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.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAT 016A &amp; MAT 016B &amp; MAT 016C</td>
<td>Short Calculus and Short Calculus and Short Calculus</td>
<td>9-12</td>
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<tr>
<td>MAT 017A &amp; MAT 017B &amp; MAT 017C</td>
<td>Calculus for Biology &amp; Medicine and Calculus for Biology &amp; Medicine and Calculus for Biology &amp; Medicine</td>
<td>9-12</td>
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Computer Science Engineering

ECS 032A or ECS 036A
Introduction to Programming or Programming & Problem Solving

Statistics

Choose one:

STA 013 or STA 013Y
Elementary Statistics or Elementary Statistics

STA 032
Gateway to Statistical Data Science

STA 100
Applied Statistics for Biological Sciences

Preparatory Subject Matter Subtotal
20-23

Depth Subject Matter

Core Coursework

Statistics

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Units</th>
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<tbody>
<tr>
<td>STA 106</td>
<td>Applied Statistical Methods: Analysis of Variance</td>
<td></td>
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<tr>
<td>STA 108</td>
<td>Applied Statistical Methods: Regression Analysis</td>
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<tr>
<td>STA 130A</td>
<td>Mathematical Statistics: Brief Course</td>
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<tr>
<td>STA 130B</td>
<td>Mathematical Statistics: Brief Course</td>
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<tr>
<td>STA 138</td>
<td>Analysis of Categorical Data</td>
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<tr>
<td>STA 137 or STA 141A</td>
<td>Applied Time Series Analysis or Fundamentals of Statistical Data Science</td>
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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
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>
<th>45-48</th>
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</thead>
<tbody>
<tr>
<td>Total Units</td>
<td>65-71</td>
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