

CURRICULUM AND INSTRUCTION

Graduate Program Head	Scott McDonald
Program Code	CI
Campus(es)	University Park (Ph.D., M.S., M.Ed.) World Campus (M.Ed.)
Degrees Conferred	Doctor of Philosophy (Ph.D.) Master of Science (M.S.) Master of Education (M.Ed.) Dual-Title Ph.D., M.S., or M.Ed. in Curriculum and Instruction and Comparative and International Education Dual-Title M.S. or Ph.D. in Curriculum and Instruction and Women's, Gender, and Sexuality Studies Integrated B.S. in Biology and M.Ed. in Curriculum and Instruction Integrated B.S. in Chemistry and M.Ed. in Curriculum and Instruction Integrated B.S. in Mathematics and M.Ed. in Curriculum and Instruction Integrated B.S. in Special Education and M.Ed. in Curriculum and Instruction
The Graduate Faculty	View (https://secure.gradsch.psu.edu/gpms/?searchType=fac&prog=CI)

This program provides advanced professional preparation in the special areas of:

- Bilingual education
- Curriculum and supervision
- Early childhood education
- Elementary education
- Instructional leadership
- Language and literacy education
- Science education
- Social studies education
- Mathematics education

Admission Requirements

Applicants apply for admission to the program via the Graduate School application for admission (<https://gradschool.psu.edu/graduate-admissions/how-to-apply/>). Requirements listed here are in addition to Graduate Council policies listed under GCAC-300 Admissions Policies (<https://gradschool.psu.edu/graduate-education-policies/>).

GRE scores will not be considered as part of admission decisions.

Students with appropriate course and professional backgrounds will be considered for admission. For admission to the professional degree programs leading to the M.Ed., teaching or equivalent experience and at least 18 credits in education are recommended.

The language of instruction at Penn State is English. English proficiency test scores (TOEFL/IELTS) may be required for international applicants. See GCAC-305 Admission Requirements for International Students for more information.

Degree Requirements

Master of Education (M.Ed.)

Requirements listed here are in addition to Graduate Council policies listed under GCAC-700 Professional Degree Policies (<https://gradschool.psu.edu/graduate-education-policies/>).

M.Ed. students are expected to complete CI 590 as well as a core of one course in each of three areas:

Code	Title	Credits
Required Courses		
CI 590	Colloquium ¹	1
Select one course in each of the following three areas:		9
<i>Learning/Foundation</i>		
EDPSY 421	Learning Processes in Relation to Educational Practices	
EDPSY 526	The Psychology of Reading	
SCIED 552	Science Teaching and Learning	
CI 560	Theories of Childhood	
<i>Research</i>		
CI 400	Introduction to Research Literature	
CI 501	Teaching as Inquiry	
SCIED 558	Research Problems in Science Teaching	
STAT 500	Applied Statistics	
EDPSY 400	Introduction to Statistics in Educational Research	
<i>Curriculum</i>		
CI 550	Overview of Contemporary School Curriculum	
C-S 551	Curriculum Design: Theory and Practice	
SCIED 550	Science Education Curriculum	

¹ Through CI 590, students complete Scholarship and Academic Research Integrity (SARI) training.

M.Ed. candidates submit a professional master's culminating paper.

Master of Science (M.S.)

Requirements listed here are in addition to Graduate Council policies listed under GCAC-600 Research Degree Policies. (<https://gradschool.psu.edu/graduate-education-policies/>)

M.S. students are expected to complete CI 590 as well as a core of one course in each of three areas:

Code	Title	Credits
Required Courses		
CI 590	Colloquium ¹	1
Select one course in each of the following three areas:		9
<i>Learning/Foundation</i>		
EDPSY 421	Learning Processes in Relation to Educational Practices	
EDPSY 526	The Psychology of Reading	
SCIED 552	Science Teaching and Learning	

CI 560	Theories of Childhood
<i>Research</i>	
CI 400	Introduction to Research Literature
CI 501	Teaching as Inquiry
SCIED 558	Research Problems in Science Teaching
STAT 500	Applied Statistics
EDPSY 400	Introduction to Statistics in Educational Research
<i>Curriculum</i>	
CI 550	Overview of Contemporary School Curriculum
C-S 551	Curriculum Design: Theory and Practice
SCIED 550	Science Education Curriculum

¹ Through CI 590, students complete Scholarship and Academic Research Integrity (SARI) training.

M.S. candidates are required to enroll in six credits of thesis research (CI 600 or CI 610) as they plan, conduct, and report a master's research thesis.

Doctor of Philosophy (Ph.D.)

