Teaching and Learning, Ph.D.

Ph.D. Required Research Courses

Students admitted to doctoral programs must complete the program's research requirements.

Required Core Courses

All Ph.D. students in the Department of Teaching and Learning must complete one or both of the following core courses, depending upon program requirements.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDTL:7004</td>
<td>Schooling in the United States</td>
<td>3</td>
</tr>
<tr>
<td>EDTL:7033</td>
<td>Seminar on Teacher Education</td>
<td>3</td>
</tr>
</tbody>
</table>

Cognate Areas

The following list of cognates offered by program areas in the department is not exhaustive; students may select cognates from this list, or they may customize their own cognate areas in consultation with their advisors.

Multilingual Education

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDTL:6483</td>
<td>Multilingual Education and Applied Linguistics</td>
<td>3</td>
</tr>
<tr>
<td>Two of these, chosen in consultation with faculty:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EDTL:6400</td>
<td>Fundamentals of Second Language Assessment</td>
<td>3</td>
</tr>
<tr>
<td>EDTL:6402</td>
<td>Second Language Program Management</td>
<td>3</td>
</tr>
<tr>
<td>EDTL:6403</td>
<td>Language Policy and Planning</td>
<td>3</td>
</tr>
<tr>
<td>EDTL:6409</td>
<td>Cultural Curriculum</td>
<td>3</td>
</tr>
<tr>
<td>EDTL:6480</td>
<td>Issues in Foreign Language Education</td>
<td>3</td>
</tr>
<tr>
<td>EDTL:6484</td>
<td>Reading in a Second Language</td>
<td>3</td>
</tr>
<tr>
<td>EDTL:6497</td>
<td>Principles of Course Design for Second Language Instruction</td>
<td>3</td>
</tr>
</tbody>
</table>

Gifted Education

Administrative Strand

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Two of these, chosen in consultation with faculty:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EPLS:4110</td>
<td>Administration and Policy in Gifted Education</td>
<td>2</td>
</tr>
<tr>
<td>EPLS:4111</td>
<td>Evaluation of Gifted Programs</td>
<td>1</td>
</tr>
<tr>
<td>EPLS:4113</td>
<td>Staff Development for Gifted Programs</td>
<td>1</td>
</tr>
</tbody>
</table>

Programming Strand

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Both of these:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EDTL:4066</td>
<td>Curriculum Concepts in Gifted Education</td>
<td>3</td>
</tr>
<tr>
<td>EDTL:4199</td>
<td>Program Models in Gifted Education</td>
<td>3</td>
</tr>
</tbody>
</table>

Psychology Strand

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Two of these, chosen in consultation with faculty:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RCE:4120</td>
<td>Psychology of Giftedness</td>
<td>3</td>
</tr>
<tr>
<td>RCE:4121</td>
<td>Identification of Students for Gifted Programs</td>
<td>3</td>
</tr>
<tr>
<td>RCE:4137</td>
<td>Introduction to Educating Gifted Students</td>
<td>3</td>
</tr>
<tr>
<td>RCE:5226</td>
<td>Assessment of Giftedness</td>
<td>3</td>
</tr>
<tr>
<td>RCE:5237</td>
<td>Seminar in Gifted Education</td>
<td>3</td>
</tr>
</tbody>
</table>

Language, Literacy, and Culture

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Both of these:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EDTL:7015</td>
<td>Ph.D. Seminar in Language, Literacy, and Culture (when topic is introduction to language, literary, and culture)</td>
<td>arr.</td>
</tr>
<tr>
<td>EDTL:7015</td>
<td>Ph.D. Seminar in Language, Literacy, and Culture (topic chosen in consultation with advisor)</td>
<td>arr.</td>
</tr>
</tbody>
</table>

General Emphasis

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>This course:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EDTL:7008</td>
<td>Seminar: Research and Current Issues (topic chosen in consultation with advisor)</td>
<td>arr.</td>
</tr>
</tbody>
</table>

Elementary Emphasis

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>One of these:</td>
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<td></td>
</tr>
<tr>
<td>EDTL:6104</td>
<td>Literature for Children II</td>
<td>3</td>
</tr>
<tr>
<td>EDTL:6164</td>
<td>Early Literacy Development and Instruction</td>
<td>2-3</td>
</tr>
<tr>
<td>EDTL:6165</td>
<td>Reading and Writing Across Intermediate Grades</td>
<td>3</td>
</tr>
</tbody>
</table>

Secondary Emphasis

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>One of these:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EDTL:3393</td>
<td>Reading and Teaching Adolescent Literature</td>
<td>3</td>
</tr>
<tr>
<td>EDTL:6315</td>
<td>M.A. Seminar: English Education</td>
<td>arr.</td>
</tr>
</tbody>
</table>
### Mathematics Education

