STATISTICS, PHD

for the degree of Doctor of Philosophy in Statistics

Graduate Degree Programs in Statistics

- Statistics, MS (http://catalog.illinois.edu/graduate/las/statistics-ms/)
  - concentrations:
    - Analytics (http://catalog.illinois.edu/graduate/las/statistics-ms/analytics/)
    - Applied (http://catalog.illinois.edu/graduate/las/statistics-ms/applied/)
- Statistics, PhD (p. 1)
  - optional concentrations for the PhD:
    - Computational Science & Engineering (http://catalog.illinois.edu/graduate/engineering/concentration/computational-science-engineering/)
    - Data Science & Engineering (http://catalog.illinois.edu/graduate/engineering/concentration/data-science-engineering/)
  - Graduate Minor in Statistics (http://catalog.illinois.edu/graduate/las/minors/statistics/)

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For additional details and requirements refer to the department’s Graduate Programs (http://www.stat.illinois.edu/students/graduates.shtml/) and the Graduate College Handbook (http://www.grad.illinois.edu/gradhandbook/).

Entering with an approved Baccalaureate degree

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>STAT 527</td>
<td>Advanced Regression Analysis</td>
<td>4</td>
</tr>
<tr>
<td>STAT 528</td>
<td>Advanced Regression Analysis II</td>
<td>4</td>
</tr>
<tr>
<td>STAT 511</td>
<td>Advanced Mathematical Statistics</td>
<td>4</td>
</tr>
<tr>
<td>STAT 553</td>
<td>Probability and Measure I</td>
<td>4</td>
</tr>
<tr>
<td>STAT 575</td>
<td>Large Sample Theory</td>
<td>4</td>
</tr>
</tbody>
</table>

Practicum course- Select one:

- STAT 427 Statistical Consulting
- STAT 593 STAT Internship
- STAT 595 Preparing Future Faculty

Computing-related course- Select one:

- STAT 525 Topics in Computational Statistics
- STAT 542 Statistical Learning

Approved substitutions for Computing: IE 521, IE 534, CS 573, CS 574, CS 583.

Stochastic processes and time series courses- Select one:

- STAT 533 Advanced Stochastic Processes (Advanced Stochastic Processes)
- STAT 554 Probability and Measure II
- STAT 555/ MATH 564 Applied Stochastic Processes
- STAT 556 Advanced Time Series Analysis

Select at least 5 elective courses with at least three 500 level courses, not selected above or from a list of electives maintained by the department. 20

Thesis and individual study courses:

- STAT 590 Individual Study and Research (0-16 hours per term)
- STAT 599 Thesis Research (0-8 hours per term)

Total Hours 96

Other Requirements

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prerequisite</td>
<td>MATH 447 - Real Variables (*Waived if a course at an equivalent level has been taken at another institution and a grade of B or above is achieved)</td>
</tr>
</tbody>
</table>

Other requirements may overlap

Required and elective course credits At least 52 hours at UIUC

Thesis research and individual study courses (min-max applied toward degree) 0-44

Total number of credits required 96 (at least 64 residency credits)

Entering with an approved Master's degree

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>STAT 553</td>
<td>Probability and Measure I</td>
<td>4</td>
</tr>
</tbody>
</table>

Practicum course- Select one:

- STAT 427 Statistical Consulting
- STAT 593 STAT Internship
- STAT 595 Preparing Future Faculty

Computing-related course- Select one:

- STAT 525 Topics in Computational Statistics
- STAT 542 Statistical Learning

Approved substitutions for Computing: IE 521, IE 534, CS 573, CS 574, CS 583.

Stochastic processes and time series courses- Select one:

- STAT 556 Advanced Time Series Analysis
- STAT 555 Applied Stochastic Processes
- STAT 553 Advanced Stochastic Processes
- STAT 554 Probability and Measure II
- STAT 576 Empirical Process Theory and Weak Convergence

Select at least 5 elective courses with at least three 500 level courses, not selected above or from a list of electives maintained by the department. 20

Thesis and Individual study courses:

- STAT 590 Individual Study and Research (0-16 hours per term)
- STAT 599 Thesis Research (0-8 hours per term)

Total Hours 64

Information listed in this catalog is current as of 07/2023
**Other Requirements**

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Masters Degree Required for Admission to PhD?</td>
<td>No, but Masters level requirements must be met (32 additional hours min)</td>
</tr>
</tbody>
</table>

For a student who has approved MS degree in Statistics or related fields from peer institutions, the total number of credits required is 64 (at least 64 residency credits). The MS degree needs to be approved by the PhD committee by Oct 1st of the first year of enrollment.

**STAT 527/STAT 528/STAT 511/STAT**
can be waived for students who have approved MS degrees from peer institutions AND passed our qualifying exam

At least 36 required and elective course credits at UIUC (including satisfying the requirements on PhD applied regression, theory core, practicum, computing-related and stochastic process and time series courses, subject to waiver)

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minimum 500-level courses required</td>
<td>24</td>
</tr>
<tr>
<td>Qualifying Exam Required</td>
<td>Yes</td>
</tr>
<tr>
<td>Preliminary Exam Required</td>
<td>Yes</td>
</tr>
<tr>
<td>Final Exam/Dissertation Defense Required</td>
<td>Yes</td>
</tr>
<tr>
<td>Thesis research and individual study courses</td>
<td>0-28 hours</td>
</tr>
<tr>
<td>dissertation (min-max applied toward degree)</td>
<td></td>
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<tr>
<td>Dissertation Deposit Required</td>
<td>Yes</td>
</tr>
<tr>
<td>Minimum GPA:</td>
<td>3.0</td>
</tr>
</tbody>
</table>

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Statistics Ph.D. students will...

1. Have a solid foundation in Statistical Theory and Methodology;
2. Have a holistic understanding of data collection, management, processing, analysis and interpretation. Being proficient in the use of statistical software and writing statistical code;
3. Have experience in one or more application areas and work as a part of a collaborative team in analyzing real data and solving real-world problems;
4. Be able to conduct research either independently or collaboratively in a subarea of statistics and data science;
5. Be able to teach some elementary statistical courses independently.

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**Statistics Department**

Department Chair: Bo Li (https://stat.illinois.edu/directory/profile/libo/)

Associate Department Chair: Jeff Douglas (https://stat.illinois.edu/directory/profile/jeffdoug/)

PhD Program Director: Xiaofeng Shao (https://stat.illinois.edu/directory/profile/xshao/)

Department Contact: Aaron Thompson

Graduate Contact: Joseph Zarnsy (stat-grad@illinois.edu)

Statistics Department website (http://www.stat.illinois.edu/)

Computing Applications Building, 605 E Springfield Ave, Champaign, IL 61820

(217) 333-2167

Statistics email (stat-grad@illinois.edu)

**College of Liberal Arts & Sciences**

College of Liberal Arts & Sciences website (https://las.illinois.edu/)

**Admissions**

Statistics Department Admissions Info & Requirements (https://stat.illinois.edu/admissions/prospective-graduate-students/)

Graduate College Admissions & Requirements (https://grad.illinois.edu/admissions/apply/)

Information listed in this catalog is current as of 07/2023