Requirements listed here are in addition to Graduate Council policies listed under GCAC-600 Research Degree Policies. (<https://gradschool.psu.edu/graduate-education-policies/>)

The completion of a core of competencies in curriculum, instruction, and supervision with at least one course in each area is expected of Ph.D. candidates. Additional course requirements include courses in an emphasis area, in quantitative or qualitative research methods, and in supporting courses that extend or complement the emphasis area. Emphasis areas include:

- Curriculum and Supervision
- Early Childhood Education
- Language, Culture, and Society
- English Language Arts Education
- Second Language Education
- Social Studies Education
- Mathematics Education
- Science Education

All students complete Scholarship and Academic Research Integrity (SARI) training through CI 590. In addition, each student completes all Degree Requirements of the Ph.D. and produces and defends a doctoral dissertation.

Dual-Titles

Dual-title Ph.D., M.S., or M.Ed. in Curriculum and Instruction and Comparative and International Education

Requirements listed here are in addition to requirements listed in GCAC-208 Dual-Title Graduate Degree Programs (<https://gradschool.psu.edu/graduate-education-policies/gcac/gcac-200/gcac-208-dual-titles/>).

Admissions Requirements

Students must apply and be admitted to the graduate program in Curriculum and Instruction and The Graduate School before they can apply for admission to the dual-title degree program. After admission to their primary program, students must apply for admission to and

meet the admissions requirements of the Comparative and International Education dual-title program. Refer to the Admission Requirements section of the Comparative and International Education Bulletin page (<http://bulletins.psu.edu/graduate/programs/majors/comparative-international-education/>). Doctoral students must be admitted into the dual-title degree program in Comparative and International Education prior to taking the qualifying examination in their primary graduate program.

Degree Requirements

To qualify for the dual-title degree, students must satisfy the degree requirements for the degree they are enrolled in Curriculum and Instruction, listed in the Degree Requirements section. In addition, students must complete the degree requirements for the dual-title in Comparative and International Education, listed on the Comparative and International Education Bulletin page (<http://bulletins.psu.edu/graduate/programs/majors/comparative-international-education/>).

The qualifying examination committee for the dual-title Ph.D. degree will be composed of Graduate Faculty from Curriculum and Instruction and must include at least one Graduate Faculty member from the Comparative and International Education program. Faculty members who hold appointments in both programs' Graduate Faculty may serve in a combined role. There will be a single qualifying examination, containing elements of both Curriculum and Instruction and Comparative and International Education. Dual-title graduate degree students may require an additional semester to fulfill requirements for both areas of study and, therefore, the qualifying examination may be delayed one semester beyond the normal period allowable.

In addition to the general Graduate Council requirements for Ph.D. committees (<http://gradschool.psu.edu/graduate-education-policies/gcac/gcac-600/phd-dissertation-committee-formation/>), the Ph.D. committee of a Curriculum and Instruction and Comparative and International Education dual-title Ph.D. student must include at least one member of the Comparative and International Education Graduate Faculty. Faculty members who hold appointments in both programs' Graduate Faculty may serve in a combined role. If the chair of the Ph.D. committee is not also a member of the Graduate Faculty in Comparative and International Education, the member of the committee representing Comparative and International Education must be appointed as co-chair. The Comparative and International Education representative on the student's Ph.D. committee will develop questions for and participate in the evaluation of the comprehensive examination.

Students in the dual-title program are required to write and orally defend a dissertation on a topic that is approved in advance by their Ph.D. committee and reflects their original research and education in Curriculum and Instruction and Comparative and International Education. Upon completion of the doctoral dissertation, the candidate must pass a final oral examination (the dissertation defense) to earn the Ph.D. degree. The dissertation must be accepted by the Ph.D. committee, the head of the graduate program, and the Graduate School.

Dual-title M.S. or Ph.D. in Curriculum and Instruction and Women's, Gender, and Sexuality Studies

Requirements listed here are in addition to requirements listed in GCAC-208 Dual-Title Graduate Degree Programs (<https://gradschool.psu.edu/graduate-education-policies/gcac/gcac-200/gcac-208-dual-titles/>).

Admissions Requirements

Students must apply and be admitted to the graduate program in Curriculum and Instruction and The Graduate School before they can apply for admission to the dual-title degree program. After admission to their primary program, students must apply for admission to and meet the admissions requirements of the Women's, Gender, and Sexuality Studies dual-title program. Refer to the Admission Requirements section of the Women's, Gender, and Sexuality Studies Bulletin page (<https://bulletins.psu.edu/graduate/programs/majors/womens-gender-sexuality-studies/>). Doctoral students must be admitted into the dual-title degree program in Women's, Gender, and Sexuality Studies prior to taking the qualifying examination in their primary graduate program.

Degree Requirements

To qualify for the dual-title degree, students must satisfy the degree requirements for the degree they are enrolled in Curriculum and Instruction, listed in the Degree Requirements section. In addition, students must complete the degree requirements for the dual-title in Women's, Gender, and Sexuality Studies, listed on the Women's, Gender, and Sexuality Studies Bulletin page (<https://bulletins.psu.edu/graduate/programs/majors/womens-gender-sexuality-studies/>).

