BACHELOR OF SCIENCE IN STATISTICS ROADMAP – QUANTITATIVE REASONING CATEGORY III/IV AND STRETCH ENGLISH

120 Total Units Required
Minimum Number of Units in the Major: 54

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</th>
<th>Title</th>
<th>Units</th>
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<tbody>
<tr>
<td><strong>First Semester</strong></td>
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<tr>
<td>ENG 104</td>
<td>Writing the First Year: Finding Your Voice Stretch I</td>
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<tr>
<td>MATH 197</td>
<td>Prelude to Calculus I (Prerequisite for MATH 226)</td>
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<tr>
<td>GE Area A</td>
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<td>GE Area C</td>
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<td>GE Area D</td>
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<td><strong>Second Semester</strong></td>
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<td>ENG 105</td>
<td>Writing the First Year: Finding Your Voice Stretch II (A2)</td>
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<tr>
<td>MATH 198</td>
<td>Prelude to Calculus II (Prerequisite for MATH 226, B4)</td>
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<tr>
<td>GE Area A</td>
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<td>GE Area D</td>
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<td><strong>Third Semester</strong></td>
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<tr>
<td>MATH 226</td>
<td>Calculus I (Major Core, B4)</td>
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<tr>
<td>GE Area B: Physical Science (B1) and Laboratory Science (B3)</td>
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<td>GE Area E</td>
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<tr>
<td>SF State Studies or University Elective - Take Two</td>
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<td>6</td>
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<td><strong>Fourth Semester</strong></td>
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<tr>
<td>Select One (Major Core):</td>
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<tr>
<td>CSC 210</td>
<td>Introduction to Computer Programming</td>
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<tr>
<td>CSC 309</td>
<td>Computer Programming</td>
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<tr>
<td><strong>Units</strong></td>
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<tr>
<th>Course</th>
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<th>Units</th>
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<tbody>
<tr>
<td>MATH 227</td>
<td>Calculus II (Major Core)</td>
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<tr>
<td>GE Area B: Life Science (B2) and Laboratory Science (B3)</td>
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<td>GE Area C</td>
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<td><strong>Fifth Semester</strong></td>
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<tr>
<td>MATH 228</td>
<td>Calculus III (Major Core)</td>
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<td>MATH 301GW</td>
<td>Exploration and Proof - GWAR (Major Core)</td>
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<td>MATH 338</td>
<td>Introduction to SAS (Major Core)</td>
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<td>GE Area F</td>
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<td>GE Area UD-B: Upper-Division Physical and/or Life Sciences (Consider SF State Studies Course)</td>
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<td>MATH 325</td>
<td>Linear Algebra (Major Core)</td>
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<td>MATH 440</td>
<td>Probability and Statistics I (Major Core)</td>
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<td>Guided Electives (9 Units Total) - Take One</td>
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<td>GE Area UD-C: Upper-Division Arts and/or Humanities (Consider SF State Studies Course)</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>Seventh Semester</strong></td>
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<td>MATH 424</td>
<td>Introduction to Linear Models (Major Core)</td>
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<td>MATH 442</td>
<td>Probability Models (Major Core)</td>
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<tr>
<td>MATH 447</td>
<td>Design and Analysis of Experiments (Major Core)</td>
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<td>Guided Electives (9 Units Total) - Take One</td>
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<tr>
<td>GE Area UD-D: Upper-Division Social Sciences (Consider SF State Studies Course)</td>
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<td><strong>Eighth Semester</strong></td>
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<tr>
<td>MATH 441</td>
<td>Probability and Statistics II</td>
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<tr>
<td>MATH 448</td>
<td>Introduction to Statistical Learning and Data Mining</td>
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<tr>
<td>MATH 449</td>
<td>Categorical Data Analysis (Major Core)</td>
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<td>Guided Electives (9 Units Total) - Take One</td>
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<td>SF State Studies or University Elective</td>
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<tr>
<td><strong>Units</strong></td>
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<td>15</td>
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<tr>
<td><strong>Total Units</strong></td>
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<td>120-122</td>
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</tbody>
</table>
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.

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. (https://gatorsmartstart.sfsu.edu/)

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.

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.

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

Guided Electives (9 units)
Select three courses from one of the areas (Science, Economics, Business: Decision Sciences, or Business: Information Systems) listed below:

Science
- MATH 370 Real Analysis I (3 units)
- MATH 376 Ordinary Differential Equations I (3 units)
- MATH 400 Numerical Analysis (3 units)
- MATH 425 Applied and Computational Linear Algebra (3 units)
- MATH 430 Mathematics of Optimization (3 units)
- MATH 460 Mathematical Modeling (3 units)

Economics
- ECON 301 Intermediate Microeconomic Theory (3 units)
- ECON 302 Intermediate Macroeconomic Theory (3 units)
- ECON 312 Introduction to Econometrics (3 units)
- ECON 715 Mathematical Economics (3 units)
- ECON 731 Econometric Methods and Applications (3 units)
- ECON 825 Applied Time Series Econometrics (3 units)

Business: Decision Sciences
- DS 408 Computer Simulation (3 units)
- DS 412 Operations Management (3 units)
- DS 604 Applied Business Forecasting (3 units)
- DS 624 Quality Management (3 units)

Business: Information Systems
- ISYS 363 Information Systems for Management (3 units)
- ISYS 463 Information Systems Analysis and Design (3 units)
- ISYS 569 Information Systems for Business Process Management (3 units)
- ISYS 650 Business Intelligence (3 units)

± Given catalog rights, fall 2022 transfer students do not need to complete an Area F course.