PhD in Statistics

Degree Requirements

A minimum of 72 hours are required. A student's doctoral program committee must approve all course work used to satisfy the credit-hour requirement and may require additional course work beyond these minimums. The doctoral committee may recommend that up to 30 hours of post-baccalaureate graduate credit from an accredited university be transferred toward the total hours required for the doctoral degree, subject to approval by the Graduate School.

The doctoral program has considerable flexibility. Each student's adviser and committee will determine a suitable course of study. However, all students must take the following courses or their equivalents at comparable institutions.

Required courses:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>STAT 8710</td>
<td>Intermediate Mathematical Statistics I</td>
<td>3</td>
</tr>
<tr>
<td>STAT 8720</td>
<td>Intermediate Mathematical Statistics II</td>
<td>3</td>
</tr>
<tr>
<td>STAT 8310</td>
<td>Data Analysis I</td>
<td>3</td>
</tr>
<tr>
<td>STAT 8320</td>
<td>Data Analysis II</td>
<td>3</td>
</tr>
<tr>
<td>STAT 9310</td>
<td>Theory of Linear Models</td>
<td>3</td>
</tr>
<tr>
<td>STAT 9710</td>
<td>Advanced Mathematical Statistics I</td>
<td>3</td>
</tr>
</tbody>
</table>

Before taking the comprehensive examination, students should complete six courses from the list below, taken at MU or at comparable institutions OR five courses from the list below in addition to BOTH Statistics 8330 and 8640. Different 9100s can be counted more than once. Other 9000-level courses may be substituted at the discretion of the student’s doctoral program committee.

Select six of the following:

- STAT 9100 Recent Developments in Statistics
- STAT 9250 Statistical Computation and Simulation
- STAT 9370 Multivariate Analysis
- STAT 9410 Survival Analysis
- STAT 9530 Data Mining and Machine Learning Methods
- STAT 9640 Bayesian Analysis II
- STAT 9720 Advanced Mathematical Statistics II
- STAT 9810 Advanced Probability
- STAT 9820 Stochastic Processes

Qualifying Examination

All doctoral students must pass the qualifying exam, which is offered in August and January of each year. The exam consists of two parts, one covering STAT 8710 and STAT 8720 (Statistical Inference), and a second part covering STAT 8310 and STAT 8320. All doctoral students must take the exams at the first opportunity after taking the required courses, typically in early June after the end of their second semester in the program. Students have two attempts to pass each part.

Doctoral Committee

Within one semester of passing the qualifying examination, a student must choose a doctoral program committee in consultation with his or her adviser. This committee shall consist of at least four members, at least three from the doctoral faculty in statistics and at least one from another MU doctoral program. The committee members from statistics must include at least two faculty in addition to the student’s adviser(s), so students who are co-advised by two statistics faculty must have a total of at least five committee members.

Comprehensive Examination

Following the graduate school rules, the comprehensive examination is the most advanced posed by MU. It consists of written and oral sections. It must be completed at least seven months before the final defense of the dissertation. The two sections of the examination must be completed within one month. The student must be enrolled to take this examination. It is to be administered only when MU is officially in session.

The written portion of the exam will be arranged and supervised by the student’s major advisor(s). The exam will be given up to one year after the student has completed the required Ph.D. courses. Questions are prepared by each of the student’s committee members (doctoral advisory committee). The comprehensive exam is NOT to be used as a dissertation proposal.

For the comprehensive examination to be completed successfully, the doctoral advisory committee must vote to pass the student on the entire examination, both written and oral sections, with no more than one dissenting or abstaining vote.

A failure of either the written or oral section of the exam constitutes failure of the comprehensive exam. If a failure is reported, the committee also must include in the report an outline of the general weaknesses or deficiencies of the student’s work. The student and the committee members are encouraged to work together to identify steps the student might take to become fully prepared for the next examination.

A student who fails may not take a second comprehensive examination for at least 12 weeks. Failure to pass two comprehensive examinations automatically prevents candidacy.

Dissertation

A dissertation, prepared under the direction of a dissertation supervisor, is required. The dissertation should be presented in an open seminar as part of the final examination, which is be conducted by the final examination committee. The dissertation should be made available for public review, through the Department of Statistics office, for at least one week before the examination.

Additional Requirements

Additional requirements for the PhD in statistics are determined by the student’s program committee and the director of graduate studies.

Admission Criteria

Fall deadline: January 15
Spring deadline: October 15
- Minimum TOEFL scores:
  - Internet-based test (iBT) 80
  - Paper-based test (PBT) 535
- Minimum GPA: 3.0 in math and statistics to enter PhD program
- Master's degree from accredited college or university in related area

Before entering the graduate program, a student should have a background that includes three semesters of calculus (or equivalent), one semester of matrix theory, and at least one post-calculus course in probability and statistics. Some required courses at the 7000 level not
taken as an undergraduate may be taken for graduate credit as part of the graduate program.

**Required Application Materials**

*To the Graduate School:*

- All required Graduate School documents

*To the Program:*

- Departmental application
- 3 letters of recommendation (use departmental form)
- Letter of intent
- GRE score report