Specialization Overview
The specialization in Mathematics Education integrates mathematical knowledge for teaching within the broader field of urban education and prepares individuals to address critical issues across varied educational settings and contexts through research and scholarship in mathematics education.

For course descriptions in this area, visit the Curriculum and Instruction page (http://wwwdev.uwm.edu/graduateschool/curriculum-instruction) of this catalog.

Degree Overview
The School of Education offers an interdepartmental program of study leading to the PhD. Students must choose a specialization in either Adult, Continuing, and Higher Education Leadership, Art Education, Curriculum and Instruction, Educational Administration, Exceptional Education, Mathematics Education, Multicultural Studies, or Social Foundations of Education.

The program is designed to permit students to integrate their particular curricular areas of interest and specialization with a broader field of education, including urban education. Each specialization, with the exception of Multicultural Studies, is departmentally focused, and students must satisfy the admissions and curriculum requirements indicated for their particular specialization. Recognition of the specialization is acknowledged by official designation on the student's transcript.

Each of the specializations offers the doctoral student an opportunity to pursue study in a specific program area. For example, Adult, Continuing, and Higher Education Leadership emphasizes governance and leadership issues within urban adult education organizations. Educational Administration explores governance and Leadership issues of urban schools. Curriculum and Instruction provides program emphasis in a content area (e.g., reading), education level (e.g., early childhood), a general area (e.g., curriculum theory) or special area (e.g., guiding instructional improvement). Exceptional Education provides program emphasis in departmental interest areas (e.g., handicapping condition), or a cross-disciplinary interest.

A separate PhD with specialization in Counseling Psychology, Learning and Development, Research Methodology, and School Psychology is offered through the Department of Educational Psychology (http://uwm.edu/graduateschool/educational-psychology). Multicultural Studies is a cross-department program allowing students to develop their own area of focus in collaboration with faculty in multicultural urban education. The Social Foundations of Education specialization provides students with the conceptual tools with which to examine the complex interrelationships between school and society, education and culture.

All graduates should have a broad understanding of the issues, problems and trends related to education, including urban education, and the application of these to their major.

The program requires each participant to develop research skills ranging from logic in inquiry to development of specific methodological skills in qualitative and quantitative methods. The PhD is a research degree and not only a professional preparation degree. Therefore research is an integral part of the program. Mastery of these skills is demonstrated through coursework, research projects and the dissertation. Graduates apply their skills, in institutions of higher education, public or private school settings, federal, state, or local governmental agencies, community organizations, and the private sector.

Cooperating Departments
- Administrative Leadership
- Curriculum and Instruction
- Educational Policy and Community Studies
- Educational Psychology
- Exceptional Education
- Information Studies (School of)

Application Deadlines
If at any time you are unsure about a published date or deadline (http://uwm.edu/graduateschool/program-deadlines), call the Registrar's Office at (414) 229-3800 or submit a contact form (http://uwm.edu/registrar/contact-us) online.

Admission
An applicant must meet Graduate School requirements plus the following program requirements to be considered for admission.

Graduate Record Examination
Submission of scores on the General Test portion of the Graduate Record Examination is required. Scores that are more than five years old will not be considered valid.

Grade Point Average
Undergraduate GPA of 2.85 (applicants having less than 15 graduate hours must have an undergraduate GPA of 3.50); graduate GPA of 3.5; or a combined (undergraduate and graduate) GPA of 6.5.

Writing Sample
Applicants must submit a writing sample completed within the last five years. The writing sample must be single authored, at least 1500 words, and must be selected from one of the following options:

1. Master's Thesis
2. Undergraduate Senior Thesis
3. Technical report
4. Term Paper
5. Publication
6. Written Description of a Project
7. Action Research Project
8. A 5-10 page response to the following question: How would you go about determining and evaluating critical issues in urban education? The response to this question must show evidence of appropriate references to a knowledge base.

The writing sample must be submitted with the application.
Interview
An interview may be arranged with all applicants. In the case of applicants living too far away to attend a personal interview, a phone interview will be arranged.

Recommendations
An applicant must have a minimum of three appropriate persons write a recommendation and comment meaningfully and knowledgeably on the likelihood that the applicant can successfully complete an advanced scholarly program of studies for the PhD degree. It is helpful if the majority of references are written by college/university faculty. If an applicant is unable to secure academic references because of elapsed time, other references should be as current as possible. In any case, individuals preparing references should be selected who can comment with confidence on the applicant’s academic qualifications. Reference forms must be forwarded directly by the writers to the Office of Doctoral Studies. Complete information is provided in application materials available from the Office of Doctoral Studies.

Application
Applicants are required to articulate their urban and research interests and goals in application materials. An intended concentration within the PhD must be specified at time of application.

1. Applicants who fail to satisfy these admission requirements will not be recommended for admission. However, satisfying these minima does not guarantee admission.
2. Applicants who are not recommended for admission will be provided an opportunity to request a reconsideration.

Individual specializations may expect prior coursework in that area. Applicants may contact the Director for specific information. Openings in the program are limited. Applicants should submit all application materials no later than January 1 for admission the following September. Applicants must contact the Office of Doctoral Studies for application information and forms.

Major Professor
Upon admission to the doctoral program, the student is assigned an initial advisor from his or her intended specialization. This person is available to discuss initial course selection and provide general advice about the program and specialization. After beginning the program and before filing a Program of Studies, the student will seek a permanent major professor from his/her specialization who is eligible to serve in such a capacity. This permanent advisor may be the initial advisor if the student desires. The major professor is also chair of the student’s dissertation committee.

