

# BACHELOR OF SCIENCE IN STATISTICS - QUANTITATIVE REASONING CATEGORY III/IV AND ENG 114

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.

Course	Title	Units
<b>First Semester</b>		
ENG 114	Writing the First Year: Finding Your Voice (A2) <sup>1</sup>	3
MATH 197	Prelude to Calculus I (Prerequisite for MATH 226) <sup>2,3</sup>	3
GE Area A <sup>4</sup>		3
GE Area C		3
GE Area D		3
Units		15
<b>Second Semester</b>		
MATH 198	Prelude to Calculus II (Prerequisite for MATH 226, B4) <sup>2,3</sup>	3
GE Area A		3
GE Area C		3
GE Area D		3
GE Area E		3
Units		15
<b>Third Semester</b>		
MATH 226	Calculus I (Major Core, B4) <sup>2,3</sup>	4
GE Area B: Physical Science (B1) and Laboratory Science (B3) <sup>5</sup>		3-4
GE Area D		3
SF State Studies or University Elective - Take Two		6
Units		16-17
<b>Fourth Semester</b>		
CSC 210 or CSC 309	Introduction to Computer Programming (Major Core) or Computer Programming	3
MATH 227	Calculus II (Major Core)	4
GE Area B: Life Science (B2) and Laboratory Science (B3) <sup>5</sup>		3-4
GE Area C		3
Units		13-14

<b>Fifth Semester</b>		
MATH 228	Calculus III (Major Core)	4
MATH 301GW	Exploration and Proof - GVAR (Major Core)	3
MATH 338	Introduction to SAS (Major Core)	3
GE Area UD-B: Upper-Division Physical and/or Life Sciences (Consider SF State Studies Course)		3
SF State Studies or University Elective		3
Units		16
<b>Sixth Semester</b>		
MATH 325	Linear Algebra (Major Core)	3
MATH 440	Probability and Statistics I (Major Core)	3
Major Emphasis (9 Units Total) - Take One <sup>6</sup>		3
GE Area UD-C: Upper-Division Arts and/or Humanities (Consider SF State Studies Course)		3
SF State Studies or University Elective		3
Units		15
<b>Seventh Semester</b>		
MATH 424	Introduction to Linear Models (Major Core)	3
MATH 442	Probability Models (Major Core)	3
MATH 447	Design and Analysis of Experiments (Major Core)	3
Major Emphasis (9 Units Total) - Take One <sup>6</sup>		3
GE Area UD-D: Upper-Division Social Sciences (Consider SF State Studies Course)		3
Units		15
<b>Eighth Semester</b>		
MATH 441	Probability and Statistics II	3
MATH 448	Introduction to Statistical Learning and Data Mining	3
MATH 449	Categorical Data Analysis (Major Core)	3
Major Emphasis (9 Units Total) - Take One <sup>6</sup>		3
SF State Studies or University Elective		3
Units		15
Total Units		120-122

<sup>1</sup> 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.

<sup>2</sup> 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/>).

<sup>3</sup> 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.

<sup>4</sup> To avoid taking additional units, it is recommended that you meet **SF State Studies** (AERM, GP, ES, SJ) and **Ethnic Studies requirements** within your GE or major.

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

<sup>6</sup> **Major Emphasis (9 units)**

Select three courses from one emphasis in consultation with the Statistics advisor.

**Business Emphasis**

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)

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 569 Information Systems for Business Process Management (3 units)

ISYS 650 Business Intelligence (3 units)

**Economics Emphasis**

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)

**Science Emphasis**

MATH 370 Real Analysis I (3 units)

MATH 376 Ordinary Differential Equations I (3 units)

MATH 400 Numerical Analysis (3 units)

MATH 430 Mathematics of Optimization (3 units)

MATH 460 Mathematical Modeling (3 units)

MATH 491 Game Theory (3 units)

MATH 493 Introduction to Actuarial Mathematics (3 units)

MATH 494 Non-Parametric Statistics (3 units)