The qualifying examination committee for the dual-title Ph.D. degree will be composed of Graduate Faculty from Curriculum and Instruction and must include at least one Graduate Faculty member from the Women's, Gender, and Sexuality Studies program. Faculty members who hold appointments in both programs' Graduate Faculty may serve in a combined role. There will be a single qualifying examination, containing elements of both Curriculum and Instruction and Women's, Gender, and Sexuality Studies. Dual-title graduate degree students may require an additional semester to fulfill requirements for both areas of study and, therefore, the qualifying examination may be delayed one semester beyond the normal period allowable.

In addition to the general Graduate Council requirements for Ph.D. committees (<http://gradschool.psu.edu/graduate-education-policies/gcac/gcac-600/phd-dissertation-committee-formation/>), the Ph.D. committee of a Curriculum and Instruction and Women's, Gender, and Sexuality Studies dual-title Ph.D. student must include at least two members of the Women's, Gender, and Sexuality Studies Graduate Faculty. Faculty members who hold appointments in both programs' Graduate Faculty may serve in a combined role. If the chair of the Ph.D. committee is not also a member of the Graduate Faculty in Women's, Gender, and Sexuality Studies, the member of the committee representing Women's, Gender, and Sexuality Studies must be appointed as co-chair. The Women's, Gender, and Sexuality Studies representative on the student's Ph.D. committee will develop questions for and participate in the evaluation of the comprehensive examination.

Students in the dual-title program are required to write and orally defend a dissertation on a topic that is approved in advance by their Ph.D. committee and reflects their original research and education in Curriculum and Instruction and Women's, Gender, and Sexuality Studies. Upon completion of the doctoral dissertation, the candidate must pass a final oral examination (the dissertation defense) to earn the Ph.D. degree. The dissertation must be accepted by the Ph.D. committee, the head of the graduate program, and the Graduate School.

Integrated Undergrad-Grad Programs

Integrated B.S. in Biology and M.Ed. in Curriculum and Instruction

This Integrated Undergraduate/Graduate (IUG) degree program combines the [Undergrad Degree in Major] with the [Grad Degree in Major] offered at the following campuses:

Undergraduate Degree

- Abington
- Altoona
- Beaver
- Berks
- Brandywine
- Harrisburg
- Schuylkill
- Scranton
- York

Graduate Degree

- University Park
- World Campus

The graduate portion of this IUG is currently offered as face-to-face residential instruction. While the undergraduate curriculum for this IUG may be completed at multiple campuses, the ease and feasibility of completing the integrated program may be heavily dependent upon the location of the graduate instruction. Please discuss the feasibility of completing the IUG with a representative for the graduate program before beginning the application process.

Requirements listed here are in addition to requirements listed in GCAC-210 Integrated Undergraduate-Graduate (IUG) Degree Programs (<https://gradschool.psu.edu/graduate-education-policies/gcac/gcac-200/gcac-210-integrated-undergraduate-graduate-degree-programs/>).

This Integrated Undergraduate/Graduate (IUG) degree program combines the Bachelor of Science in Biology with the Master of Education in Curriculum and Instruction, Science Education emphasis. The program is designed to be completed in five years. The program enables highly qualified and motivated students to delve deeply into a scientific content area and to pursue graduate level preparation in the theory and practice of teaching. Most students in this option intend to seek Pennsylvania teacher certification, and a semester of student teaching comprises part of their final year of studies. The IUG may also be suitable for a student who does not need to become certified, because they intend to teach in a private secondary school or a non-formal educational setting; in such cases, the second graduate semester will be a program of studies determined through consultation with the graduate advisor and customized for the student's specific needs.

Applicants apply for admission to the program via the Graduate School application for admission (<https://gradschool.psu.edu/graduate-admissions/how-to-apply/>). Requirements listed here are in addition to Graduate Council policies listed under GCAC-300 Admissions Policies (<https://gradschool.psu.edu/graduate-education-policies/>).

Students must apply to and meet admission requirements of the Graduate School (<http://www.gradschool.psu.edu/prospective-students/how-to-apply/>), as well as the graduate program in which they intend to receive their master's degree. Before applying to the Graduate School, students must have completed entrance to their undergraduate major and have completed no less than 60 credits. Students must be admitted no later than the end of the second week of the semester preceding the semester of expected conferral of the undergraduate degree. Transfer students must have completed at least 15 credits at Penn State to enroll in an IUG. Application materials to be submitted include:

- a current undergraduate transcript,
- statement of purpose,
- draft plan of study,
- two letters of recommendation,
- and concurrent submission of an application for master's study to the graduate program in Curriculum and Instruction, Science Education emphasis area.

In addition, a minimum GPA of 3.5 in Science and Education courses is required. Admission will be based on a recommendation by the Science Education Program Coordinator in consultation with the Associate Chair for Undergraduate Education in the Biology Department. Additional details about the graduate application procedure can be found in the Admission Requirements section. Applications must be submitted via the Graduate School.