Selection of the major professor is by mutual consent between the student and the faculty member. The student must notify the UEDP in writing when the major professor has been selected.

Credits and Courses
Minimum degree requirement is 54 credits beyond the bachelor’s degree (although students ordinarily take more than 54), at least 27 of which must be earned in residence at UWM (i.e., on the UWM campus).

In consultation with the major professor, the student designs a program of studies that enables the student to gain the knowledge and skills appropriate to the student’s goals.

The program of studies includes the following:

The Doctoral Seminars
All doctoral students must take three 3-credit seminar courses devoted to content involving education in an urban environment. One of these seminars is taken as part of the department specialization.

Research Requirement
1. All doctoral students must take ED PSY 724 (prerequisite is ED PSY 624) and CURRINS 729/AD LDSP 729.
2. All doctoral students select additional advanced level (800 or above) coursework (minimum 6 credits) from either a qualitative track or quantitative track.
3. All doctoral students must take a research design course approved by their advisor and the Director of Doctoral Studies.
4. Department specialization requirements may exceed those specified here.
5. All students demonstrate knowledge in this area by writing a preliminary examination research question and successfully defending a dissertation.

Designated Specialization
Students indicate a specific area of specialization, by applying for one of the transcript-designated specializations in either Adult, Continuing, and Higher Education Leadership, Curriculum and Instruction, Art Education, Exceptional Education, Multicultural Studies, or Social Foundations of Education. Students may be required to meet the specific admissions and program requirements for their intended specialization in addition to meeting the PhD admissions and program requirements. (Please see the accompanying explanation and requirements for each specialization.)

Minor
Some program specializations may require completion of a minor consisting of courses in a related discipline that supports the student’s program of studies. Students should consult requirements within their specialization. If pursuing a minor, the student may choose either Option A or Option B.

1. Option A: A minimum of 8 credits in a single department outside the School of Education. A minor professor approves these courses, sits as a member of the student’s doctoral committee, and contributes to the student’s doctoral preliminary examination.
2. Option B: A minimum of 12 credits in two or more departments, with a minimum of 6 credits outside of the School of Education. The remaining credits may be taken within the School of Education, but must be taken outside of the department of specialization.

Foreign Language Requirement
There is no foreign language requirement. However, individual students may be required to demonstrate proficiency in a foreign language if such proficiency is determined to be necessary by a student’s committee.

Residence
The residency requirement is satisfied through the successful completion of 9 or more credits in each of two consecutive semesters, excluding summer, or by completing at least 6 graduate credits in each of three consecutive semesters, excluding summer.

It is the student’s responsibility to notify the Office of Doctoral Studies when residency requirements have been met. Such notification must be
in writing and must include the semesters, year(s) and number of credits taken during each of the applicable semesters.

**Doctoral Preliminary Examination**

The student must pass a doctoral preliminary examination to qualify for formal admission to candidacy for the degree. The examination covers the area of specialization, urban education, the minor, and research methods.

**Dissertation**

The candidate must present a dissertation reporting the results of an original research study appropriate to the student’s program. Prior to beginning the research, the candidate must present an acceptable dissertation proposal and defend it at an oral hearing.

**Dissertation Defense**

The candidate must, as the final step toward the degree, pass an oral examination in defense of the dissertation.

**Time Limit**

Students who do not complete all degree requirements within seven years from the date of admission to the doctoral program will be recommended for dismissal to the Graduate School.

**Other Requirements**

This is only a summary of the doctoral program requirements. A complete list of requirements is available from the Office of Doctoral Studies. Doctoral Committees may specify course requirements which exceed the minima described here.

For additional information on the PhD, see the Graduate School Doctoral Requirements (http://wwwdev.uwm.edu/graduateschool/doctoral-requirements).

**Specialization Admission**

Subsequent to admission to the Urban Education Doctoral Program (UEDP), the student must submit a Program of Study in Mathematics Education developed in conjunction with the student’s advisor for approval by the Mathematics Education Graduate Committee and the Director of the UEDP.

**Credits and Courses**

1. The student must meet all of the program requirements of the Urban Education Doctoral Program.

2. The specialization in Mathematics Education consists of a minimum of 9 required credits in advanced mathematics education and 23 elective credits in mathematics education, related coursework, or an optional minor. Transfer credits from prior graduate work must fulfill program requirements and be approved by the Major Professor. At least 12 credits in mathematics education must be taken after admission to the program.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
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<tbody>
<tr>
<td>CURRINS 720</td>
<td>Curriculum and Standards for School Mathematics</td>
<td>3</td>
</tr>
<tr>
<td>CURRINS 864</td>
<td>Integrating Mathematics Education Research into Curriculum and Instruction</td>
<td>6</td>
</tr>
</tbody>
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3. The UEDP doctoral preliminary examination addresses the mathematics education specialization, urban education, and research methods.

4. A dissertation reporting the results of an original research study in Mathematics Education is required. Prior to beginning the research, the student must prepare an acceptable dissertation proposal, defend it at an oral hearing, and receive committee approval. The dissertation advisor (Major Professor) must be an approved UEDP doctoral advisor and a mathematics education faculty member of the Department of Curriculum and Instruction. At least two other committee members must be from Curriculum and Instruction.

**Exit Requirements**

Contingent upon satisfactory completion of program requirements, the preliminary qualifying examination, dissertation proposal hearing, and the successful oral defense of the dissertation, the Urban Education Doctoral Program Director will give final approval for the designated transcript inclusion of “Urban Education: Mathematics Education.”