## STATISTICS, BACHELOR OF ARTS

College of Letters & Science

### The Major Program
Statistics enables us to make inferences about entire populations, based on samples extracted from those populations. Statistical methods can be applied to problems from almost every discipline and they are vitally important to researchers in agricultural, biological, environmental, social, engineering, and medical sciences.

### The Program
Statistics majors may receive either a Bachelor of Arts (A.B.) or a Bachelor of Science (B.S.) degree. Both the A.B. and the B.S. programs require theoretical and applied course work and underscore the strong interdependence of statistical theory and the applications and computational aspects of statistics. The B.S. degree program has five tracks: Applied Statistics Track, Computational Statistics Track, General Track, Machine Learning Track, and the Statistical Data Science Track. The A.B. degree program has one track.

### A.B. in Statistics-Applied Statistics Track
emphasizes statistical applications. This track is recommended for students who are interested in applications of statistical techniques to various disciplines, especially the social sciences.

### Major Advisors
For a current list of faculty and staff advisors, see Undergraduate Advising (https://statistics.ucdavis.edu/undergrad/advising/).

Students are encouraged to meet with an advisor to plan a program as early as possible.

### Career Alternatives
Probability models, statistical methods, and computational techniques are used in a great many fields, including the biological, physical, social, and health sciences, business, and engineering. The wide applicability of statistics is reflected in the strong demand for graduates with statistical training in both the public and private sectors. Employment opportunities include careers in data & policy analysis in government & industry, financial management, quality control, insurance & healthcare industry, actuarial science, engineering, public health, biological and pharmaceutical research, law, and education. Students with an undergraduate degree in statistics have entered advanced studies in statistics, economics, finance, psychology, medicine, business management & analytics, and other professional school programs.

### Code | Title | Units
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<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preparatory Subject Matter</td>
<td></td>
<td></td>
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<tr>
<td><strong>Mathematics</strong></td>
<td></td>
<td>9-12</td>
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Choose a series:

- MAT 016A  
  & MAT 016B  
  & MAT 016C

- MAT 017A  
  & MAT 017B  
  & MAT 017C

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<tr>
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<tbody>
<tr>
<td>MAT 021A</td>
<td>Calculus and Calculus</td>
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</table>
  & MAT 021B | and Calculus |  
  & MAT 021C | and Calculus |

MAT 021 series preferred.

- MAT 022A  
  Linear Algebra  
  3

### Computer Science Engineering

- ECS 032A  
  Introduction to Programming  
  4

- or ECS 036A  
  Programming & Problem Solving

### Statistics

- Choose one:
  
  - STA 013  
    Elementary Statistics
  
  - or STA 013Y  
    Elementary Statistics

- STA 032  
  Gateway to Statistical Data Science

- STA 100  
  Applied Statistics for Biological Sciences

- STA 032 or STA 100 preferred

Preparatory Subject Matter Subtotal  
20-23

### Depth Subject Matter

<table>
<thead>
<tr>
<th>Core Coursework</th>
<th>Units</th>
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<tr>
<td><strong>Statistics</strong></td>
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- STA 106  
  Applied Statistical Methods: Analysis of Variance

- STA 108  
  Applied Statistical Methods: Regression Analysis

- STA 130A  
  Mathematical Statistics: Brief Course

- STA 130B  
  Mathematical Statistics: Brief Course

- STA 138  
  Analysis of Categorical Data

- STA 137  
  Applied Time Series Analysis

- or STA 141A  
  Fundamentals of Statistical Data Science

### Restricted Electives

Choose three:

- STA 104  
  Applied Statistical Methods: Nonparametric Statistics

- STA 135  
  Multivariate Data Analysis

- STA 137  
  Applied Time Series Analysis

- STA 141A  
  Fundamentals of Statistical Data Science

- STA 141B  
  Data & Web Technologies for Data Analysis

- Only one of STA 141B or STA 141C can be used as an elective.

- STA 141C  
  Big Data & High Performance Statistical Computing

- Only one of STA 141B or STA 141C can be used as an elective.

- STA 144  
  Sampling Theory of Surveys

- STA 145  
  Bayesian Statistical Inference

- STA 160  
  Practice in Statistical Data Science

- MAT 168  
  Optimization

With advisor approval, one of STA 194HA or STA 194HB or STA 199 may be used as an elective. The course must be taken for four units.

- STA 194HA  
  Special Studies for Honors Students

- STA 194HB  
  Special Studies for Honors Students

- STA 199  
  Special Study for Advanced Undergraduates

### Note:
A course used to fulfill a core requirement cannot be used as a restricted elective.

### Cluster Electives

- MAT 022A  
  Linear Algebra  
  3

- ECS 032A  
  Introduction to Programming  
  4

- or ECS 036A  
  Programming & Problem Solving

- Choose one:
  
  - STA 013  
    Elementary Statistics
  
  - or STA 013Y  
    Elementary Statistics

- STA 032  
  Gateway to Statistical Data Science

- STA 100  
  Applied Statistics for Biological Sciences

- STA 032 or STA 100 preferred

Preparatory Subject Matter Subtotal  
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- STA 194HB  
  Special Studies for Honors Students

- STA 199  
  Special Study for Advanced Undergraduates

### Note:
A course used to fulfill a core requirement cannot be used as a restricted elective.

### Cluster Electives
Choose three upper division elective courses outside of Statistics. Cluster electives are chosen with and must be approved by the major advisor. A list of pre-approved electives can be found on the Statistics Department website. Electives must follow a coherent sequence in one single discipline/cluster where statistical methods and models are applied and must cover the quantitative aspects of the discipline.

<table>
<thead>
<tr>
<th>Depth Subject Matter Subtotal</th>
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<tr>
<td>Total Units</td>
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