STATISTICS, PHD

Wharton’s PhD program in Statistics 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/).

The total course units required for graduation is 13.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Course Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>STAT 9270</td>
<td>Bayesian Statistical Theory and Methods</td>
<td>1</td>
</tr>
<tr>
<td>STAT 9300</td>
<td>Probability Theory</td>
<td>1</td>
</tr>
<tr>
<td>STAT 9310</td>
<td>Stochastic Processes</td>
<td>1</td>
</tr>
<tr>
<td>STAT 9610</td>
<td>Statistical Methodology</td>
<td>1</td>
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<tr>
<td>STAT 9700</td>
<td>Mathematical Statistics</td>
<td>1</td>
</tr>
<tr>
<td>STAT 9710</td>
<td>Introduction to Linear Statistical Models</td>
<td>1</td>
</tr>
<tr>
<td>STAT 9720</td>
<td>Advanced Topics in Mathematical Statistics</td>
<td>1</td>
</tr>
</tbody>
</table>

Electives

Select six course units | 6

Total Course Units | 13

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 2022 and later. Students should consult with their academic program regarding final certifications and requirements for graduation.

Sample Plan of Study

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