STATISTICS BS + STATISTICAL DATA SCIENCE MS SF SCHOLARS ROADMAP

120 Total Units Required
Minimum Number of Units in the Major: 55

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.

The San Francisco State Scholars program provides undergraduate students with an accelerated pathway to a graduate degree. Students in this program pursue a bachelor's and master's degree simultaneously. This program allows students to earn graduate credit while in their junior and/or senior year, reducing the number of semesters required for completion of a master's degree.

Course	Title	Units
First Year		
Fall Semester		
ENG 114	Writing the First Year: Finding Your Voice (A2) [1]	3
MATH 226	Calculus I (Major Core, B4) [2]	4
GE Area A [3]		3
GE Area C		3
GE Area D		3
	Units	**16**
Spring Semester		
MATH 227	Calculus II (Major Core)	4
GE Area A		3
GE Area C		3
GE Area D		3
GE Area E		3
	Units	**16**
Second Year		
Fall Semester		
MATH 228	Calculus III (Major Core)	4
MATH 301GW	Exploration and Proof - GWAR (Major Core)	3
MATH 325	Linear Algebra (Major Core)	4
MATH 440	Probability and Statistics I (Major Core)	3
Select One (Major Core):		3
MATH 209	Mathematical Computing	
CSC 101	Introduction to Computing	
CSC 309	Computer Programming	
	Units	**17**
Spring Semester		
MATH 338	Introduction to SAS (Major Core)	3
MATH 441	Probability and Statistics II (Major Core)	3
GE Area B: Physical Science (B1) and Laboratory Science (B3) [4]		3-4
GE Area B: Life Science (B2) and Laboratory Science (B3) [4]		3-4
GE Area C		3
	Units	**15-17**
Third Year		
Fall 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
GE Area F [±]		3
GE Area UD-B: Upper-Division Physical and/or Life Sciences		3
	Units	**15**
Spring Semester		
MATH 448	Introduction to Statistical Learning and Data Mining (Major Core and Graduate Core)	3
MATH 449	Categorical Data Analysis (Major Core)	3
Guided Electives (9 Units Total) - Take One [5,6]		3
GE Area UD-C: Upper-Division Arts and/or Humanities		3
U.S. and California Government (http://bulletin.sfsu.edu/undergraduate-education/american-institutions/#usg)		3
	Units	**15**
Fourth Year		
Fall Semester		
Guided Electives (9 Units Total) - Take One [5,6]		3
GE Area UD-D: Upper-Division Social Sciences		3
SF State Studies or University Elective - Take Three		8
	Units	**14**
Spring Semester		
Guided Electives (9 Units Total) - Take One [5,6]		3
SF State Studies or University Elective - Take Three		9
	Units	**12**

Fifth Year		
Fall Semester		
MATH 742	Advanced Probability Models (Graduate Core)	3
MATH 760	Multivariate Statistical Methods (Graduate Core)	3
MATH 761	Computational Statistics (Graduate Core)	3
	Units	**9**
Spring Semester		
MATH 748	Theory and Applications of Statistical and Machine Learning (Graduate Core)	3
Select One (Culminating Experience):		3
MATH 892	Data Science Internship	
MATH 895	Research Project	
MATH 898	Master's Thesis	
Graduate Elective [7]		3
	Units	**9**
	Total Units	**138-140**

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 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/)

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

5 **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 311 Technologies in Data Analytics (3 units)
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)

6 Graduate-Level Elective Courses[7] can double count for this requirement.

7 A full list of graduate elective options can be found on the degree requirements page (http://bulletin.sfsu.edu/colleges/science-engineering/mathematics/ms-statistical-data/#degreerequirementstext).