

INDIANA UNIVERSITY

SCHOOL OF EDUCATION

Office of the Dean

TO: Janice Blum
Associate Vice Chancellor for Graduate Education

FROM: Terry Mason
Dean, School of Education

DATE: December 12, 2016

RE: Mathematics Education Doctoral Minor Proposal

The Mathematics Education Doctoral Minor Proposal was approved by program faculty, the School of Education Graduate Studies Committee on October 31, 2016 and the School of Education Policy Council on November 16, 2016. I forward to you for approval of the IUPUI Graduate School. If you have questions about this proposal, please do not hesitate to contact me.

MATH ED MINOR

March 9, 2015

Mathematics Education Doctoral Minor
Bulletin Description
(15 credit hours)

The Mathematics Education Minor is designed to help doctoral students learn about research on the learning and teaching of mathematics, and research on the preparation of mathematics teachers. The minor will be personalized, designed by the student and his/her minor advisor. Students are required to take a minimum of 2 doctoral seminars in mathematics education (normally N716) and 3 credits of independent study (N590) or internship (N610) in mathematics education. The remaining 6 hours can be chosen from N543, NS 17, N518, N590, N610, or N716. There is no qualifying exam required for the mathematics education minor. However, there is the expectation that at least one question of the qualifying exams for the urban education studies doctoral degree will be related to the minor area.

Mathematics Education Doctoral Minor
Full Description
(15 credit hours)

The Mathematics Education Minor is designed to help doctoral students explore research on the learning and teaching of mathematics and research on the preparation of mathematics teachers. The minor will be personalized, designed by the student and his/her minor advisor so that it matches the student's particular background, professional experience, and career goal. At the same time, the minor must demonstrate wholeness within itself, relate to the candidate's major field of specialization, and make a contribution to the professional development of the candidate. Students are required to take a minimum of 2 doctoral seminars in mathematics education (normally N716) and 3 credits of independent study (N590) or internship (N610) in mathematics education. The remaining 6 hours can be chosen from N543, NS 17, N518, N590, N610, or N716. Other mathematics education courses can be included with approval from the minor advisor. Each time a student enrolls in independent studies or research, such as N590 or N610, a different member of the mathematics education faculty should direct the experience. There is no qualifying exam required for the mathematics education minor. However, there is the expectation that at least one question of the qualifying exams for the urban education studies doctoral degree will be related to the minor area.

Below are examples of courses that may be included in the Mathematics Education Minor.

N716: Topical Seminar in Mathematics Education (6 cr required)

N543: Advanced Study in the Teaching of Elementary School Mathematics

NSI 7: Advanced Study in the Teaching of Secondary School Mathematics

N518: Advanced Methods of Teaching MD/JR HS Mathematics

N590: Independent Study or Research in Mathematics Education

N610: Internship in Mathematics Education

Graduate students earning the PhD minor from Indiana University in mathematics education on the IUPUI campus will demonstrate the following abilities related to the research focus of the degree:

***Demonstrate the knowledge and skills necessary to identify and conduct original research in mathematics education**

Method of acquisition: Course work, attendance at research seminars, direct mentoring by faculty, studying grant proposals, working on research projects with faculty, conducting independent inquiry projects

Assessment of learning: Grades in course work, qualifying portfolio of the candidate, ability to pass the oral and written qualifying examination, direct assessment by the research mentor, direct assessment of progress by the research committee for the dissertation

***Communicate effectively high level information in mathematics education**

Method of acquisition: Attendance required at seminars, presentations embedded in courses and seminars, mentored writing of grant proposals and manuscripts, presentations at peer reviewed local, state, and national conferences

Assessment of learning: Successful completion of the oral and written portions of the qualifying examinations, grades on formal seminar presentations based on outcomes rubrics, publication of manuscripts, awarding of grants, acceptance to peer reviewed local, state, and national conferences

***Think critically and creatively to solve problems in mathematics education**

Method of acquisition: Attendance required at seminars, presentations embedded in courses and seminars, writing pre-proposal for dissertation where evidence of the minor area of study will be apparent, writing dissertation proposal where evidence of the minor area of study will be apparent

Assessment of learning: Grades on formal seminar presentations based on outcomes rubrics, direct assessment by faculty on pre-proposal and dissertation proposal, publication of research manuscripts, success in getting grant proposals funded.

***Conduct research in an ethical and responsible manner**

Method of acquisition: Required classes that discuss research ethics, modeling of appropriate behavior in seminars by faculty and peers, direct mentoring by research director including mentoring in the RB process, mentoring by the dissertation research committee, CITI test required for the IRB process.

Assessment of learning: Grades in courses that address research ethics, direct observation of data handling by research mentor, direct oversight by dissertation research committee on issues of research compliance and ethics, successful submission of proposal to conduct research to IRB.

The graduate faculty of in mathematics education in the Department of Curriculum and Instruction/Teacher Education will conduct a yearly review of the progress of students through the program to determine if the program is meeting its goals to prepare students in each of these areas. Changes that might be made include replacing faculty in certain courses, adopting new methods to present material, offering additional options for training (e.g., making a writing consultant available), or engaging students in external training (e.g., seminars at IUB).

IUPUI Graduate Office Form for Creation of A Graduate Minor

Date 12/08/2016 Institution Indiana University

School IU School of Education Department Curriculum and Instruction/Teacher Education

Location on campus Is 50% or more online?
Q Yes
@ No

Official Name of Minor (required) Mathematics Education Doctoral Minor Projected semester and year of implementation*: Fall 2017

***This does not guarantee the minor will be approved by the semester requested. It must still go through the appropriate approval process.**

Academic Career (required) GRAD (open to all programs) If minor is not open to all programs, please explain the limitation:

Brief description:

The Mathematics Education Minor is designed to help doctoral students learn about research on the learning and teaching of mathematics, and research on the preparation of mathematics teachers. The minor will be personalized, designed by the student and his/her minor advisor. It will be a minor to the urban education studies doctoral degree major.

Rationale for new minor:

With the recently approved urban education studies doctoral degree within the school of education, there is a need to develop minors that support students specialized interests within urban education. One such area of specialized interest is mathematics education and we have already had doctoral students currently enrolled in urban education studies express interest in this minor.

List of required courses:

6 credits of N716
3 credits of N610 OR 3 credits of N590

List of elective or substitute courses:

The remaining 6 credits can be chosen from N543, N517, N518, N590, N610, or N716.

Contact Information

Contact person for this minor: (required)

Erik Tillema

Contact person's e-mail: (required)

letillema@iupui.edu

Contact person's phone number (optional):

13172746821

Student advisor (if different than above):

Student advisor's e-mail:

Student advisor's phone number (optional):

Comments: