

BACHELOR OF ARTS IN MATHEMATICS: CONCENTRATION IN MATHEMATICS FOR ADVANCED STUDY - QUANTITATIVE REASONING CATEGORY I/II AND STRETCH ENGLISH

120 Total Units Required
Minimum Number of Units in the Major: 48

Course	Title	Units
First Semester		
ENG 104	Writing the First Year: Finding Your Voice Stretch I ¹	3
MATH 226	Calculus I (Major Core, B4) ²	4
GE Area A ³		3
GE Area C		3
GE Area D		3
Units		16
Second Semester		
ENG 105	Writing the First Year: Finding Your Voice Stretch II (A2) ¹	3
MATH 227	Calculus II (Major Core)	4
GE Area A		3
GE Area D - Take Two		6
Units		16
Third Semester		
CSC 210 or CSC 309	Introduction to Computer Programming (Major Concentration) or Computer Programming for Scientists and Engineers	3
MATH 228	Calculus III (Major Core)	4
GE Area B: Physical Science (B1) and Laboratory Science (B3) ⁴		3-4
GE Area E		3
Units		13-14

Fourth Semester		
MATH 301GW	Exploration and Proof - GWAR (Major Core)	3
MATH 440	Probability and Statistics I (Major Concentration)	3
GE Area B: Life Science (B2) and Laboratory Science (B3) ⁴		3-4
GE Area C - Take Two		6
Units		15-16

Fifth Semester		
MATH 325	Linear Algebra (Major Core)	3
MATH 380	Introduction to Complex Analysis (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 - Take Two ⁵		6
Units		15

Sixth Semester		
MATH 310 or MATH 376	Elementary Number Theory (Major Core) or Ordinary Differential Equations I	3
MATH 335	Modern Algebra (Major Concentration)	3
Major Elective (6 Units Total) - Take One ⁶		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 ⁵		3
Units		15

Seventh Semester		
MATH 370	Real Analysis I (Major Core)	3
MATH 435	Modern Algebra II (Major Concentration)	3
Major Elective (6 Units Total) - Take One ⁶		3
GE Area UD-D: Upper-Division Social Sciences (Consider SF State Studies Course)		3
Complementary Studies or SF State Studies or University Elective ⁵		3
Units		15

Eighth Semester

MATH 470 or MATH 471	Real Analysis II: Several Variables (Major Concentration) or Introduction to Fourier and Wavelet Analysis	3
Complementary Studies or SF State Studies or University Elective - Take Four ⁵		12
	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 select 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 To avoid taking additional units, it is recommended that you meet **SF State Studies** requirements (AERM, GP, ES, SJ) within your GE or major.
- ⁴ Consider taking a class combined with a laboratory or a separate lab to fulfill B3 if not already satisfied.

⁵ **Complementary Studies**

Students who pursue a Bachelor of Arts in Mathematics with Concentrations in Liberal Arts, Teaching, or Advanced Studies must complete 12 units of Complementary Studies, 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)

Students who have earned AA-T or AS-T degrees and are pursuing a similar B.A. degree at SF State are required to fulfill the Complementary Studies requirement as defined by the major department. Students should consult with a major advisor about how transfer units and/or SF State units can best be applied to this requirement in order to ensure degree completion within 60 units.

⁶ **Major Electives**

Two elective MATH courses numbered 400 or above except MATH 475, MATH 565, MATH 575, MATH 576, MATH 577, and MATH 578.