

# STATISTICS - BS

Statistics is the science of collecting and analyzing data for the purpose of making decisions in the presence of uncertainty. Data are ubiquitous in the modern day and age, and statisticians are in high demand. Multidisciplinary application areas vary widely and include health and medicine, business, engineering, physical sciences, environmental studies, and government. The curriculum in statistics provides instruction in all necessary areas, including a foundation in mathematics and probability, strategies for designing studies and collecting data, the visualization and analysis of data using popular software such as R and Python, and the process of using sample data to draw conclusions about a population. Depending on the electives selected, a student completing this program will be prepared to enter employment as a statistical analyst or to continue to graduate school in statistics or a related field.

## Program Requirements

The following is a suggested schedule that includes the required courses for the BS in Statistics. It is recognized that many students will change the sequence and number of courses taken in any semester. Deviations from the prescribed course sequence, however, should be made with care to ensure that prerequisites for all courses are met.

### First Year

	Semester Credit Hours
<b>Fall</b>	
ENGL 104 Composition and Rhetoric	3
MATH 171 Calculus I <sup>1</sup>	4
STAT 182 Foundations of Statistics	1
Select one of the following:	4
ASTR 111 Overview of Modern Astronomy	
BIOL 111 Introductory Biology I	
BIOL 112 Introductory Biology II	
CHEM 119 Fundamentals of Chemistry I	
CHEM 120 Fundamentals of Chemistry II	
PHYS 206 & PHYS 226 Newtonian Mechanics for Engineering and Science and Physics of Motion Laboratory for the Sciences	
PHYS 207 & PHYS 227 Electricity and Magnetism for Engineering and Science and Electricity and Magnetism Laboratory for the Sciences	
American history ( <a href="http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#american-history">http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#american-history</a> )	3
<b>Semester Credit Hours</b>	<b>15</b>

### Spring

MATH 172 Calculus II <sup>1</sup>	4
Select one of the following:	3-4
CSCE 110 Programming I	
CSCE 111 Introduction to Computer Science Concepts and Programming	
CSCE 120 Program Design and Concepts or CSCE 121 or Introduction to Program Design and Concepts	

CSCE 206 Structured Programming in C	
Select one of the following	4
ASTR 111 Overview of Modern Astronomy	
BIOL 111 Introductory Biology I	
BIOL 112 Introductory Biology II	
CHEM 119 Fundamentals of Chemistry I	
CHEM 120 Fundamentals of Chemistry II	
PHYS 206 & PHYS 226 Newtonian Mechanics for Engineering and Science and Physics of Motion Laboratory for the Sciences	
PHYS 207 & PHYS 227 Electricity and Magnetism for Engineering and Science and Electricity and Magnetism Laboratory for the Sciences	
American history ( <a href="http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#american-history">http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#american-history</a> )	3

**Semester Credit Hours 15**

### Second Year

	Semester Credit Hours
<b>Fall</b>	
MATH 221 Several Variable Calculus <sup>1</sup>	4
POLS 206 American National Government	3
STAT 211 Principles of Statistics I <sup>1</sup>	3
Select one of the following	3
COMM 203 Public Speaking	
COMM 205 Communication for Technical Professions	
COMM 243 Argumentation and Debate	
Life and physical sciences ( <a href="http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#life-physical-sciences">http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#life-physical-sciences</a> )	3

**Semester Credit Hours 16**

### Spring

MATH 304 Linear Algebra <sup>1</sup> or MATH 323 or Linear Algebra	3
POLS 207 State and Local Government	3
STAT 212 Principles of Statistics II <sup>1</sup>	3
Select one of the following:	3-4
CSCE 110 Programming I	
CSCE 111 Introduction to Computer Science Concepts and Programming	
CSCE 120 Program Design and Concepts or CSCE 121 or Introduction to Program Design and Concepts	
CSCE 206 Structured Programming in C	
Creative arts ( <a href="http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#creative-arts">http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#creative-arts</a> )	3

**Semester Credit Hours 15**

### Third Year

	Semester Credit Hours
<b>Fall</b>	
STAT 404 Statistical Computing	3
STAT 414 Mathematical Statistics I	3

Language, philosophy and culture ( <a href="http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#language-philosophy-culture">http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#language-philosophy-culture</a> )	3
Mathematics elective <sup>2</sup>	3
Outside specialization elective <sup>3</sup>	3
<b>Semester Credit Hours</b>	<b>15</b>
<b>Spring</b>	
STAT 408 Introduction to Linear Models	3
STAT 415 Mathematical Statistics II	3
Outside specialization elective <sup>3</sup>	3
General elective	6
<b>Semester Credit Hours</b>	<b>15</b>
<b>Fourth Year</b>	
<b>Fall</b>	
STAT 406 Design and Analysis of Experiments	3
Social and behavioral sciences ( <a href="http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#social-behavioral-sciences">http://catalog.tamu.edu/undergraduate/general-information/university-core-curriculum/#social-behavioral-sciences</a> )	3
Mathematics or Statistics elective <sup>4</sup>	3
Outside specialization elective <sup>3</sup>	3
Statistics elective <sup>5</sup>	3
<b>Semester Credit Hours</b>	<b>15</b>
<b>Spring</b>	
STAT 482 Statistics Capstone or STAT 483 or Interdisciplinary Data Analytics Practicum	3
Outside specialization elective <sup>3</sup>	3
Statistics elective <sup>5</sup>	2
General elective	6
<b>Semester Credit Hours</b>	<b>14</b>
<b>Total Semester Credit Hours</b>	<b>120</b>

<sup>1</sup> Must make a grade of C or better.

<sup>2</sup> Select from ISEN 320, ISEN 340, ISEN 355; MATH 300, MATH 302, MATH 308, MATH 409, MATH 410, MATH 417 or MATH 437, MATH 442, MATH 446, MATH 447, MATH 469, MATH 470.

<sup>3</sup> Students must take 12 hours in an outside specialization area upon approval by a departmental advisor. At least 6 hours must be upper-level hours.

<sup>4</sup> Select from ISEN 320, ISEN 340, ISEN 350, ISEN 355; MATH 300, MATH 302, MATH 308, MATH 409, MATH 410, MATH 417 or MATH 437, MATH 442, MATH 446, MATH 447, MATH 469, MATH 470; STAT 315, STAT 335/CSCE 320, STAT 407, STAT 421, STAT 424/MATH 424, STAT 426, STAT 436, STAT 438, STAT 445, STAT 446, STAT 459, STAT 484, STAT 485, STAT 489, STAT 491.

<sup>5</sup> Select from ISEN 350; STAT 315, STAT 335/CSCE 320, STAT 407, STAT 421, STAT 424/MATH 424, STAT 426, STAT 436, STAT 438, STAT 445, STAT 446, STAT 459, STAT 484, STAT 485, STAT 489, STAT 491.

information/university-core-curriculum/) category, a college/department requirement, or a general elective can be used to satisfy this requirement.

The department will allow at most two D's in upper-level (325-499) courses. If a third D is earned, one of the three courses in which a D was earned must be retaken and a grade of C or better earned.

Graduation requirements include a requirement for 3 hours of International and Cultural Diversity (<http://catalog.tamu.edu/undergraduate/general-information/degree-information/international-cultural-diversity-requirements/>) courses and 3 hours of Cultural Discourse (<http://catalog.tamu.edu/undergraduate/general-information/degree-information/cultural-discourse-requirements/>) courses. A course satisfying a Core (<http://catalog.tamu.edu/undergraduate/general->