BACHELOR OF ARTS IN MATHEMATICS: CONCENTRATION IN MATHEMATICS FOR ADVANCED STUDY ROADMAP

120 Total Units Required
Minimum Number of Units in the Major: 49

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.

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Units</th>
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<tbody>
<tr>
<td>First Semester</td>
<td></td>
</tr>
<tr>
<td>ENG 114 Writing the First Year: Finding Your Voice (A2)</td>
<td>3</td>
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<tr>
<td>MATH 226 Calculus I (Major Core, B4)</td>
<td>4</td>
</tr>
<tr>
<td>GE Area A</td>
<td>3</td>
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<tr>
<td>GE Area C</td>
<td>3</td>
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<tr>
<td>GE Area D</td>
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<tr>
<td><strong>Units</strong></td>
<td>16</td>
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<tr>
<td>Second Semester</td>
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<tr>
<td>MATH 227 Calculus II (Major Core)</td>
<td>4</td>
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<tr>
<td>GE Area A</td>
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<tr>
<td>GE Area D</td>
<td>3</td>
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<tr>
<td>GE Area E</td>
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<tr>
<td>Complementary Studies or SF State Studies or University Elective</td>
<td>3</td>
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<tr>
<td><strong>Units</strong></td>
<td>16</td>
</tr>
<tr>
<td>Third Semester</td>
<td></td>
</tr>
<tr>
<td>Select One (Major Core):</td>
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<tr>
<td>MATH 309 Mathematical Computing</td>
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<tr>
<td>CSC 210 Introduction to Computer Programming</td>
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<tr>
<td>CSC 215 Intermediate Computer Programming</td>
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<tr>
<td>CSC 309 Computer Programming</td>
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<tr>
<td>MATH 228 Calculus III (Major Core)</td>
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<tr>
<td>GE Area B: Physical Science (B1) and Laboratory Science (B3)</td>
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<tr>
<td>GE Area C</td>
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<tr>
<td><strong>Units</strong></td>
<td>13-14</td>
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<tr>
<td>Fourth Semester</td>
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<tr>
<td>MATH 301GW Exploration and Proof - GWAR (Major Core)</td>
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<tr>
<td>MATH 440 Probability and Statistics I (Major Concentration)</td>
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<tr>
<td>GE Area B: Life Science (B2) and Laboratory Science (B3)</td>
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<tr>
<td>GE Area C</td>
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<tr>
<td>Complementary Studies or SF State Studies or University Elective</td>
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<tr>
<td><strong>Units</strong></td>
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<tr>
<td>Fifth Semester</td>
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<td>MATH 325 Linear Algebra (Major Core)</td>
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<td>MATH 380 Introduction to Complex Analysis (Major Concentration)</td>
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<td>GE Area F</td>
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<tr>
<td>GE Area UD-B: Upper-Division Physical and/or Life Sciences</td>
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<td>U.S. and California Government (<a href="http://bulletin.sfsu.edu/undergraduate-education/american-institutions/#usg">http://bulletin.sfsu.edu/undergraduate-education/american-institutions/#usg</a>)</td>
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<td><strong>Units</strong></td>
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<td>Sixth Semester</td>
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<td>Select One (Major Concentration):</td>
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<tr>
<td>MATH 310 Elementary Number Theory</td>
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<td>MATH 376 Ordinary Differential Equations I</td>
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<tr>
<td>MATH 335 Modern Algebra (Major Concentration)</td>
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<td>Major Elective (6 Units Total) - Take One</td>
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<tr>
<td>GE Area UD-C: Upper-Division Arts and/or Humanities</td>
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<tr>
<td>Complementary Studies or SF State Studies or University Elective</td>
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<td><strong>Units</strong></td>
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<td>Seventh Semester</td>
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<td>MATH 370 Real Analysis I (Major Core)</td>
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<tr>
<td>MATH 435 Modern Algebra II (Major Concentration)</td>
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<tr>
<td>Major Elective (6 Units Total) - Take One</td>
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<tr>
<td>GE Area UD-D: Upper-Division Social Sciences</td>
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<tr>
<td>Complementary Studies or SF State Studies or University Elective</td>
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<td><strong>Units</strong></td>
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<tr>
<td>MATH 450 Topology</td>
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<td>MATH 470 Real Analysis II: Several Variables</td>
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<td>Course</td>
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<tr>
<td>MATH 471</td>
<td>Fourier Analysis and Applications</td>
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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. To determine the best B4 course option, students should complete the online advising activity at mathadvising.sfsu.edu (https://mathadvising.sfsu.edu). Questions? Contact Gator Smart Start.

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

4. Complementary Studies
   Students in the B.A. Math program will satisfy the Complementary Studies requirement with the completion of courses in general education life sciences, general education physical sciences, upper-division science, and computer programming as required for the major.

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

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

± Given catalog rights, fall 2023 transfer students do not need to complete an Area F course.