

BACHELOR OF ARTS IN MATHEMATICS: CONCENTRATION IN TEACHING - QUANTITATIVE REASONING CATEGORY III/IV AND STRETCH ENGLISH

120 Total Units Required

Minimum Number of Units in the Major: 45

This roadmap is a suggested plan of study and does not replace meeting with an advisor. Please note that students may need to adjust the actual sequence of courses based on course availability. Please consult an advisor in your major program for further guidance.

Course	Title	Units
First Semester		
ENG 104	Writing the First Year: Finding Your Voice Stretch I ¹	3
MATH 197	Prelude to Calculus I (Prerequisite for MATH 226) ^{2,3}	3
GE Area A ⁴		3
GE Area C		3
GE Area D		3
Units		15
Second Semester		
ENG 105	Writing the First Year: Finding Your Voice Stretch II (A2) ¹	3
MATH 198	Prelude to Calculus II (Prerequisite for MATH 226, B4) ^{2,3}	3
GE Area A		3
GE Area C		3
GE Area D		3
Units		15
Third Semester		
MATH 226	Calculus I (Major Core, B4) ^{2,3}	4
GE Area B: Physical Science (B1) and Laboratory Science (B3) ⁵		3-4
GE Area D		3
GE Area E		3
Units		13-14
Fourth Semester		
Select One (Major Concentration):		3
CSC 210	Introduction to Computer Programming	

CSC 309	Computer Programming	
MATH 227	Calculus II (Major Core)	4
GE Area B: Life Science (B2) and Laboratory Science (B3) ⁵		3-4
GE Area C		3
Complementary Studies or SF State Studies or University Elective ⁶		3
Units		16-17

Fifth Semester		
MATH 228	Calculus III (Major Core)	4
MATH 301GW	Exploration and Proof - GVAR (Major Core)	3
MATH 324	Probability and Statistics with Computing (Major Concentration)	3
GE Area UD-B: Upper-Division Physical and/or Life Sciences (Consider SF State Studies Course)		3
Complementary Studies or SF State Studies or University Elective ⁶		3
Units		16

Sixth Semester		
MATH 300GW	History of Mathematics - GVAR (Major Concentration)	3
MATH 310	Elementary Number Theory (Major Concentration)	3
MATH 325	Linear Algebra (Major Core)	3
GE Area UD-C: Upper-Division Arts and/or Humanities (Consider SF State Studies Course)		3
Complementary Studies or SF State Studies or University Elective ⁶		3
Units		15

Seventh Semester		
MATH 335	Modern Algebra (Major Core)	3
MATH 350	Geometry (Major Concentration)	3
GE Area UD-D: Upper-Division Social Sciences (Consider SF State Studies Course)		3
Complementary Studies or SF State Studies or University Elective - Take Two ⁶		6
Units		15

Eighth Semester		
MATH 370	Real Analysis I (Major Core)	3
MATH 375	Field Study for Secondary Teachers (Major Concentration)	3

MATH 475	Capstone Course for Secondary Teachers of Mathematics (Major Concentration) ⁷	3
Complementary Studies or SF State Studies or University Elective - Take Two ⁶		6
	Units	15
	Total Units	120-122

¹ ENG 114 can only be taken if you complete Directed Self-Placement (DSP) and select ENG 114; if you choose ENG 104/ENG 105 through DSP you will satisfy A2 upon successful completion of ENG 105 in the second semester; multilingual students may be advised into alternative English courses.

² Depending on courses completed through Early Start, students in Pathway/Category III or IV may be required to enroll in a support course to complement their Quantitative Reasoning/B4 requirement. There are multiple course options for this pathway. Before enrolling in a B4 course, students should verify their MATH Pathway/Category in their Student Center (<http://cms.sfsu.edu/content/student-center/>). Information regarding the courses that correspond with your MATH Pathway/Category can be found on the Developmental Studies Office Website (<http://developmentalstudies.sfsu.edu/>).

³ QR Category III students with a grade of B or higher in high school pre-calculus in the past year may be able to enroll in MATH 226. Please see a department advisor.

⁴ To avoid taking additional units, it is recommended that you meet **SF State Studies** requirements (AERM, GP, ES, SJ) within your GE or major.

⁵ Consider taking a class with a combined laboratory or a separate lab to fulfill B3 if not already satisfied.

⁶ **Complementary Studies**

Students who pursue a Bachelor of Arts in Mathematics with Concentrations in Liberal Arts, Teaching, or Advanced Studies must complete 12 Complementary Studies units, within a coherent group of courses with a prefix other than MATH, and not cross-listed with MATH. Complementary Studies units for the Mathematics major may come from:

1. Any courses offered by other departments in the College of Science & Engineering (CoSE), or
2. Any of the following courses outside of CoSE:
 - a. DS 312 Data Analysis with Computer Applications (3 units)
 - b. DS 408 Computer Simulation (3 units)
 - c. ECON 101 Introduction to Microeconomic Analysis (3 units) (D1)
 - d. ECON 301 Intermediate Microeconomic Theory (3 units)
 - e. ECON 302 Intermediate Macroeconomic Theory (3 units)
 - f. FIN 350 Business Finance (3 units)
 - g. ISYS 363 Information Systems for Management (3 units)
 - h. ISYS 463 Information Systems Analysis and Design (3 units)
 - i. ISYS 464 Managing Enterprise Data (3 units)
 - j. ISYS 650 Business Intelligence (3 units)
 - k. PHIL 205 Formal Logic I (3 units)
 - l. PHIL 350 Philosophy of Science (3 units) (UD-B)
 - m. PHIL 351 Philosophy of Risk (3 units) (UD-B, ES)
 - n. PHIL 694 Philosophical Logic Workshop (3 units)
 - o. PHIL 695 Advanced Logic Workshop (3 units)

⁷ MATH 475 serves as the capstone course for the major.