

Psychological and Quantitative Foundations, MA

Learning Outcomes

Graduate students will:

- gain course-specific knowledge and skills as required to perform well in their specialties (as demonstrated by completing their required courses in their specialty/major area with a grade-point average of 3.00 or higher);
- demonstrate integrated substantive knowledge and skills that can be applied to solve novel professional-level problems (as demonstrated by completing their final examinations satisfactorily and by completing their thesis proposals with committee approval);
- demonstrate required clinical practice skills and researcher autonomy (as demonstrated by satisfactory completion of all required practicums and/or internships, and required thesis defenses/article submissions as appropriate for their degrees);
- demonstrate initial engagement with, and commitment to, professional ethics, professional development, lifelong learning, and service to the profession (as demonstrated by participation and engagement in the appropriate state, regional, and national organizations as appropriate for their degrees);
- demonstrate entry-level professional qualifications (as demonstrated by being qualified to take any licensing exams that are required for practice and/or employment); and
- be qualified for suitable employment or postdoctoral appointments upon graduation (as reported on annual Qualtrics surveys).

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
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.

Learning Sciences and Educational Psychology

The Master of Arts program in psychological and quantitative foundations with a learning sciences and educational psychology subprogram has a strong emphasis on how theory and research inform the understanding of learners, learning, instruction, and the technology and environments in which learning and instruction occur. The program requires a minimum of 30 s.h. of graduate credit. Students are expected to maintain a UI cumulative grade-point average of at least 2.75. A thesis is not required.

The curriculum includes courses in the theories of the learning sciences, the design of effective learning environments and technologies, and the implementation of instructional design. Elective opportunities allow students to choose an interest area to develop a multidisciplinary specialization. Current areas include technology and media, learning in the disciplines, human development and motivation, and measurement and evaluation. The capstone experience of the program is an internship/practicum/portfolio that allows students to apply knowledge of the learning sciences in a context of interest. Students develop a program of study in consultation with their advisor.

Full-time students typically take at least 9 s.h. each semester, with the option of additional summer session work; they usually complete the program in four semesters. Part-time students take 3–6 s.h. each semester; they usually complete the degree in two or three years.

Students may apply substitute equivalent coursework from another institution or department for required or recommended courses.

The MA in psychological and quantitative foundations with a learning sciences and educational psychology subprogram requires the following coursework.

Required Courses

Course #	Title	Hours
All of these:		
PSQF:6200	Educational Psychology	3
PSQF:6203	Tools and External Representations in Individual and Social Learning	3
PSQF:6204	Foundations of the Learning Sciences	3
PSQF:6205	Design of Instruction	3
PSQF:6214	Design of Learning Environments: Theory, Practice, and Method	3
PSQF:6281	Cognitive Theories of Learning	3
PSQF:6299	MA Project: Portfolio/ Internship/Practicum	3
One of these:		
PSQF:6208	Digital Media and Learning	3
PSQF:6215	Online Instruction: Design and Facilitation	3

Electives

Elective opportunities allow a student to choose an area of interest to develop a multidisciplinary specialization. Students choose 6 s.h. from any of the following courses.

Technology and Media

Course #	Title	Hours
PSQF:4760	Participatory Learning and Media: Creating, Remixing, Making, and Education	3
PSQF:6208	Digital Media and Learning (if not taken as a required course)	3
PSQF:6211	Universal Design and Accessibility for Online Instruction	3
PSQF:6215	Online Instruction: Design and Facilitation (if not taken as a required course)	3
PSQF:6216	Tools and Utilities for Online Teaching	3

Learning in the Disciplines

Course #	Title	Hours
EDTL:4630	Psychology of Music	3
EDTL:5610	Foundations of Music Education Curricula	3
EDTL:6267	Seminar: Current Issues in Art Education	3
EDTL:6315	MA Seminar: English Education	3
EDTL:6483	Multilingual Education and Applied Linguistics	3
EDTL:6570	Foundation of School STEM Curriculum	3
EDTL:6757	Learning in the Science Classroom	3
EDTL:6758	Writing in the Science Classroom	3
EDTL:6833	History and Foundations of Social Studies Education	3

