

MS in Applied Statistics and Data Science

The MS in Applied Statistics and Data Science (<https://www.apu.edu/clas/programs/applied-statistics-masters/>) program provides professional preparation for careers involving the use of data analysis to inform decisions. The program includes required courses providing a foundation in statistical methods and theory, and electives that allow students to emphasize biostatistics or business analytics and explore a variety of statistical models and techniques for analyzing data. Expertise in the use of statistical software packages is developed. In keeping with the mission of Azusa Pacific University, this program encourages an active conversation about the role of a Christian perspective in the field of applied statistics, particularly in terms of ethical issues prevalent in data science.

Requirements

Code	Title	Units
Core Courses		
STAT 501	Introduction to Modeling with Probability	3
STAT 511	Applied Regression Analysis	3
STAT 521	Statistical Computing and Programming	3
STAT 542	Applied Logistic Regression and Survival Analysis	3
STAT 592	Ethics in Data Analytics	2
Culminating Experience		
STAT 596	Practicum	1
STAT 597	Statistical Consulting Practicum	4
STAT 598	Culminating Project	4
Elective Courses		
MATH 199	Calculus Fundamentals for Statistics ¹	
MATH 299	Linear Algebra Fundamentals for Statistics ¹	
STAT 502	Mathematical Statistics	
STAT 512	Analysis of Variance and Design of Experiments	
STAT 541	Epidemiology Research Methods	
STAT 543	Advanced Modeling for Data Science	
STAT 551	Data Visualization	
STAT 552	Time Series Analysis and Forecasting	
STAT 553	Data Mining	
STAT 571	Applied Multivariate Analysis	
STAT 572	Applied Bayesian Analysis	
STAT 573	Applied Nonparametric Statistics	
STAT 574	Discrete Data Analysis	
STAT 575	Applied Survey Sampling	
STAT 595	Special Topics in Applied Statistics	
CS 532	Machine Learning	
Total Units		32

¹ Does not count toward elective credit; required if not taken previously.

Admission

University graduate admission and program-specific requirements must be met before an application is complete (see Admission to the University (<http://catalog.apu.edu/admissions/>)). **Program-specific application requirements are available online (<https://www.apu.edu/graduateprofessional/apply/>).**

International students should contact Graduate and Professional Admissions (<https://www.apu.edu/graduateprofessional/apply/>) for application procedures.

Program Learning Outcomes

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Students who successfully complete this program shall be able to:

1. Master fundamental probability models and the statistical theory and methodology required to draw appropriate inferences from data.
2. Demonstrate the ability to analyze data by appropriately fitting, assessing, and interpreting a variety of statistical models in real-world interdisciplinary problems.
3. Employ appropriate statistical software for the management and analysis of data.
4. Communicate the results of statistical analyses effectively both orally and in writing to a broad audience.
5. Critically assess the appropriateness and validity of the statistical applications and methodology involved in published studies.
6. Effectively function in an interdisciplinary collaborative environment using the skills of a professional statistician to support decision making.
7. Articulate ethical issues in data analysis and how Christian perspectives relate to the profession of statistics.