STATISTICS AND DATA SCIENCE, PHD

Wharton's PhD program in Statistics and Data Science provides the foundational education that allows students to engage both cutting-edge theory and applied problems. These include problems from a wide variety of fields within Wharton, such as finance, marketing, and public policy, as well as fields across the rest of the University such as biostatistics within the Medical School and computer science within the Engineering School.

Major areas of departmental research include:

- analysis of observational studies;
- Bayesian inference, bioinformatics;
- decision theory;
- game theory;
- high dimensional inference;
- information theory;
- machine learning;
- model selection;
- nonparametric function estimation; and
- time series analysis.

Students typically have a strong undergraduate background in mathematics. Knowledge of linear algebra and advanced calculus is required, and experience with real analysis is helpful. Although some exposure to undergraduate probability and statistics is expected, skills in mathematics and computer science are more important. Graduates of the department typically take positions in academia, government, financial services, and bio-pharmaceutical industries.

For more information: https://statistics.wharton.upenn.edu/programs/phd/curriculum/

View the University's Academic Rules for PhD Programs (http://catalog.upenn.edu/pennbook/academic-rules-phd/).

Curriculum

The total course units required for graduation is 13.

Code	Title	Course Units
Core Requirements		
STAT 9270	Bayesian Statistical Theory and Methods	1
STAT 9300	Probability Theory	1
STAT 9310	Stochastic Processes	1
STAT 9610	Statistical Methodology	1
STAT 9700	Mathematical Statistics	1
STAT 9710	Introduction to Linear Statistical Models	1
STAT 9720	Advanced Topics in Mathematical Statistics	1
Electives [1]		
Select six course units		6
Total Course Units		**13**

[1] Electives must include suitable courses numbered 9000 and above, when offered.

The degree and major requirements displayed are intended as a guide for students entering in the Fall of 2024 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

Sample Plan of Study

Code	Title	Course Units
First Year		
Fall		
STAT 9300	Probability Theory	
STAT 9610	Statistical Methodology	
STAT 9700	Mathematical Statistics	
Spring		
STAT 9270	Bayesian Statistical Theory and Methods	
STAT 9310	Stochastic Processes	
STAT 9710	Introduction to Linear Statistical Models	
Summer		
	Qualifying Examination and First Year Paper	
Second Year		
Fall		
STAT 9720	Advanced Topics in Mathematical Statistics	
	Two Electives	
Spring		
	Three Electives	
Summer		
	Second-Year Paper	
Third Year		
Fall		
	Directed Study Course	
	Two Electives	
	Oral Exam/Thesis Proposal	
Spring		
	Electives or Directed Study Units	
Fourth Year and Beyond		
	Directed Study and Dissertation Research	