

# Psychological and Quantitative Foundations, PhD

## Learning Sciences and Educational Psychology

The Doctor of Philosophy program in psychological and quantitative foundations with a learning sciences and educational psychology subprogram requires a minimum of 72 s.h. of graduate credit. Students are expected to maintain a UI cumulative grade-point average of at least 3.00.

The subprogram synthesizes core content and methods of educational psychology with training in the learning sciences. Educational psychology is characterized by empirical research and theory typical of the social and behavioral sciences. The learning sciences reflect an outgrowth of cognitive science. The field offers a multidisciplinary approach to understanding when, how, and why people learn in social and material contexts that include but are not limited to classrooms. The learning sciences blend theories and methods from several disciplines, such as cognitive psychology, anthropology, instructional design, and more. Students will acquire the depth of knowledge and methodological sophistication necessary for original research that contributes to educational psychology and the learning sciences. They will develop and demonstrate their knowledge of learning theory and design principles in the context of research and design projects.

Students work closely with their advisor to develop a plan of study and define a program that matches their goals and interests. Those who begin the program after earning a master's degree or with coursework from another program may be able to waive some of the PhD program requirements.

The program of study includes substantive areas within the learning sciences and educational psychology, including courses in cognition, development, learning theory, and the design of instruction, learning environments, and learning technologies. Other learning opportunities include a design project in the second year, a precandidacy independent research project in which students design and carry out original research, a slate of research courses that meet the College of Education's research requirements, a minor area of a student's choice, and a dissertation in the student's area of interest.

## Research Requirement

The heart of the learning sciences and educational psychology as fields of inquiry is the creation, dissemination, and use of rigorous research to better understand and address educational issues. While many of the required courses address various aspects of the guiding principles set out by the National Research Council, students engage in the following coursework and research-related activities.

Course #	Title	Hours
All of these:		
PSQF:6220	Quantitative Educational Research Methodologies	3
PSQF:6243	Intermediate Statistical Methods	3

PSQF:7331	Qualitative Educational Research Methods	3
One of these:		
PSQF:6246	Design of Experiments	3
PSQF:6270	Generalized Linear Models	3
EDTL:7072	Advanced Methods of Literacy Research: Qualitative Data Analysis and Reporting	3
EDTL:7410	Mixed Methods Research	3

Other advanced research, statistics, or measurement course approved by the advisor

## Research Project

Prior to candidacy and in consultation with a faculty member, students design, implement, and present an original research project. This experience provides the opportunity to conduct a pilot study that will strengthen their thesis in terms of methods, instruments, theoretical grounding, or focus of a research question. Student presentations of their research are open to the public. Students are encouraged to submit their study results for broader dissemination at a local, regional, or national conference.

For students who have received approval to omit this requirement because of an empirical thesis that is acceptable to the learning sciences and educational psychology faculty, an additional research course may be required.

Course #	Title	Hours
PSQF:6230	Research in Educational Psychology	3

## 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:6213	Advanced Lifespan Development	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	2
PSQF:7493	PhD Thesis in Psychological and Quantitative Foundations (minimum requirement)	10

## Core Electives

The selection of core electives depends on a student's area of specialization. Students may mix across specialization areas with advisor approval.

Students choose at least 9 s.h.; they should contact their advisor for additional approved courses.

## Seminar

Topics in this seminar vary; students may repeat the course if content is related to learning sciences or educational psychology. This seminar is a platform for students to develop independent scholarship in their specialization for other degree requirements such as design, research, or other professional development.

Course #	Title	Hours
PSQF:7371	Seminar in Learning Sciences and Educational Psychology	3

## Cognition, Learning, and Development

Course #	Title	Hours
PSQF:6275	Constructivism and Design of Instruction	3
PSY:6440	Developmental Cognitive Neuroscience	3

## Learning in the Disciplines

Course #	Title	Hours
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

## Technology and Media

Course #	Title	Hours
PSQF:6208	Digital Media and Learning	3
PSQF:6211	Universal Design and Accessibility for Online Instruction	3
PSQF:6215	Online Instruction: Design and Facilitation	3
PSQF:6216	Tools and Utilities for Online Teaching	3

## Additional Electives

Students may take up to 6 s.h. of elective coursework. These electives can include any psychological and quantitative foundations courses (prefix PSQF) numbered 5000 or above that are not already required. For example, students can take PSQF:6217 Seminar in College Teaching and/or additional research courses. Up to 3 s.h. from courses that are offered by other departments in the College of Education (CSED, EDTL, EPLS) or from other University of Iowa departments and programs (e.g., Psychological and Brain Sciences, PSY) may count with advisor approval.

## Cognate Area

Students must complete a minimum of 12 s.h. that constitute a coherent content-focused program of coursework outside educational psychology and beyond the courses previously listed. The cognate area may be from a foundation discipline such as mathematics education, educational philosophy, or program evaluation. Courses must be numbered 5000 or above, can span across the College of Education (prefixes PSQF, CSED, EDTL, EPLS) or from other University of Iowa departments and programs (e.g., Psychological and Brain Sciences, prefix PSY), and must be consistent with a plan approved by a student's advisor.

## Comprehensive Examination

The PhD comprehensive examination emphasizes competence and depth in one or more narrowly defined areas of research and theory.

All students are required to complete a traditional comprehensive examination. This examination includes foundational content in educational psychology and learning sciences, the student's cognate area, and a specialty area of the student's choice.

In rare and well-justified circumstances, a student may petition their advisor and examining committee to complete an alternative format (e.g., a review article). Any such request requires approval from the examining committee and the Department of Psychological and Quantitative Foundations.

The examining committee is composed of four faculty members. It does not necessarily include the same faculty members as the dissertation committee.

## 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.

Applicants who do not meet all admission requirements may be granted conditional admission on the basis of other evidence, such as high grade-point average, strong academic preparation, and highly supportive recommendations. Conditional admission is rare.

Following an initial review of the application, applicants may be asked to participate in a virtual interview with one or more faculty members. No preparation is required for this interview, it provides faculty members an opportunity to better understand the applicant's graduate school goals and provides applicants with an opportunity to ask questions about the program.

Applicants who accept admission or financial aid and do not relinquish either one on or before April 15 may not solicit or accept another offer. Offers made by the program after April 15 include the provision that the offer is void if the applicant has accepted and continues to hold a previous offer from another program listed in the American Psychological Association publication *Graduate Study in Psychology and Associated Fields*. This policy is consistent with standards set by the association's Board of Educational Affairs.