

Psychological and Quantitative Foundations, MA

Educational Measurement and Statistics

The Master of Arts program in psychological and quantitative foundations with an educational measurement and statistics subprogram requires a minimum of 30 s.h. of graduate credit along with passing a final examination, and is offered with or without thesis. Students are expected to maintain a UI cumulative grade-point average of at least 2.75.

The program provides students with basic knowledge of educational measurement and research methodology. Graduates find employment in large school systems, state departments of education, test publishing organizations, and research centers. The program is also appropriate for students who wish to broaden their knowledge of measurement and research methodology for personal development or professional improvement in the context of a concurrent PhD program in other areas.

The MA in psychological and quantitative foundations with an educational measurement and statistics subprogram requires the following work.

Required Courses

| Course # | Title | Hours |
|---------------|---|-------|
| All of these: | | |
| PSQF:4143 | Introduction to Statistical Methods (or equivalent with advisor approval) | 3 |
| PSQF:6220 | Quantitative Educational Research Methodologies (or equivalent with advisor approval) | 3 |
| PSQF:6243 | Intermediate Statistical Methods | 3 |
| PSQF:6246 | Design of Experiments | 3 |
| PSQF:6255 | Construction and Use of Evaluation Instruments | 3 |
| PSQF:6257 | Educational Measurement and Evaluation | 3 |

Required Concentration Areas

Measurement

| Course # | Title | Hours |
|------------------------|---|-------|
| At least one of these: | | |
| PSQF:6249 | Factor Analysis and Structural Equation Models | 3 |
| PSQF:6258 | Theory and Technique in Educational Measurement | 3 |
| PSQF:6260 | Diagnostic Assessment | 3 |
| PSQF:6262 | Item Response Theory | 3 |
| PSQF:7355 | Seminar: Educational Measurement and Evaluation | 3 |

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| PSQF:7358 | Equating and Scaling of Educational Tests | 3 |
| PSQF:7375 | Topics in Educational Measurement and Statistics | 3 |
| PSQF:7455 | Generalizability Theory | 3 |

Statistics

| Course # | Title | Hours |
|------------------------|--|-------|
| At least one of these: | | |
| PSQF:6248 | Research Synthesis and Meta-Analysis | 3 |
| PSQF:6250 | Computer Packages for Statistical Analysis | 3 |
| PSQF:6252 | Introduction to Multivariate Statistical Methods | 3 |
| PSQF:6254 | Causal Inference and Observational Designs | 3 |
| PSQF:6270 | Generalized Linear Models | 3 |
| PSQF:6271 | Longitudinal Multilevel Models | 3 |
| PSQF:6272 | Clustered Multilevel Models | 3 |
| PSQF:7355 | Seminar: Educational Measurement and Evaluation | 3 |
| PSQF:7375 | Topics in Educational Measurement and Statistics | 3 |

Related Courses

| Course # | Title | Hours |
|---------------|---|-------|
| One of these: | | |
| PSQF:5165 | Introduction to Program and Project Evaluation | 3 |
| PSQF:6200 | Educational Psychology | 3 |
| PSQF:6204 | Foundations of the Learning Sciences | 3 |
| PSQF:6214 | Design of Learning Environments: Theory, Practice, and Method | 3 |
| PSQF:6281 | Cognitive Theories of Learning | 3 |

Electives

Nonthesis students choose 3 s.h. from any of the courses in the preceding lists or another course approved by the advisor. For students completing a thesis, PSQF:7393 MA Thesis in Psychological and Quantitative Foundations (3 s.h.) is required.

Final Examination

Nonthesis

Nonthesis students must complete a written and an oral final examination at the end of their program of study. Students will work with their advisors to form a three-person final examination committee that is comprised of at least two faculty from the educational measurement and statistics subprogram. The exam will emphasize the required core courses of the degree program and provide students with the opportunity to demonstrate their depth of learning from the program. The exact details and format of the final exam will be determined by the final examination committee. Upon passing the written examination, students

will then have an oral examination in which they will answer additional questions regarding their written responses or other relevant topics. Passing the oral examination completes the requirements for the final examination.

Thesis

Thesis students will complete a written thesis and an oral final examination. The thesis should report the results of original research in a manuscript style that is suitable for potential submission for publication (submission for publication is not a thesis requirement). The topic, scope, and research plan should be approved in advance by a three-person committee that is comprised of at least two faculty from the educational measurement and statistics subprogram. Upon passing the thesis submission, students will then have an oral examination in which they will answer additional questions regarding their thesis or other relevant topics. Passing the oral examination completes the requirements for the final examination.

Admission

Applicants must meet the admission requirements of the Graduate College. Completion of at least one college mathematics course and experience as a teacher or researcher are desirable. Applicants who do not meet these requirements but who show offsetting evidence of superior ability may be granted conditional admission.