IUG students fulfill all degree requirements for a B.S. in Biology in the Eberly College of Science, listed in the Undergraduate Bulletin (<http://bulletins.psu.edu/undergraduate/>). If a student chooses to leave the program without completing M.Ed. requirements, they may still receive the relevant B.S. degree, after all B.S. requirements are completed.

For the M.Ed. degree, students must earn at least 30 credits at the 400/500 level, at least 18 of them at the 500 level. Degree requirements for the M.Ed. degree are listed on the Degree Requirements tab. One graduate semester is usually devoted to full time student teaching. Additional graduate course work is completed in a second semester. Courses required for the M.Ed. degree include a course in learning theory (e.g., SCIED 552), a course in research methods (e.g., SCIED 558), a course in curriculum (e.g., SCIED 550), and a course in research ethics (CI 590).

Students pursuing teacher certification (the usual option) additionally complete a 500-level EDTHP course, CI 595, and CI 496. SCIED 558, CI 496, and CI 595 comprise the student-teaching semester course load. Students who are not pursuing teacher certification substitute 15 credits of other 400- or 500-level coursework for the student teaching semester; those courses are selected in consultation with their advisors, in order to address the students' specific career aspirations.

The following courses may be double-counted toward both the B.S. and the M.Ed. degrees, up to a limit of 12 credits: EDTHP 500-level courses, SCIED 411, SCIED 412, and SCIED 500-level courses. Note that at least 50% of credits proposed for double-counting must be at the 500 level. Independent study courses and credits associated with the culminating experience for the graduate degree cannot be double-counted. In addition

to the double-counted courses taken during the first four years, the timeline for the M.Ed. is one year that includes these specified courses. The program is designed to be finished in five years.

There are a number of other requirements for Pennsylvania teacher certification, including state-required tests and clearances, as well as course work that can be completed at either the undergraduate or graduate level. Some courses, not enumerated above, that are usually required to satisfy teacher certification requirements include CI 280, SPLED 400, and CI 495C. Please note that changes in Pennsylvania certification requirements are common; students should check the Certification FAQ page at the Penn State Science Education website (<https://ed.psu.edu/academics/departments/department-curriculum-and-instruction/program-areas/faq-science-education/>) for updates and clarification about the specific requirements that affect them, based on their admission date to the IUG program option. Note also that students in the IUG program option are not required to complete all Penn State teacher certification requirements in order to receive their B.S. and M.Ed. degrees, as long as they have completed the requirements for those degrees, as described in the Undergraduate and Graduate Bulletins. For example, a student who has completed all degree requirements but has not yet received a score for the Pennsylvania-required Biology content exam may be awarded both of the earned degrees.

Students must sequence their courses so all undergraduate degree requirements are fulfilled before taking courses to count solely towards the graduate degree. Students are expected to complete the undergraduate degree requirements within the typical time to degree for the undergraduate major. In the semester in which the undergraduate degree requirements will be completed, IUG students must apply to graduate, and the undergraduate degree should be conferred at the next appropriate Commencement.

Integrated B.S. in Chemistry and M.Ed. in Curriculum and Instruction

This Integrated Undergraduate/Graduate (IUG) degree program combines the B.S. in Chemistry with the M.Ed. in Curriculum and Instruction offered at the following campuses:

Undergraduate Degree

- University Park

Graduate Degree

- University Park

Requirements listed here are in addition to requirements listed in GCAC-210 Integrated Undergraduate-Graduate (IUG) Degree Programs (<https://gradschool.psu.edu/graduate-education-policies/gcac/gcac-200/gcac-210-integrated-undergraduate-graduate-degree-programs/>).

These Integrated Undergraduate/Graduate (IUG) degree programs combine the Bachelor of Science in Chemistry with the Master of Education in Curriculum and Instruction, Science Education emphasis. The programs are designed to be completed in five years. The programs enable highly qualified and motivated students to delve deeply into a scientific content area and to pursue graduate level preparation in the theory and practice of teaching.

Applicants apply for admission to the program via the Graduate School application for admission (<https://gradschool.psu.edu/graduate-admissions/how-to-apply/>). Requirements listed here are in addition to Graduate Council policies listed under GCAC-300 Admissions Policies (<https://gradschool.psu.edu/graduate-education-policies/>).

Students must apply to and meet admission requirements of the Graduate School (<http://www.gradschool.psu.edu/prospective-students/how-to-apply/>), as well as the graduate program in which they intend to receive their master's degree. Before applying to the Graduate School, students must have completed entrance to their undergraduate major and have completed no less than 60 credits. Students must be admitted no later than the end of the second week of the semester preceding the semester of expected conferral of the undergraduate degree. Transfer students must have completed at least 15 credits at Penn State to enroll in an IUG. Application materials to be submitted include:

- an undergraduate transcript,
- statement of purpose,
- draft plan of study,
- two letters of recommendation,
- and concurrent submission of an application for master's study to the graduate program in Curriculum and Instruction, Science Education emphasis area.