Human Development and Motivation

Course #	Title	Hours
PSQF:4106	Child Development	3
PSQF:4111	Human Motivation	3
PSQF:4133	The Adolescent and Young Adult	3
PSQF:6206	Advanced Child Development	3
PSQF:6213	Advanced Lifespan Development	3

Measurement and Evaluation

Course #	Title	Hours
PSQF:4143	Introduction to Statistical Methods	3
PSQF:4740	Issues in K-12 Assessment	3
PSQF:5165	Introduction to Program and Project Evaluation	3

PSQF:6220	Quantitative Educational Research Methodologies	3
PSQF:6257	Educational Measurement and Evaluation	3
PSQF:6265	Program Evaluation	3

Admission

Applicants must meet the admission requirements of the Graduate College, including the minimum grade-point average; see the Manual of Rules and Regulations on the Graduate College website.

Academic Plans

Sample Plans of Study

Sample plans represent one way to complete a program of study. Actual course selection and sequence will vary and should be discussed with an academic advisor. For additional sample plans, see MyUI.

Psychological and Quantitative Foundations, MA

- Educational Measurement and Statistics Subprogram [p. 3]
- Learning Sciences and Educational Psychology Subprogram [p. 4]

Educational Measurement and Statistics Subprogram

Course	Title	Hours
Academic Career		
Any Semester		

30 s.h. must be graduate level coursework; graduate transfer credits allowed upon approval. More information is included in the General Catalog and on department website.^a

Hours **0**

First Year

Fall

PSQF:4143	Introduction to Statistical Methods ^b	3
PSQF:6257	Educational Measurement and Evaluation	3
Concentration Area course ^c		3
Hours		9

Spring

PSQF:6220	Quantitative Educational Research Methodologies ^b	3
PSQF:6243	Intermediate Statistical Methods	3
PSQF:6255	Construction and Use of Evaluation Instruments	3
Hours		9

Second Year

Fall

PSQF:6246	Design of Experiments	3
Concentration Area course ^c		3
Hours		6

Spring

Concentration Area course ^c		3
--	--	---

Elective course ^d	3
Final Exam ^e	
Hours	6
Total Hours	30

- a Students must complete specific requirements in the University of Iowa Graduate College after program admission. Refer to the Graduate College website and the Manual of Rules and Regulations for more information.
- b May substitute an equivalent course with advisor approval.
- c Students must complete at least 9 s.h. of concentration area courses, including one course from each of the following categories: measurement, statistics, and related. See the General Catalog for list of approved courses.
- d Work with faculty advisor to determine appropriate graduate elective coursework and sequence.
- e Nonthesis students must complete a written and an oral final examination. See the General Catalog and department website for more specifics.

Final Exam ^c	
Hours	4
Total Hours	30

- a Students must complete specific requirements in the University of Iowa Graduate College after program admission. Refer to the Graduate College website and the Manual of Rules and Regulations for more information.
- b Choose two courses from one of the following focus areas: Technology and Media, Learning in the Disciplines, Human Development and Motivation, Measurement and Evaluation; see the General Catalog for lists of approved courses.
- c Completion of all degree requirements and MA project.

Learning Sciences and Educational Psychology Subprogram

Course	Title	Hours
Academic Career		
Any Semester		

30 s.h. must be graduate level coursework; graduate transfer credits allowed upon approval. More information is included in the General Catalog and on department website.^a

Hours	0
--------------	----------

First Year

Fall		
PSQF:6200	Educational Psychology	3
PSQF:6205	Design of Instruction	3
Focus Area elective ^b		3
Hours		9

Spring

PSQF:6208 or PSQF:6215	Digital Media and Learning or Online Instruction: Design and Facilitation	3
PSQF:6281	Cognitive Theories of Learning	3
Focus Area elective ^b		3
Hours		9

Second Year

Fall		
PSQF:6204	Foundations of the Learning Sciences	3
PSQF:6214	Design of Learning Environments: Theory, Practice, and Method	3
PSQF:6299	MA Project: Portfolio/Internship/ Practicum	2
Hours		8

Spring

PSQF:6203	Tools and External Representations in Individual and Social Learning	3
PSQF:6299	MA Project: Portfolio/Internship/ Practicum	1