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDTL:5535</td>
<td>Current Issues in Mathematics Education</td>
<td>1-3</td>
</tr>
<tr>
<td>EDTL:7535</td>
<td>Seminar: Research in Mathematics Education</td>
<td>arr.</td>
</tr>
</tbody>
</table>

Two of these:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDTL:6531</td>
<td>Technology in School Mathematics</td>
<td>2-3</td>
</tr>
<tr>
<td>EDTL:6534</td>
<td>Foundations of Mathematics Education</td>
<td>2-3</td>
</tr>
<tr>
<td>EDTL:6536</td>
<td>Teaching of Geometry</td>
<td>2-3</td>
</tr>
<tr>
<td>EDTL:6539</td>
<td>Teaching of Algebra</td>
<td>2-3</td>
</tr>
</tbody>
</table>

### Science Education

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDTL:6757</td>
<td>Learning in the Science Classroom</td>
<td>2-3</td>
</tr>
<tr>
<td>EDTL:6759</td>
<td>Advanced Pedagogy</td>
<td>3</td>
</tr>
</tbody>
</table>

### Special Education

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDTL:7945</td>
<td>Current Issues and Trends in Learning Disabilities</td>
<td>3</td>
</tr>
<tr>
<td>EDTL:7948</td>
<td>Contemporary Research in Behavioral Disorders</td>
<td>3</td>
</tr>
<tr>
<td>EDTL:7953</td>
<td>Seminar: Single Subject Design Research</td>
<td>3</td>
</tr>
</tbody>
</table>

### Literacy, Culture, and Language Education

The Doctor of Philosophy in teaching and learning with a literacy, culture, and language education (LCLE) subprogram requires a minimum of 73 s.h. of graduate credit. All students must maintain a g.p.a. of at least 3.00 while enrolled in the program. Students may be able to use some coursework completed for their master's degree toward the Ph.D.; most courses for the Ph.D. should be numbered 5000 or above.

This interdisciplinary program brings together scholarly traditions and contemporary theory in multilingual education and applied linguistics, literacy and cultural studies, and social studies education. The program provides students with the necessary content area knowledge and research skills for independent research, program administration, and varied leadership positions in LCLE education. In consultation with their advisor, students create a program of study that fits their interests and professional aspirations.

The Ph.D. in teaching and learning with a literacy, culture, and language education subprogram requires the following coursework.

### Required Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDTL:6015</td>
<td>Ph.D. Seminar: Literacy, Culture, and Language Education</td>
<td>3</td>
</tr>
</tbody>
</table>

One of these:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDTL:7004</td>
<td>Schooling in the United States</td>
<td>3</td>
</tr>
<tr>
<td>EDTL:7033</td>
<td>Seminar on Teacher Education</td>
<td>3</td>
</tr>
</tbody>
</table>

This course:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDTL:7093</td>
<td>Research Project</td>
<td>3</td>
</tr>
</tbody>
</table>

### Disciplinary and Interdisciplinary Foundations

Students choose a disciplinary area in literacy education, multilingual education, or social studies education for their three foundational courses. They then select one or both of the other areas for their interdisciplinary foundation coursework.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDTL:7070</td>
<td>Qualitative Research Methods in Teaching and Learning</td>
<td>3</td>
</tr>
<tr>
<td>A LCLE research methods course (consult advisor)</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>PSQF:6242</td>
<td>Selected Applications of Statistics</td>
<td>3</td>
</tr>
<tr>
<td>PSQF:6243</td>
<td>Intermediate Statistical Methods</td>
<td>4</td>
</tr>
</tbody>
</table>

And:

Two additional advanced research methods courses in quantitative, qualitative, or mixed methods in consultation with their advisor

### Research Methods

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDTL:7045</td>
<td>Research Project</td>
<td>3</td>
</tr>
</tbody>
</table>

### Electives

Students choose 24 s.h. of elective coursework in consultation with their advisor. Courses may be taken in any department and can be partially or completely unified as a cognate area of study.

### Comprehensive Examination

Upon completion of their coursework, students take their comprehensive exam. This is an opportunity for students to show a comprehensive understanding of the scholarship in the field. Successful completion of the exam identifies candidates who are ready for dissertation work.

### Dissertation

After students pass their comprehensive exam, they consult with their advisor to choose a dissertation committee with at least five faculty members who approve the dissertation
Students must complete a minimum of 24 s.h. of graduate work in the Departments of Computer Science, Mathematics, and Statistics and Actuarial Science, as approved by their advisor. Electives are encouraged in the pure mathematics and applied mathematics sequences.

Students who completed their mathematics requirement at another institution must complete at least 6 s.h. of additional coursework in mathematics at the University of Iowa, chosen with advisor approval. They also must complete at least six courses in mathematics education, including EDTL:5535 Current Issues in Mathematics Education and EDTL:7535 Seminar: Research in Mathematics Education.

**Additional Requirements**

Students concentrate in two additional comprehensive examination areas in either the mathematical sciences or education. A minimum of three courses usually are required for a comprehensive examination area, but candidates should consult with faculty members in the areas selected to determine which courses they should take in order to adequately prepare for the examinations.

Students must complete a total of at least 36 s.h. in College of Education courses; this includes the coursework listed above. They must complete an approved cognate area; a partial list of potential cognate areas is available from the mathematics education program.

**Comprehensive Examination**

Students take three written comprehensive examinations, one in mathematics education and two in other fields of education or mathematics; an oral examination follows the written examinations.

**Dissertation**

Candidates complete a dissertation on a research problem in mathematics education. A prospectus of the proposed research must be presented to the dissertation committee before candidates undertake the study. Upon completion of the dissertation, candidates defend the dissertation in an oral examination. Students must earn dissertation credit in the following course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDTL:7493</td>
<td>Ph.D. Thesis</td>
<td>10</td>
</tr>
</tbody>
</table>

**Admission**

Applicants must meet the admission requirements of the Graduate College. They must have earned a bachelor’s degree with an undergraduate g.p.a. of at least 3.00 on a 4.00 scale and earned a master’s degree or have completed significant graduate coursework. It is recommended applicants have at least two years of teaching experience in a related field within or outside of the United States.

Application materials should include a statement of purpose, official transcripts from all institutions attended, a sample of academic writing, three current letters of recommendation, and the official report of Graduate Record Exam (GRE) General Test scores (however, the GRE requirement has been suspended for the 2020-21 admissions cycle). International applicants whose first language is not English, and do not meet the waiver requirements, must submit their Test of English as a Foreign Language (TOEFL) scores.

**Science Education**

The Doctor of Philosophy in teaching and learning with a science education subprogram requires a minimum of 85 s.h. of graduate credit. Students must maintain a g.p.a. of at least 3.00 while enrolled in the program.

The program is designed for individuals who aspire to positions as college and university science educators; major supervisors in national, state, and local systems; teachers in small liberal arts colleges; instructors of general education science courses at major universities; research directors in
science education; and professionals in medical and/or allied health education.

The Ph.D. in teaching and learning with a science education subprogram requires the following coursework.

**Required Courses**

Students in science education must complete a minimum of 15 s.h. in qualitative and quantitative coursework, with at least 9 s.h. from one area (qualitative or quantitative) and at least 6 s.h. from the other. Students select from courses listed under Ph.D. Research Requirements on the College of Education website. Course selections must be consistent with other requirements for the degree.

**Core Courses**

All doctoral students in science education must complete one or both of the following core courses. Students may not substitute other courses for these.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDTL:7004</td>
<td>Schooling in the United States</td>
<td>3</td>
</tr>
<tr>
<td>EDTL:7033</td>
<td>Seminar on Teacher Education</td>
<td>3</td>
</tr>
</tbody>
</table>

In addition, all doctoral students in the Department of Teaching and Learning must complete an approved cognate area; see “Cognate Areas” under Ph.D. Required Research Courses [p. 1] in this section of the Catalog.

**Science Education**

All of these (15 s.h.):

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDTL:6757</td>
<td>Learning in the Science Classroom</td>
<td>3</td>
</tr>
<tr>
<td>EDTL:6758</td>
<td>Writing in the Science Classroom</td>
<td>3</td>
</tr>
<tr>
<td>EDTL:6759</td>
<td>Advanced Pedagogy</td>
<td>3</td>
</tr>
</tbody>
</table>

Graduate-level science education courses chosen in consultation with advisor 6

**Education**

Three courses chosen in consultation with advisor 9

**Research in Science Education**

Both of these (21 s.h.):

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDTL:7750</td>
<td>Seminar: Science Education (taken three times for 1 s.h. each)</td>
<td>3</td>
</tr>
<tr>
<td>EDTL:7755</td>
<td>Independent Study in Science Education Research (taken six times for 3 s.h. each)</td>
<td>18</td>
</tr>
</tbody>
</table>

**Science Area**

Students complete a family of courses (total of 12 s.h.) in a major science area.

**Dissertation**

Students earn 10 s.h. of thesis credit in EDTL:7493 Ph.D. Thesis.

**Admission**

Applicants must meet the admission requirements of the Graduate College. They should have completed a bachelor’s degree in a science area (or combination of science areas), in science education, or in elementary education with a science emphasis; have a cumulative g.p.a. of at least 3.00 on undergraduate and graduate work; and have a combined score of at least 300 on the verbal and quantitative portions of the Graduate Record Exam (GRE) General Test (however, the GRE requirement has been suspended for the 2020-21 admissions cycle). Applicants must submit three letters of recommendation; a statement of purpose describing their reasons for pursuing graduate work and their goals for graduate study; and an example of their academic writing.

**Special Education**

The Doctor of Philosophy in teaching and learning with a special education subprogram requires a minimum of 90 s.h. of graduate credit. Students must maintain a g.p.a. of at least 3.00 while enrolled in the program.

The program prepares students for teaching and research positions in higher education, and for curriculum, supervisory, and research positions in state and local education agencies. The program permits students to study and practice extensively in their special education interest area and in an interest area outside of special education.

The Ph.D. curriculum includes an emphasis on research skills, all facets of special education, an approved cognate area, and at least one specialization area.

**Required Courses**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>This course:</td>
<td>Introduction to Educational Research</td>
<td>3</td>
</tr>
</tbody>
</table>

**Quantitative Research Requirements**

Both of these:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSQF:4143</td>
<td>Introduction to Statistical Methods</td>
<td>3</td>
</tr>
<tr>
<td>PSQF:6243</td>
<td>Intermediate Statistical Methods</td>
<td>4</td>
</tr>
</tbody>
</table>

Two of these:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EPLS:6206</td>
<td>Research Process and Design</td>
<td>3</td>
</tr>
<tr>
<td>PSQF:6220</td>
<td>Quantitative Educational Research Methodologies</td>
<td>3</td>
</tr>
<tr>
<td>PSQF:6244</td>
<td>Correlation and Regression</td>
<td>4</td>
</tr>
<tr>
<td>PSQF:6246</td>
<td>Design of Experiments</td>
<td>4</td>
</tr>
<tr>
<td>PSQF:6247</td>
<td>Nonparametric Statistical Methods</td>
<td>3</td>
</tr>
<tr>
<td>PSQF:6249</td>
<td>Factor Analysis and Structural Equation Models</td>
<td>3</td>
</tr>
<tr>
<td>PSQF:6252</td>
<td>Introduction to Multivariate Statistical Methods</td>
<td>3</td>
</tr>
</tbody>
</table>
### Qualitative Research Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDTL:7953</td>
<td>Seminar: Single Subject Design Research</td>
<td>3</td>
</tr>
<tr>
<td>One of these:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EDTL:7410</td>
<td>Mixed Methods Research</td>
<td>3</td>
</tr>
<tr>
<td>EPLS:7373</td>
<td>Qualitative Research Design and Methods</td>
<td>3</td>
</tr>
</tbody>
</table>

### Core Course

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>One of these:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EDTL:7004</td>
<td>Schooling in the United States</td>
<td>3</td>
</tr>
<tr>
<td>EDTL:7033</td>
<td>Seminar on Teacher Education</td>
<td>3</td>
</tr>
</tbody>
</table>

### Proseminar Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>All of these:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EDTL:7943</td>
<td>Proseminar: Issues, Trends, and Research in Special Education</td>
<td>3</td>
</tr>
<tr>
<td>EDTL:7944</td>
<td>Proseminar: Issues, Trends, and Research in Special Education II</td>
<td>3</td>
</tr>
<tr>
<td>EPLS:6236</td>
<td>Administration of Students with Special Needs</td>
<td>3</td>
</tr>
</tbody>
</table>

### Seminar Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Both of these:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EDTL:7945</td>
<td>Current Issues and Trends in Learning Disabilities (Both of these:)</td>
<td>3</td>
</tr>
<tr>
<td>EDTL:7948</td>
<td>Contemporary Research in Behavioral Disorders</td>
<td>3</td>
</tr>
</tbody>
</table>

### Practicum Requirement

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>One of these (3 s.h.):</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EDTL:7380</td>
<td>Practicum in College Teaching</td>
<td>arr.</td>
</tr>
<tr>
<td>EDTL:7092</td>
<td>Field Service Project</td>
<td>arr.</td>
</tr>
</tbody>
</table>

### Cognate

Students also must complete a cognate in a discipline outside of special education (minimum of 9 s.h.).

### Comprehensive Examination and Dissertation

In addition, students are required to write the comprehensive examination and complete a doctoral dissertation, earning a minimum of 10 s.h. in the following course.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDTL:7493</td>
<td>Ph.D. Thesis</td>
<td>10</td>
</tr>
</tbody>
</table>