In addition, a minimum GPA of 3.5 in Science and Education courses is required. Admission will be based on a recommendation by the Science Education Program Coordinator in consultation with the Associate Chair for Undergraduate Education in the Chemistry Department. Additional details about the graduate application procedure can be found in the Admissions Requirements section. Applications must be submitted via the Graduate School.

IUG students fulfill all degree requirements for a B.S. in Chemistry in the Eberly College of Science, listed in the Undergraduate Bulletin (<http://bulletins.psu.edu/undergraduate/>). If a student chooses to leave the program without completing M.Ed. requirements, they may still receive the relevant B.S. degree, after all B.S. requirements are completed.

For the M.Ed. degree, students must earn at least 30 credits at the 400/500 level, at least 18 of them at the 500 level. Degree requirements for the M.Ed. degree are listed on the Degree Requirements tab. One graduate semester is devoted to full time student teaching. Additional graduate course work is completed in a second graduate semester. Courses required for the M.Ed. degree include:

Code	Title	Credits
SCIED 552	Science Teaching and Learning	3
SCIED 558	Research Problems in Science Teaching ¹	3
500-level EDTHP course		3
CI 590	Colloquium	1
CI 595	Internship in Curriculum, Supervision, or Instruction ¹	12
500-level course in curriculum (e.g. SCIED 550)		3

¹ Of these, SCIED 558 and CI 595 comprise the student teaching semester course load.

The following courses may be double-counted toward both the B.S. and the M.Ed. degrees, up to a limit of 12 credits: EDTHP 500-level courses, SCIED 411 & SCIED 412, and SCIED 500-level courses. Note that at least

50% of credits proposed for double-counting must be at the 500 level. Independent study courses and credits associated with the culminating experience for the graduate degree cannot be double-counted. In addition to the double-counted courses taken during the first four years, the timeline for the M.Ed. is one year that includes these specified courses. The program is designed to be finished in five years.

There are a number of other requirements for Pennsylvania teacher certification, including state-required tests and clearances, as well as course work that can be completed at either the undergraduate or graduate level. Some courses, not enumerated above, that are usually required to satisfy teacher certification requirements include CI 280, SPLED 400, and CI 495C. Please note that changes in Pennsylvania certification requirements are common; students should check the Certification FAQ page at the Penn State Science Education website (<https://ed.psu.edu/academics/departments/department-curriculum-and-instruction/program-areas/faq-science-education/>) for updates and clarification about the specific requirements that affect them, based on their admission date to the IUG program option. Note also that students in the IUG program option are not required to complete all Penn State teacher certification requirements in order to receive their B.S. and M.Ed. degrees, as long as they have completed the requirements for those degrees. For example, a student who has completed all degree requirements but has not yet received a score for the Pennsylvania-required Chemistry content exam may be awarded both of the earned degrees.

Students must sequence their courses so all undergraduate degree requirements are fulfilled before taking courses to count solely towards the graduate degree. Students are expected to complete the undergraduate degree requirements within the typical time to degree for the undergraduate major. In the semester in which the undergraduate degree requirements will be completed, IUG students must apply to graduate, and the undergraduate degree should be conferred at the next appropriate Commencement.

Integrated B.S. in Mathematics and M.Ed. in Curriculum and Instruction

This Integrated Undergraduate/Graduate (IUG) degree program combines the B.S. in Mathematics with the M.Ed. in Curriculum and Instruction offered at the following campuses:

Undergraduate Degree

- University Park

Graduate Degree

- University Park
- World Campus

Requirements listed here are in addition to requirements listed in GCAC-210 Integrated Undergraduate-Graduate (IUG) Degree Programs (<https://gradschool.psu.edu/graduate-education-policies/gcac/gcac-200/gcac-210-integrated-undergraduate-graduate-degree-programs/>).

The Mathematics and Curriculum Instruction with Emphasis in Mathematics Education Integrated Undergraduate-Graduate (MATH/CI-MTHED IUG) Degree Program consists of the integration of required courses for a B.S. in Mathematics Systems Analysis Option, a M.Ed. in

Curriculum and Instruction with emphasis in Mathematics Education (MTHED), and Pennsylvania certification for Mathematics Grades 7-12.

The MATH/CI-MTHED IUG is a five-year program for highly qualified students seeking to teach mathematics at the secondary level. A hallmark of the program is its strong statistics strand in combination with its mathematics core. In addition to developing advanced understanding of mathematics and statistics, students will learn how to develop and implement lessons and to incorporate technology and research in instruction designed to reach all students.

Students are expected to complete courses required for the certification program integrated with their undergraduate and graduate experiences and will likely complete one summer in residence. Completion of the IUG (along with earning a passing score on Pennsylvania Department of Education required test[s]) leads to a B.S. in Mathematics, certification in Mathematics Grades 7-12, and a M.Ed. in Curriculum and Instruction.

