

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

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

Course	Title	Units
First Semester		
ENG 104	Writing the First Year: Finding Your Voice Stretch I ¹	3
MATH 197	Prelude to Calculus I (Prerequisite for MATH 226) ^{2,3}	3
GE Area A ⁴		3
GE Area C		3
GE Area D		3
		Units 15
Second Semester		
ENG 105	Writing the First Year: Finding Your Voice Stretch II (A2) ¹	3
MATH 198	Prelude to Calculus II (Prerequisite for MATH 226, B4) ^{2,3}	3
GE Area A		3
GE Area C		3
GE Area D		3
		Units 15
Third Semester		
MATH 226	Calculus I (Major Core, B4) ^{2,3}	4
GE Area B: Physical Science (B1) and Laboratory Science (B3) ⁵		3-4
GE Area D		3
GE Area E		3
SF State Studies or University Elective		3
		Units 16-17
Fourth Semester		
CSC 210 or CSC 309	Introduction to Computer Programming (Major Core) or Computer Programming for Scientists and Engineers	3
MATH 227	Calculus II (Major Core)	4
GE Area B: Life Science (B2) and Laboratory Science (B3) ⁵		3-4
GE Area C		3
		Units 13-14

Fifth Semester		
MATH 228	Calculus III (Major Core)	4
MATH 301GW	Exploration and Proof - GWAR (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
Sixth Semester		
MATH 325	Linear Algebra (Major Core)	3
MATH 440	Probability and Statistics I (Major Core)	3
Major Emphasis (9 Units Total) - Take One ⁶		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
Seventh Semester		
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 ⁶		3
GE Area UD-D: Upper-Division Social Sciences (Consider SF State Studies Course)		3
		Units 15
Eighth Semester		
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 ⁶		3
SF State Studies or University Elective		3
		Units 15
		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](#). Information regarding the courses that correspond with your MATH Pathway/Category can be found on the [Developmental Studies Office Website](#).

³ 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.

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

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

⁶ **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)