BACHELOR OF ARTS IN MATHEMATICS: CONCENTRATION IN TEACHING - QUANTITATIVE REASONING CATEGORY III/IV AND ENG 114

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 | Additional Information
---|---|---
| ENG 114 | 3 | Writing the First Year: Finding Your Voice (A2)
| MATH 197 | 3 | Prelude to Calculus I (Prerequisite for MATH 226) ² ³
| GE Area A | 3 | ⁴
| GE Area C | 3 | ⁴
| GE Area D | 3 | ⁴
| **Units** | 15 | |
| MATH 198 | 3 | Prelude to Calculus II (Prerequisite for MATH 226, B4) ² ³
| GE Area A | 3 | ⁴
| GE Area C | 3 | ⁴
| GE Area D | 3 | ⁴
| **Units** | 15 | |
| MATH 226 | 4 | Calculus I (Major Core) ² ³
| GE Area B: Physical Science (B1) and Laboratory Science (B3) | 3-4 | ⁵
| GE Area D | 3 | ³
| Complementary Studies or SF State Studies or University Elective | 3 | ⁶
| **Units** | 13-14 | |
| MATH 227 | 4 | Calculus II (Major Core)
| GE Area B: Life Science (B2) and Laboratory Science (B3) | 3-4 | ⁵
| GE Area C | 3 | |
| Complementary Studies or SF State Studies or University Elective | 3 | ⁶
| **Units** | 16-17 | |
| MATH 228 | 4 | Calculus III (Major Core)
| MATH 301GW | 3 | Exploration and Proof - GWAR
| MATH 324 | 3 | Probability and Statistics with Computing (Major Concentration)
| 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 | 3 | ⁶
| **Units** | 16 | |
| MATH 300GW | 3 | History of Mathematics - GWAR
| MATH 310 | 3 | Elementary Number Theory (Major Concentration)
| MATH 325 | 3 | Linear Algebra (Major Core)
| 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 | 3 | ⁶
| **Units** | 15 | |
| MATH 335 | 3 | Modern Algebra (Major Core)
| MATH 350 | 3 | Geometry (Major Concentration)
| 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 | |
| MATH 370 | 3 | Real Analysis I (Major Core)
### Bachelor of Arts in Mathematics: Concentration in Teaching - Quantitative Reasoning Category III/IV and ENG 114

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 375</td>
<td>Field Study for Secondary Teachers (Major Concentration)</td>
</tr>
<tr>
<td>MATH 475</td>
<td>Capstone Course for Secondary Teachers of Mathematics (Major Concentration)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Complementary Studies or SF State Studies or University Elective</th>
<th>- Take Two</th>
</tr>
</thead>
<tbody>
<tr>
<td>Units</td>
<td>15</td>
</tr>
<tr>
<td>Total Units</td>
<td>120-122</td>
</tr>
</tbody>
</table>

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. Information regarding the courses that correspond with your MATH Pathway/Category can be found on the Developmental Studies Office Website.

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.