Applicants apply for admission to the program via the Graduate School application for admission (<https://gradschool.psu.edu/graduate-admissions/how-to-apply/>). Requirements listed here are in addition to Graduate Council policies listed under GCAC-300 Admissions Policies (<https://gradschool.psu.edu/graduate-education-policies/>).

Students must apply to and meet admission requirements of the Graduate School (<http://www.gradschool.psu.edu/prospective-students/how-to-apply/>), as well as the graduate program in which they intend to receive their master's degree. Before applying to the Graduate School, students must have completed entrance to their undergraduate major and have completed no less than 60 credits. Students must be admitted no later than the end of the second week of the semester preceding the semester of expected conferral of the undergraduate degree. Transfer students must have completed at least 15 credits at Penn State to enroll in an IUG. Admission to the MATH/CI-MTHED IUG Mathematics Grades 7-12 program will be based upon having attained a minimum GPA of 3.5 after completing at least 60 credits of the program, with a grade of C or better in all courses. Application materials to be submitted include:

- a current undergraduate transcript,
- statement of purpose,
- draft plan of study,
- two letters of recommendation,
- and concurrent submission of an application for master's study to the graduate program in Curriculum and Instruction, Mathematics Education emphasis area.

Admission will be based on a recommendation by the Mathematics Department in consultation with the Mathematics Education faculty in the Department of Curriculum and Instruction.

Students must fulfill all requirements for each degree in order to be awarded that degree, subject to the double-counting of credits as outlined below. Degree requirements for the B.S. in Mathematics are listed in the Undergraduate Bulletin (<http://bulletins.psu.edu/bulletins/bluebook/>). Degree requirements for the M.Ed. degree are listed on the Degree Requirements tab. For the B.S./M.Ed. Degree in integrated Mathematics B.S. and Curriculum and Instruction M.Ed., 129 credits are required for the B.S. degree, 30 credits are required for the M.Ed., and 41 credits are required for field experiences and additional courses required for secondary mathematics certification in Pennsylvania. A maximum of 12 credits, at least half of which are at the 500-level, may be dual-counted toward the B.S. and M.Ed. The following courses can be used in both the B.S. and the M.Ed. degrees: two MATH 400-level electives,

STAT 501, STAT 502. Independent study courses and credits associated with the culminating experience for the graduate degree cannot be double-counted. Students can complete the B.S. in Mathematics and not advance to the M.Ed. Curriculum and Instruction degree if they desire. Students who have been accepted into the IUG program but are unable to complete the M.Ed. in Curriculum and Instruction may be awarded the B.S. in Mathematics after having completed all degree requirements for the B.S. The M.Ed. requires one full year beyond the B.S., including student teaching in the graduate year.

Students must sequence their courses so all undergraduate degree requirements are fulfilled before taking courses to count solely towards the graduate degree. Students are expected to complete the undergraduate degree requirements within the typical time to degree for the undergraduate major. In the semester in which the undergraduate degree requirements will be completed, IUG students must apply to graduate, and the undergraduate degree should be conferred at the next appropriate Commencement.

Code	Title	Credits
Required Courses		
9 credits - choose one course from each area		9
<i>Curriculum</i>		
CI 550	Overview of Contemporary School Curriculum (or equivalent)	
<i>Research</i>		
STAT 500	Applied Statistics (or equivalent)	
<i>Learning</i>		
EDPSY 421	Learning Processes in Relation to Educational Practices (or equivalent)	
Emphasis in Mathematics Education		
CI 590	Colloquium ¹	1-3
STAT 501	Regression Methods ¹	3
Select one of the following:		3
MATH 485	Graph Theory	
MATH 486	Mathematical Theory of Games	
MATH/CMPSC 451	Numerical Computations	
MTHED 511	Connections Between Mathematics and Mathematics Education (or equivalent) ¹	3
MTHED 524	¹	
Select at least one additional 400-level MATH course ²		
Select at least one additional 400- or 500-level MTHED course		

1 Required courses.

2 Other than:

- MATH 401
- MATH 405
- MATH 406
- MATH 441
- MATH 470
- MATH 471

A Master's paper is required for completion of the M.Ed.

A passing score on the state-required Mathematics Content Exam is required for Mathematics Grades 7-12 certification.

Integrated B.S. in Special Education and M.Ed. in Curriculum and Instruction

This Integrated Undergraduate/Graduate (IUG) degree program combines the B.S. in Special Education with the M.Ed. in Curriculum and Instruction offered at the following campuses:

Undergraduate Degree

- University Park

Graduate Degree

- University Park
- World Campus

Requirements listed here are in addition to requirements listed in GCAC-210 Integrated Undergraduate-Graduate (IUG) Degree Programs (<https://gradschool.psu.edu/graduate-education-policies/gcac/gcac-200/gcac-210-integrated-undergraduate-graduate-degree-programs/>).

The Special Education and Curriculum and Instruction with emphasis in Language and Literacy Education Integrated Undergraduate-Graduate (SE/CI-LLED IUG) leading to certification as a Reading Specialist.

