BACHELOR OF SCIENCE IN APPLIED MATHEMATICS – MATH ASSOCIATE DEGREE FOR TRANSFER ROADMAP

This is a sample pathway for students who transfer to San Francisco State University in the current Bulletin year with an AS-T in Mathematics. At least 12 units in the major (MATH 226, MATH 227, MATH 228) and all lower-division GE requirements have been satisfied. Additional units in the major may have been satisfied. Check with a major advisor about the most appropriate course sequence. **Degree completion guaranteed in 60 units; see the Associate Degree for Transfer (ADT) section for more information.**

### Course

<table>
<thead>
<tr>
<th>First Semester</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>CSC 210 or CSC 309</td>
<td>Introduction to Computer Programming (Major Core)</td>
<td>3</td>
</tr>
<tr>
<td>MATH 325</td>
<td>Linear Algebra (Major Core)</td>
<td>3</td>
</tr>
<tr>
<td>MATH 440</td>
<td>Probability and Statistics I (Major Core)</td>
<td>3</td>
</tr>
<tr>
<td>Major Elective (15 units) - Take One</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>GE Area UD-B: Upper-Division Physical and/or Life Sciences</td>
<td>3</td>
<td></td>
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<tr>
<td>Units</td>
<td>15</td>
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<table>
<thead>
<tr>
<th>Second Semester</th>
<th>Title</th>
<th>Units</th>
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</thead>
<tbody>
<tr>
<td>MATH 301GW</td>
<td>Exploration and Proof - GWAR (Major Core)</td>
<td>3</td>
</tr>
<tr>
<td>MATH 400</td>
<td>Numerical Analysis (Major Core)</td>
<td>3</td>
</tr>
<tr>
<td>MATH 440</td>
<td>Probability and Statistics I (Major Core)</td>
<td>3</td>
</tr>
<tr>
<td>Major Elective (15 units) - Take One</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>US History</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>or University Elective if US History met before transfer</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Units</td>
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<table>
<thead>
<tr>
<th>Third Semester</th>
<th>Title</th>
<th>Units</th>
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<tbody>
<tr>
<td>Select One (Major Core):</td>
<td>3</td>
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<tr>
<td>MATH 335</td>
<td>Modern Algebra</td>
<td>3</td>
</tr>
<tr>
<td>MATH 370</td>
<td>Real Analysis I</td>
<td>3</td>
</tr>
<tr>
<td>MATH 380</td>
<td>Introduction to Complex Analysis</td>
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</tr>
<tr>
<td>MATH 376</td>
<td>Ordinary Differential Equations I (Major Core)</td>
<td>3</td>
</tr>
<tr>
<td>U.S. and California Government</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>or University Elective if US/CA Government met before transfer</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>GE Area UD-C: Upper-Division Arts and/or Humanities</td>
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<tr>
<th>Fourth Semester</th>
<th>Title</th>
<th>Units</th>
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</thead>
<tbody>
<tr>
<td>MATH 460</td>
<td>Mathematical Modeling (Major Core)</td>
<td>3</td>
</tr>
<tr>
<td>Major Elective (15 units) - Take Three</td>
<td>9</td>
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</tr>
<tr>
<td>GE Area UD-D: Upper-Division Social Sciences</td>
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<tr>
<td>Units</td>
<td>15</td>
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<thead>
<tr>
<th>Fifth Semester</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 696</td>
<td>Applied Mathematics Project I (Major Core)</td>
<td>1</td>
</tr>
<tr>
<td>Units</td>
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<td></td>
</tr>
</tbody>
</table>
San Francisco State University Bulletin 2019-2020
Bachelor of Science in Applied Mathematics – MATH Associate Degree for Transfer Roadmap

Sixth Semester

<table>
<thead>
<tr>
<th>Course</th>
<th>Units</th>
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</thead>
<tbody>
<tr>
<td>MATH 697</td>
<td>2</td>
</tr>
</tbody>
</table>

Applied Mathematics Project II (Major Core) 2

Total Units 60

1. CSC 210 is a prerequisite for MATH 400.
2. **Major Electives (15 units)**
   Select six units of the following:
   - MATH 430 Mathematics of Optimization (3 units)
   - MATH 442 Probability Models (3 units)
   - MATH 447 Design and Analysis of Experiments (3 units)
   - MATH 448 Introduction to Statistical Learning and Data Mining (3 units)
   - MATH 449 Categorical Data Analysis (3 units)
   - MATH 471 Fourier Analysis and Applications (3 units)
   - MATH 477 Partial Differential Equations (3 units)
   - MATH 491 Game Theory (3 units)
   - MATH 494 Non-Parametric Statistics (3 units)
   - MATH 495 Introduction to Wavelets and Frames with Applications (3 units)
   - Select 9 additional units in to create a coherent collection of three courses emphasizing applications of mathematics, chosen with the consent of the Applied Mathematics advisor.

3. MATH 400 offered spring semesters only.
4. MATH 376 offered fall semesters only.

To Do at SF State:
Enough total units to reach 120 minimum for graduation; 40 units minimum at the upper-division level; to include the following:

**University-Wide Requirements: 9-15 Units**
- Upper-Division GE (9 units): Courses required for the major may double-count if approved for UD GE.
- Students entering the major with the AS-T in Mathematics are not required to fulfill SF State Studies or Complementary Studies requirements.

**Applied Mathematics Major: 39-42 Units**
MATH 226-MATH 227-MATH 228 met in transfer; CSC 210 may have been met in transfer.
- Required Courses (24-27 units)
- Major Electives (15 units), including three courses emphasizing applications of mathematics, chosen on advisement.

**University Electives: Three or More Units**
Depends on course choices made at the community college, how transferred units are applied to the requirements above, and course choices at SF State. Some courses may meet more than one requirement, e.g., UD GE and the major.