

Date Submitted: 09/18/19 12:54 pm

# Viewing: **MATPH : Mathematics, Doctor of Philosophy**

Last edit: 09/19/19 11:07 am

Changes proposed by: markj

Catalog Pages Using  
this Program

[Mathematical Sciences \(MASC\)](#)

Submitter: **575-3351**      User ID: **markj**      Phone:

Program Status      **Active**

Academic Level      Graduate

Type of proposal      **Major/Field of Study**

Select a reason for this modification

Making Minor Changes to an Existing Degree (e.g. changing 15 or fewer hours, changing admission/graduation requirements, adding/changing Focused Study or Track)

Are you adding a concentration?

**No**

Are you adding or modifying a track?

**No**

Are you adding or modifying a focused study?

**No**

Effective Catalog Year      Fall 2020

College/School Code  
Fulbright College of Arts and Sciences (ARSC)

Department Code  
Department of Mathematical Sciences (MASC)

## In Workflow

1. ARSC Dean Initial
2. GRAD Dean Initial
3. Director of Program Assessment and Review
4. Registrar Initial
5. Institutional Research
6. MASC Chair
7. ARSC Curriculum Committee
8. ARSC Dean
9. Global Campus
10. Provost Review
11. University Course and Program Committee
12. Graduate Committee
13. Faculty Senate
14. Provost Final
15. Provost's Office-- Notification of Approval
16. Registrar Final
17. Catalog Editor Final

## Approval Path

1. 09/18/19 1:34 pm  
Jeannie Hulén (jhulen): Approved for ARSC Dean Initial
2. 09/18/19 3:47 pm  
Pat Koski (pkoski):

Program Code MATHPH  
 Degree Doctor of Philosophy  
 CIP Code

- Approved for GRAD  
 Dean Initial
3. 09/19/19 11:07 am  
 Alice Griffin  
 (agriffin): Approved  
 for Director of  
 Program  
 Assessment and  
 Review
  4. 09/19/19 4:35 pm  
 Lisa Kulczak  
 (lkulcza): Approved  
 for Registrar Initial
  5. 09/19/19 5:03 pm  
 Gary Gunderman  
 (ggunderm):  
 Approved for  
 Institutional  
 Research
  6. 09/19/19 5:20 pm  
 Mark Johnson  
 (markj): Approved  
 for MASC Chair
  7. 11/06/19 11:49 am  
 Ryan Cochran  
 (rcc003): Approved  
 for ARSC Curriculum  
 Committee
  8. 11/06/19 3:13 pm  
 Jeannie Hulen  
 (jhulen): Approved  
 for ARSC Dean
  9. 11/06/19 4:02 pm  
 Suzanne Kenner  
 (skenner): Approved  
 for Global Campus
  10. 11/08/19 7:39 am  
 Terry Martin  
 (tmartin): Approved  
 for Provost Review

27.0101 - Mathematics, General.

Program Title

Mathematics, Doctor of Philosophy

Program Delivery

Method

**On Campus**

Is this program interdisciplinary?

**No**

Does this proposal impact any courses from another College/School?

**No**

What are the total **72**  
hours needed to  
complete the  
program?

## Program Requirements and Description

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### Requirements

**Requirements for the Doctor of Philosophy Degree:** Candidates for the degree of Doctor of Philosophy with a major in mathematics will be required to earn not less than 60 semester hours of course credit beyond the bachelor's degree in mathematics and closely related fields. The number of hours and the courses for each student will be determined by the advisory committee. The candidate must fulfill the course requirements for the Master of Science degree in mathematics.

The basic requirement for the Ph.D. degree is the preparation of an acceptable dissertation. This dissertation must demonstrate the candidate's ability to do independent, original, and significant work in mathematics. It is required that this dissertation possess the degree of excellence of research papers ordinarily published in the leading mathematical journals.

Students should also be aware of Graduate School requirements with regard to [doctoral degrees](#).

A comprehensive examination is given each year during the weeks preceding the beginning of the fall and spring semesters. This examination is taken by all students in the graduate program who have completed the course requirements for the M.S. degree. The prospective candidate for the Ph.D. will be allowed to take the examination at most **three** ~~two~~ times. A **third** ~~second~~ failure to qualify eliminates a student from the graduate program in mathematics. After qualifying, a candidacy examination will be given covering the intended areas of specialization beyond the level of the qualifying comprehensive examination. It may be repeated once.

~~Students who wish to specialize in mathematics education must complete and pass qualifying examinations in two graduate sequences in mathematics plus one in mathematics education. Students who wish must complete two of MATH 5013, MATH 5023, and MATH 5053 that are not in the topics of the two graduate qualifying~~

~~sequences in mathematics. Students must complete four education graduate courses to specialize in~~ **mathematics education must complete four education graduate courses to** study quantitative methods in education research and qualitative methods in education research. The recommended courses are [ESRM 6413](#), [ESRM 6423](#), [ESRM 6533](#), and [ESRM 6653](#), although these may be altered depending on the student's previous study of STAT courses. Students must complete 15 hours of independent study in **mathematics education to** ~~mathematics education to~~ prepare for dissertation research. The areas of this study are: K-14 curriculum; learning theory; art of teaching and teacher education; and assessment and technology. The 15 hours must include a three-hour research project that will result in a pre-dissertation research report. In addition to extending knowledge by personal reading and research, a doctoral graduate in mathematics will normally communicate knowledge to others. Therefore each student in the Ph.D. program is required to acquire the equivalent of one semester of full-time experience in teaching; this requirement may be fulfilled by part-time experience over several semesters. Typically, teaching assistantship appointments will satisfy this requirement, but other similar experience may qualify as approved by the department.

Are Similar Programs available in the area?

**No**

Estimated Student  
Demand for Program

Scheduled Program     **2021-2022**

Review Date

Program Goals and  
Objectives

#### **Program Goals and Objectives**

**The Doctor of Philosophy in Mathematics aims to establish a student in a research level mathematics career, within academia or industry. To that end the student should demonstrate:**

- 1) An ability to undertake original research level mathematical investigation.**
- 2) Mathematical breadth and sophistication in the foundational subject areas of analysis, algebra and topology.**
- 3) An understanding of the field of specialization, its context, structure, and literature.**
- 4) An ability to write, discuss and lecture at a research level.**

Learning Outcomes

#### **Learning Outcomes**

- 1) An ability to undertake original research level mathematical investigation.**
- 2) Mathematical breadth and sophistication in the foundational subject areas of analysis, algebra and topology.**
- 3) An understanding of the field of specialization, its context, structure, and literature.**
- 4) An ability to write, discuss and lecture at a research level.**

## Description and justification of the request

Description of specific change	Justification for this change
additional attempt at qualifying examination; modification of exam for math education concentration	Changes help to improve student success in the program.

## Upload attachments

## Reviewer Comments

**Alice Griffin (agriffin) (09/19/19 11:00 am):** Changed effective date from fall 2019 to fall 2020.

**Alice Griffin (agriffin) (09/19/19 11:04 am):** Inserted scheduled program review date.

**Alice Griffin (agriffin) (09/19/19 11:06 am):** Inserted program goals and learning outcomes from the 2016 assessment plan.

Key: 241