

Statistics, Ph.D.

Research in statistics can range from mathematical studies of the theoretical underpinnings of a statistical model or method to the development of novel statistical models and methods and a thorough study of their properties. Frequently, statistics research is motivated and informed by collaborations with experts in a particular substantive field. Their scientific studies and data collection efforts may yield complex data that cannot be adequately handled using standard statistical methodology. Statisticians aim to develop methods that address the scientific or policy questions of the researcher. In doing so, statisticians must consider how efficiently and effectively the proposed methodology can be implemented and what guarantees can be provided as to the performance of the proposed methods. Such questions can often be answered using a combination of mathematical, analytical, and computational techniques.

Background: Individuals from a variety of backgrounds can make significant contributions to the field of statistics as long as they have sufficient background in statistics, mathematics, and computing. Undergraduate preparation in statistics, mathematics, and computing should include multivariate calculus (the equivalent of UCI courses MATH 2A-MATH 2B, MATH 2D-MATH 2E), linear algebra (MATH 121A), elementary analysis (MATH 140A-MATH 140B), introductory probability and statistics (STATS 120A-STATS 120B-STATS 120C), and basic computing (I&C SCI 31). For students with undergraduate majors outside of mathematics and statistics, it is possible to make up one or two missing courses during the first year in the program.

For additional information about the Bren School of ICS's graduate programs and admissions information, click here (<http://catalogue.uci.edu/donaldbrenschoolofinformationandcomputersciences/#graduatetext>).

Statistics Course Requirements

A. Complete:	
STATS 200A- 200B- 200C	Intermediate Probability and Statistical Theory and Intermediate Probability and Statistical Theory and Intermediate Probability and Statistical Theory
STATS 210	Statistical Methods I: Linear Models
STATS 211	Statistical Methods II: Generalized Linear Models
STATS 212	Statistical Methods III: Methods for Correlated Data
STATS 220A- 220B	Advanced Probability and Statistics Topics and Advanced Probability and Statistics Topics
STATS 225	Bayesian Statistical Analysis
STATS 230	Statistical Computing Methods
STATS 275	Statistical Consulting
B. Select four additional graduate courses in or related to statistics, at least two of which are offered by the Department of Statistics. ¹	
C. In addition, continual enrollment in STATS 280 is required in all quarters.	

¹ STATS 202, STATS 203, and STATS 281A-STATS 281B-STATS 281C may not be taken as electives. These courses must be completed prior to candidacy.

Additional Ph.D. requirements

Each Ph.D. student is required to take a written comprehensive examination, ordinarily at the end of the first year, covering the material from STATS 200A-STATS 200B-STATS 200C, and a comprehensive data analysis examination covering the material from STATS 210, STATS 211, and STATS 212.

Ph.D. students who have passed the written comprehensive examinations are required to give a post-comprehensive research presentation each year.

Ph.D. students are required to serve as teaching assistants for at least two quarters.

Ph.D. students are required to demonstrate substantive knowledge of an application area outside of statistics (e.g., computer science, economics, cognitive sciences, biology, or medicine). Such knowledge can be demonstrated by course work in the application area (three quarter courses), co-authorship of publishable research in the application area, or other evidence of supervised collaborative work that is substantiated by an expert in the field. In the case of a theoretically oriented student, the outside application area may be mathematics.

The normative time for advancement to candidacy is three years. The normative time for completion of the Ph.D. is five years, and the maximum time permitted is seven years.