The Special Education and Curriculum Instruction with Emphasis in Language and Literacy Education Integrated Undergraduate-Graduate (SE/CI-LLED IUG) Degree Program consists of integration of required courses for a B.S. in Special Education with courses required for certification as a Reading Specialist and a M.Ed. in Curriculum and Instruction with emphasis in Language and Literacy Education (LLED). The five-year, SE/CI-LLED IUG is an option for highly qualified students seeking certification to teach Special Education in Pennsylvania in grades K-12. Students in this IUG will be taught how to design and deliver appropriate instruction based on individual needs and incorporate a variety of materials and strategies. Students are expected to complete courses required for the graduate level K-12 reading specialist integrated with their undergraduate experiences and coursework in Special Education and will complete a summer practicum in an on-campus reading clinic as well as a capstone Special Education teaching experience in their final semester. Completion of the IUG (along with earning a passing score on PDE required content tests) leads to a B.S. in Special Education, certification in special education and as a reading specialist in the state of Pennsylvania, and a M.Ed. in Curriculum and Instruction.

Applicants apply for admission to the program via the Graduate School application for admission (<https://gradschool.psu.edu/graduate-admissions/how-to-apply/>). Requirements listed here are in addition to Graduate Council policies listed under GCAC-300 Admissions Policies (<https://gradschool.psu.edu/graduate-education-policies/>).

Students must apply to and meet admission requirements of the Graduate School (<https://gradschool.psu.edu/graduate-admissions/how-to-apply/>), as well as the graduate program in which they intend to receive their master's degree. Before applying to the Graduate School, students must have completed entrance to their undergraduate major and have completed no less than 60 credits. Students must be admitted no later than the end of the second week of the semester preceding the

semester of expected conferral of the undergraduate degree. Transfer students must have completed at least 15 credits at Penn State to enroll in an IUG. In consultation with an adviser, students must prepare a plan of study appropriate to this integrated program, and must present their plan of study to the head of the graduate program or the appropriate committee overseeing the integrated program prior to being admitted to the program. The plan should cover the entire time period of the integrated program, and it should be reviewed periodically with an adviser as the student advances through the program.

In addition to the admission requirements for the Curriculum and Instruction M.Ed., admission to the SE/CI-LLED IUG Reading Specialist program will be based upon having attained a minimum GPA of 3.5 in Special Education courses, with a grade of B or better in SPLED 412. Admission will be based on a recommendation by the Reading Specialist Program Coordinator in consultation with the Coordinator of Teacher Education in Special Education.

Students must fulfill all requirements for each degree in order to be awarded that degree, subject to the double-counting of credits as outlined below. Degree requirements for the B.S. in Special Education are listed in the Undergraduate Bulletin (<http://bulletins.psu.edu/bulletins/bluebook/>). Degree requirements for the M.Ed. degree are listed on the Degree Requirements tab. For the B.S./M.Ed. Degree in integrated Special Education B.S. and Curriculum and Instruction M.Ed., a minimum of 150 credits is required. Up to 12 credits can apply to both undergraduate and graduate degrees; half of these must be at the 500-level. Independent study courses and credits associated with the culminating experience for the graduate degree cannot be double-counted. Students who have been accepted into the IUG program but are unable to complete the M.Ed. in Curriculum and Instruction may be awarded the B.S. in Special Education after having completed all degree requirements for the B.S.

Students must sequence their courses so all undergraduate degree requirements are fulfilled before taking courses to count solely towards the graduate degree. Students are expected to complete the undergraduate degree requirements within the typical time to degree for the undergraduate major. In the semester in which the undergraduate degree requirements will be completed, IUG students must apply to graduate, and the undergraduate degree should be conferred at the next appropriate Commencement.

Code	Title	Credits
Required Courses		
9 credits - choose one course from each area:		9
<i>Curriculum</i>		
CI 550	Overview of Contemporary School Curriculum	
<i>Research</i>		
CI 501	Teaching as Inquiry	
EDPSY 400	Introduction to Statistics in Educational Research	
<i>Learning</i>		
EDPSY 421	Learning Processes in Relation to Educational Practices	
HDFS 429	Advanced Child Development	
Emphasis in Language and Literacy Education with Reading Specialist		
EDLDR 563	Designing Staff Development Programs	3
EDPSY 526	The Psychology of Reading	3
LLED 500	The Reading and Writing Classroom ¹	3

LLED 501	Teaching Writing in Elementary and Secondary Schools ¹	3
LLED 550	Theory and Practicum in Assessment and Remediation of Reading Difficulties ¹	3
LLED 595A	¹	3-6
Total Credits		30

¹ Required courses.

A Master's paper is required for completion of the M.Ed.

A passing score on the state-required Reading Specialist Exam (qualifying score of 570) is required for Reading Specialist certification.

