTMENT OF MATHEMATICS
MATHEMATICS BACHELOR OF ARTS
CLASS OF 2023
CONCENTRATION IN APPLIED MATHEMATICS CLASSICAL

Mathematics B.A.

TERM 1	TERM 2	TERM 3	TERM 4	TERM 5	TERM 6	TERM 7	TERM 8
MATH 150A (GE B.4) 4 units	MATH 150B 4 units	MATH 250A 4 units	MATH 250B 4 units	MATH 306 3 units	MATH 310 3 units	MATH 414 3 units	MATH 412 or MATH 450 3 units
MATH 180 (Cognate I ^a) 3 units	MATH 107 (Cognate II ^a) 4 units	MATH 210 (Cognate III ^a) 4 units	MATH 280 3 units	MATH 307 3 units	MATH 350 3 units	MATH 425 3 units	MATH 406 3 units
MATH 151A 1 unit	MATH 151B 1 unit	MATH 251A 1 unit	MATH 320 (Computer Programming) 3 units	MATH 380 (Upper Division Writing) 3 units	MATH 302 3 units	GE B.3 1 unit	
GE A.1 3 units	GE A.2 3 units	GE B.1 3 units	GE C.2 3 units	GE B.5 3 units	GE D.1 3 units	Electives to complete 120 units	Electives to complete 120 units
CNSM 101 (GE A.3) 3 units	GE B.2 3 units	GE C.1 or C.2 3 units	GE D.2 3 units	GE D.3 3 units		GE C.1 3 units	Electives to complete 120 units
					Upper Division GE B.5 3 units	Upper Division GE D.4 3 units	Upper Division GE C.3 3 units
14 units	15 units	15 units	16 units	15 units	15 units	16 units	14 units

a. Other cognates are also available – see reverse side

37	GE lower division
9	GE upper division
57	Mathematics Required Courses
3	Mathematics Supporting Courses
6	Pick 2 of 3 Courses
8	Electives
120	**TOTAL UNITS**

INSTRUCTIONS FOR COMPLETING THE MATHEMATICS BACHELOR OF ARTS

1. Meet with your assigned faculty advisor each semester to plan and review your academic progress.
2. Visit your College of Natural Sciences and Mathematics Student Success Team in MH 488 to review GE and graduation requirements.
3. Complete GE courses in areas A1, A2, and A3 with a C- or higher. Complete a total of 12 units in GE Area B. One GE Course in B, C, D, or E must double-count as a Z course. Check your Titan Degree Audit for courses that appear in both categories.
4. **All** Mathematics courses must be completed with a grade of C or higher.
5. Apply for Graduation through your Student Center at the start of Term 7.

The Math Major is for students who are preparing to (1) enter a graduate study in mathematics, (2) seek math-related careers in business, industry or government, or (3) pursue a career in teaching.

MATHEMATICS CORE AND SUPPORTING COURSES

• **Complete the courses listed below:**

Course	Course Title
MATH 150A	Calculus I
MATH 151A	Calculus I Workshop
MATH 150B	Calculus II
MATH 151B	Calculus II Workshop
MATH 250A	Calculus III
MATH 251A	Calculus III Workshop
MATH 250B	Intro to Linear Algebra and Differential Equations
MATH 280	Strategies of Proof
MATH 307	Linear Algebra
MATH 350	Advanced Calculus I

• **Applied Classical Concentration Requirements (21 units total)**

Applied Mathematics Classical Required Courses (15 units)

MATH 302	Modern Algebra (3)
MATH 306	Vector and Tensor Analysis (3)
MATH 310	Ordinary Differential Equations (3)
MATH 406	Intro to Partial Differential Equations (3)
MATH 425	Differential Geometry (3)

Applied Mathematics Classical Elective Courses (6 units)

MATH 412	Complex Analysis (3)
MATH 414	Topology (3)
MATH 450	Advanced Calculus II (4)

COGNATE OPTIONS

Each student is required to select one of the following cognates:

Chemistry	10 Units
CHEM 120A	General Chemistry (5)
CHEM 120B	General Chemistry (5)

Civil Engineering	9 Units
EGCE 201	Statics (3)
EGCE 301	Mechanics of Materials (3)
EGCE 302 **OR**	Dynamics (3)
EGCE 325	Structural Analysis (3)

