# Bachelor of Arts in Mathematics: Concentration in Mathematics for Liberal Arts - Quantitative Reasoning Category I/II and ENG 114

120 Total Units Required  
Minimum Number of Units in the Major: 42

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>First Semester</strong></td>
<td></td>
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<tr>
<td>ENG 114</td>
<td>Writing the First Year: Finding Your Voice (A2)</td>
<td>3</td>
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<tr>
<td>MATH 226</td>
<td>Calculus I (Major Core, B4)</td>
<td>4</td>
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<tr>
<td>GE Area A</td>
<td></td>
<td>3</td>
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<tr>
<td>GE Area C</td>
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<td>3</td>
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<tr>
<td>GE Area D</td>
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<td>3</td>
</tr>
<tr>
<td><strong>Units</strong></td>
<td></td>
<td>16</td>
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<tr>
<td><strong>Second Semester</strong></td>
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<tr>
<td>MATH 227</td>
<td>Calculus II (Major Core)</td>
<td>4</td>
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<tr>
<td>GE Area A</td>
<td></td>
<td>3</td>
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<tr>
<td>GE Area C</td>
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<td>3</td>
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<tr>
<td>GE Area D</td>
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<td>3</td>
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<tr>
<td><strong>Units</strong></td>
<td></td>
<td>16</td>
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<tr>
<td><strong>Third Semester</strong></td>
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<tr>
<td>CSC 210 or CSC 309</td>
<td>Introduction to Computer Programming (Major Concentration) or Computer Programming for Scientists and Engineers</td>
<td>3</td>
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<tr>
<td>MATH 228</td>
<td>Calculus III (Major Core)</td>
<td>4</td>
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<tr>
<td>GE Area B: Physical Science (B1) and Laboratory Science (B3)</td>
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<td>3-4</td>
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<tr>
<td>GE Area C</td>
<td></td>
<td>3</td>
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<tr>
<td><strong>Units</strong></td>
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<td>13-14</td>
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<tr>
<td><strong>Fourth Semester</strong></td>
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<tr>
<td>MATH 301GW</td>
<td>Exploration and Proof - GWAR (Major Core)</td>
<td>3</td>
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<tr>
<td>GE Area B: Life Science (B2) and Laboratory Science (B3)</td>
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<td>3-4</td>
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<tr>
<td>GE Area D</td>
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<td>3</td>
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</tbody>
</table>

Complementary Studies or SF State Studies or University Elective - Take Two 6  
Units 15-16

Fifth Semester  
MATH 300GW  
History of Mathematics - GWAR (Major Concentration)  
Units 3

MATH 325  
Linear Algebra (Major Core)  
Units 3

GE Area UD-D: Upper-Division Social Sciences (Consider SF State Studies Course)  
Complementary Studies or SF State Studies or University Elective - Take Two 5  
Units 6

Sixth Semester  
MATH 335  
Modern Algebra (Major Core)  
Units 3

Concentration Elective (12 Units Total) - Take One 6  
Units 3

GE Area UD-C: Upper-Division Arts and/or Humanities (Consider SF State Studies Course)  
Complementary Studies or SF State Studies or University Elective - Take Two 5  
Units 6

Seventh Semester  
MATH 370  
Real Analysis I (Major Core)  
Units 3

Concentration Elective (12 Units Total) - Take One 6  
Units 3

GE Area UD-B: Upper-Division Physical and/or Life Sciences (Consider SF State Studies Course)  
Complementary Studies or SF State Studies or University Elective - Take Two 5  
Units 6

Eighth Semester  
Concentration Elective (12 Units Total) - Take Two 6  
Units 6

Complementary Studies or SF State Studies or University Elective - Take Three 5  
Units 9

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 To avoid taking additional units, it is recommended that you meet SF State Studies requirements (AERM, GP, ES, SJ) within your GE or major.
Consider taking a class combined with a laboratory or a separate lab to fulfill B3 if not already satisfied.

**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 MATH 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:

- DS 312 Data Analysis with Computer Applications (3 units)
- DS 408 Computer Simulation (3 units)
- ECON 101 Introduction to Microeconomic Analysis (3 units) (D1)
- ECON 301 Intermediate Microeconomic Theory (3 units)
- ECON 302 Intermediate Macroeconomic Theory (3 units)
- FIN 350 Business Finance (3 units)
- ISYS 363 Information Systems for Management (3 units)
- ISYS 463 Information Systems Analysis and Design (3 units)
- ISYS 464 Managing Enterprise Data (3 units)
- ISYS 650 Business Intelligence (3 units)
- PHIL 205 Formal Logic I (3 units)
- PHIL 350 Philosophy of Science (3 units) (UD-B)
- PHIL 351 Philosophy of Risk (3 units) (UD-B, ES)
- PHIL 694 Philosophical Logic Workshop (3 units)
- 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.

**Concentration Elective (12 units)**

Four MATH courses numbered 300 or above except MATH 375, MATH 475, MATH 565, MATH 575, MATH 576, MATH 577, MATH 578.