Degree Requirements: Measurement and Statistics PhD

Major Advisor
Upon admission to the doctoral program, you will be assigned a temporary major advisor who will assist you in selecting courses and planning your first year of study. At the end of the first full year, all students are reviewed by program faculty. At that time, you will choose a permanent advisor who directs the remainder of your program of study and supervises your dissertation research.

Supervisory Committee and Program of Study
You and your major professor will select a four-person supervisory committee, which must consist of your major advisor, at least one additional member from the Educational Psychology program, and at least one member from outside the Department of Educational Psychology and Learning Systems. The supervisory committee will formally approve your program of study, conduct your preliminary exam and supervise your dissertation.

In addition to measurement and statistics faculty, faculty in the major areas of learning and cognition or sport psychology who hold graduate faculty status may serve as members of the student's supervisory committee. Faculty from other majors (e.g., instructional systems) may serve on the student's committee, provided that they hold graduate faculty status in educational psychology.

Recommended Timetable
Year One: Enroll in core courses and electives; begin supervised research.
Year Two: Enroll in advanced courses, complete disciplinary specialization, and complete preliminary exam.
Year Three and up: Begin dissertation research, prepare dissertation prospectus, and conduct and defend dissertation research.

Dissertation Exams
Students are expected to write and defend both a prospectus and final dissertation to their committee. The committees must be formed according to the rules of the graduate school and College of Education. The defenses can be held with the assistance of distance technology (e.g., Skype). A grade of PASS for the defense of dissertation requires at least a majority approval of the committee.

Core Courses and Exam Policy

Doctoral Degree Courses

Required courses:
EDF 5400 Descriptive/Inferential Statistics Applications (4 hrs)
EDF 5401 General Linear Models Applications (4 hrs)
EDF 5402 Advanced Topics in ANOVA (3 hrs)
EDF 5406 Multivariate Analysis Applications (3 hrs)
EDF 5409 Causal Modeling (3 hrs)

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EDF 5431 Classroom Assessment (3 hrs)
EDF 5432 Measurement Theory I (3 hrs)
EDF 5434 Measurement Theory II (3 hrs)
EDF 5435 Theory of Scaling and Equating (3 hrs)
EDF 5448 Scale/Instrument Development (3 hrs)
EDF 5481 Meth Education Research (3 hrs)
EDF 6937 Hierarchical Linear Models (3 hrs)
EDF 6980 Dissertation (24 hrs)

Recommended:
EDF6937 Advanced SEM (3 hrs)
EDF6937 Bayesian Data Analysis (3 hrs)
EDF6937 Bayesian Network (3 hrs)
EDF6937 Bayesian IRT (3 hrs)
EDF6937 Experimental/Quasi Experimental Design (3 hrs)
EDF6937 Meta-Analysis (3 hrs)
EDF6937 Multidimensional IRT (3 hrs)

Courses from Statistics department:

- STA 5106 Computational Methods in Statistics I (3 hrs)
- STA 5207 Applied Regression Methods (3 hrs)
- STA 5325 Mathematical Statistics (3 hrs)
- STA 5326 Distribution Theory & Inference (3 hrs)
- STA 5440 Introductory Probability I (3 hrs)
- STA 5507 Applied Nonparametric Statistics (3 hrs)

Take two courses from one of the following programs:

- Program Evaluation
- Learning & Cognition
- Instructional Systems
- Psychology

Qualifying and Preliminary Exams
The Qualifying Exam and Preliminary Exam are given twice a year during the second week of Fall and Spring semesters. Students are required to officially register for a zero credit hour for the Preliminary Exam (EDF 8964) during the semester when taking the exams.

Qualifying Exam
The Qualifying Exam is typically taken after 1-1.5 years in the doctoral program. The examination involves preparation of two take-home questions (one in Statistics and the other in Measurement) over a week's time, followed by an oral exam, normally scheduled 2-3 weeks later. At the oral exam, the student also must provide his/her:

- Current vita, including a tentative statement of career plans
- Program of studies
- Description of area of research interests (2-4 pages)

The latter is often fairly general since this is an early exam, but to the extent possible it should include a rationale for the student's research interests and an overview of the methodology to be used or studied.

Preliminary Exam
The Preliminary Exam is scheduled near the completion of doctoral course work. The exam involves written and oral portions.

- A written closed-book component involving a series of questions is taken on Tuesday and Thursday (Tuesday for Measurement and Thursday for Statistics) from 9:00am to 1:00pm of the week of the exam.
- A written open-book take-home component, with questions in both Statistics and Measurement to be answered in a week. The questions are given on the Tuesday of the week following the written component. Questions often are single, multi-part items that require the student to describe in detail tactics to be used to solve problems or perform tasks similar to those found in the field. However exams with several separate shorter items may also be given. An appropriate response will typically be 8 to 10 double-spaced typed pages.
- The oral portion is scheduled about 2-3 weeks after the written exam, and is attended by members of the student's committee or provisional committee (if the final committee has not been formed). The oral exam is used to discuss and evaluate issues addressed by the written portions.

Evaluation Procedure and Grades
Written answers are reviewed by the student's committee or provisional committee (if the final committee has not been formed). Evaluations are made based on the student's performance on both written and oral portions. At the end of the oral exam, the faculty members discuss the student's performance and a pass/fail decision is made and the student is immediately notified. An official Pass/Fail grade will be recorded in the student's transcript for Preliminary Exam.

Retake policy
A student who fails any exam may take it during the next semester that the exam is offered. Any student who fails an exam twice will be terminated from his/her degree program.

Dissertation Exams
Students are expected to write and defend both a prospectus and final dissertation to their committee. M&S committees must be formed according to the rules of the graduate school and College of Education. The defenses can beheld with the assistance of distance technology (e.g., Skype). A grade of PASS for the defense of dissertation requires at least a majority approval of the committee.