Minor

A graduate minor is available in any approved graduate major or dual-title program. The default requirements for a graduate minor are stated in Graduate Council policies listed under GCAC-600 Research Degree Policies (<https://gradschool.psu.edu/graduate-education-policies/>) and GCAC-700 Professional Degree Policies (<https://gradschool.psu.edu/graduate-education-policies/>), depending on the type of degree the student is pursuing:

- GCAC-611 Minor - Research Doctorate (<https://gradschool.psu.edu/graduate-education-policies/gcac/gcac-600/gcac-611-minor-research-doctorate/>)
- GCAC-641 Minor - Research Master's (<https://gradschool.psu.edu/graduate-education-policies/gcac/gcac-600/gcac-641-minor-research-masters/>)
- GCAC-709 Minor - Professional Doctorate (<https://gradschool.psu.edu/graduate-education-policies/gcac/gcac-700/gcac-709-professional-doctoral-minor/>)
- GCAC-741 Minor - Professional Master's (<https://gradschool.psu.edu/graduate-education-policies/gcac/gcac-700/gcac-741-masters-minor-professional/>)

Student Aid

Graduate assistantships available to students in this program and other forms of student aid are described in the Tuition & Funding (<https://gradschool.psu.edu/graduate-funding/>) section of The Graduate School's website. Students on graduate assistantships must adhere to the course load limits (<https://gradschool.psu.edu/graduate-education-policies/gsad/gsad-900/gsad-901-graduate-assistants/>) set by The Graduate School.

Courses

Graduate courses carry numbers from 500 to 699 and 800 to 899. Advanced undergraduate courses numbered between 400 and 499 may be used to meet some graduate degree requirements when taken by graduate students. Courses below the 400 level may not. A graduate student may register for or audit these courses in order to make up deficiencies or to fill in gaps in previous education but not to meet requirements for an advanced degree.

Curriculum and Instruction (CI) Course List (<https://bulletins.psu.edu/university-course-descriptions/graduate/ci/>)

Curriculum and Supervision (C-S) course list (https://bulletins.psu.edu/university-course-descriptions/graduate/c_s/)

Early Childhood Education (ECE) course list (<https://bulletins.psu.edu/university-course-descriptions/graduate/ece/>)

Language and Literacy Education (LLED) course list (<https://bulletins.psu.edu/university-course-descriptions/graduate/lled/>)

Mathematics Education (MTHED) Course List (<https://bulletins.psu.edu/university-course-descriptions/graduate/mthed/>)

Science Education (SCIED) Course List (<https://bulletins.psu.edu/university-course-descriptions/graduate/scied/>)

Social Studies Education (SSED) course list (<https://bulletins.psu.edu/university-course-descriptions/graduate/ssed/>)

Learning Outcomes

1. Demonstrate mastery of the student's specific program emphasis area, which includes knowledge of primary and secondary literature related to research methodologies, programmatic research priorities, and implications of that research for professional practice. Assessed through candidacy and comprehensive exams (rubric).
2. Students will design and carry out a research project that includes articulating an important and original question, analyzing appropriate literature, demonstrating conceptual and methodological creativity, and carrying out an original inquiry. Assessed through dissertation proposal and defense (rubric).
3. Demonstrate standards of field in written and oral communication by presenting the results of dissertation research in clear, concise oral presentations to an audience of peers. Assessed through dissertation defense.
4. Demonstrate critical thinking about selected recent research in the program emphasis area through the description of an emerging scholarly theme/area, identification of specific publications that reflect it, and assessment of its strengths and weaknesses. Assessed through written and oral candidacy assessment (rubric).
5. Demonstrate knowledge and comprehension of research ethics issues including knowledge of ethical principles related to authorship, research reporting, data fabrication, plagiarism, conflicts of interest, peer review, data sharing and other areas of misconduct. Assessed through SARI examinations and participation in CI 590.

Professional Licensure/Certification

Many U.S. states and territories require professional licensure/certification to be employed. If you plan to pursue employment in a licensed profession after completing this program, please visit the Professional Licensure/Certification Disclosures by State (<https://www.psu.edu/state-licensure-disclosures/>) interactive map.

Contact

Campus	University Park
Graduate Program Head	Scott P Mcdonald
Director of Graduate Studies (DGS) or Professor-in-Charge (PIC)	Kimberly Anne Powell
Program Contact	Kimberly Erin Waite Curriculum Instruction 270A Chambers Building University Park PA 16802 ked130@psu.edu (814) 865-2168
Program Website	View (https://ed.psu.edu/academics/departments/department-curriculum-and-instruction/)
Campus	World Campus
Graduate Program Head	Scott P Mcdonald
Director of Graduate Studies (DGS) or Professor-in-Charge (PIC)	Kimberly Anne Powell
Program Contact	Kayla McCloskey 170 Chambers Building Penn State University University Park PA 16802 kkm5615@psu.edu (814) 865-2430
Program Website	View (http://www.worldcampus.psu.edu/degrees-and-certificates/curriculum-and-instruction-masters/overview/)