Computer Science	10 Units
CPSC 131	Data Structures Concepts (3)
CPSC 223H **OR**	Visual BASIC Programming (3)
CPSC 223J **OR**	Java Programming (3)
CPSC 223N	Visual C# Programming (3)
CPSC 240 **OR**	Computer System Architecture I (3)
CPSC 332	File Structures and Database Systems (3)
CPSC 253U	Operating System Workshop in Unix (1)

Economics	9 Units
ECON 201	Principles of Microeconomics (3)
ECON 202	Principles of Macroeconomics (3)
ECON 310 **OR**	Intermediate Microeconomics Analysis (3)
ECON 320 **OR**	Intermediate Macroeconomics Analysis (3)
ECON 440 **OR**	Econometrics (3)
ECON 441	Mathematical Economics (3)

Finance	9 Units
FIN 320	Financial Management (3)
Two of the following three course options:	
FIN 340	Introduction to Investments (3)
FIN 360	Principles of Insurance (3)
ISDS 473	Applied Business Forecasting (3)

Intro to Math	11 Units
MATH 107	Intro to Computational Linear Algebra (4)
MATH 180	Strategies of Problem Solving (3)
MATH 210	Intro to Laplace Transforms and Fourier Series (4)

ISDS	9 Units
Three of the following course options:	
ISDS 422	Surveys and Sampling Design and Applications (3)
ISDS 465	Linear Programming in Management Science (3)
ISDS 467	Statistical Quality Control (3)
ISDS 472	Design of Experiments (3)
ISDS 474	Data Mining (3)
ISDS 475	Multivariate Analysis (3)

Physics	11 Units
PHYS 225	Mechanics (3)
PHYS 225L	Fundamental Physics: Laboratory (1)
PHYS 226	Fundamental Physics: Electricity Magnetism (3)
PHYS 226L	Fundamental Physics: Laboratory (1)
PHYS 227	Fundamental Physics: Waves, Optics and Modern Physics (3)

Mathematics	9 Units
Three upper-division Mathematics courses from one of four Mathematics major concentrations other than student's concentration.	

Research	9 Units
MATH 491	Research Seminar (1)
MATH 497	Undergraduate Research (3,3)
MATH 498	Senior Thesis (2)

*The research cognate is intended for students that would benefit more from research and a thesis than a standard cognate. Student should begin this cognate no later than their junior year.

UNIVERSITY & GE REQUIREMENTS

• **Upper Division Writing Requirement**

To meet the upper-division baccalaureate writing requirement, students must pass with a "C" (2.0) or better MATH 380.

• **Computer Programming Requirement**

To meet the elementary computer programming requirement, students must pass with a "C" (2.0) or better MATH 320, CPSC 120 or CPSC 121.

GENERAL EDUCATION REQUIREMENTS

• **Area A Core Competencies** – Complete one course in each subarea for a total of 9 units of lower division.

Subarea	Title
A1	Oral Communication
A2	Written Communication
A3	Critical Thinking (CNSM 101)

• **Area B Scientific and Quantitative Reasoning** – Complete one course in each subarea; the course in B3 must be associated with the course taken to satisfy B1 or B2. Area B courses must include 9 lower division and 3 upper division units (*).

Subarea	Title
B1	Physical Science
B2	Life Science
B3	Laboratory Activity
B4	Mathematics/Quantitative Reasoning
B5(*)	Implications/Explorations in Math and Natural Sci

• **Area C Arts and Humanities** – Complete 3 units from C.1; 3 units from C.2; 3 units from C.3; and 3 units from either C.1 or C.2 for a total of 9 lower division and 3 upper division units (*).

Subarea	Title
C1	Introduction to the Arts
C2	Introduction to the Humanities
C3(*)	Explorations in the Arts/Humanities

• **Area D Social Sciences** – Complete 9 lower and 3 upper division units (*).

Area	Title
D1	Introduction to the Social Sciences
D2	American History, Institutions, and Values
D3	American Government
D4(*)	Explorations in the Social Sciences

• **Area E Lifelong Learning and Self Development** – Complete 3 units.

• **Area Z Cultural Diversity**. Cultural Diversity Requirement (3 units). One GE Course in B, C, D, or E must double-count as a Z course (check TDA or CSUF website for courses that appear in both categories).