

# Secondary Mathematics Education

College of  
Education

## Requirements for Program

This B.A. includes completion of an approved plan in the academic specialty teaching of mathematics, grades 8-12. **The approved major in the academic specialties for teaching is entitled "Mathematics major for secondary education," to distinguish it from the Arts & Sciences major. No certification is awarded with the B.A.** Students desiring to go on to Masters in Education with Initial Certification must apply to The Graduate School and apply to the Secondary Mathematics Program Faculty in the spring of their senior year.

To receive the B.A. degree, students must: (1) complete the UK Core requirements; (2) complete the secondary mathematics major and a university-approved minor; (3) attain a grade-point average of at least 2.50 overall and in the chosen major/minor/support areas; and (4) complete 100 hours of fieldwork with adolescents through the **required** three hour course:

EDC 362 Field Experiences in Secondary Education ..... 3

The certification program in secondary mathematics education, grades 8-12, extends and enhances the conceptual framework of the College of Education by providing the opportunities and experiences necessary for beginning teachers to reflect on the perspective of the schools and the profession. Indeed, the National Council of Teachers of Mathematics (NCTM), the principal professional organization for the mathematics education program, has for the past decade promoted teaching that fosters the development of students' abilities to explore, conjecture, and reason logically, as well as the ability to use a variety of mathematical methods to solve non-routine problems. Teaching to meet this goal requires a great deal of reflective decision making, because what students learn depends to a large extent on how it has been learned. This certification program strives to blend the learning of mathematics with the learning of pedagogy.

## Continuous Assessment

1. All secondary education majors must be admitted to advanced standing after completing 60 hours. Advanced standing requires (a) 2.50 minimum GPA overall, and (b) review by a program faculty advisor for secondary mathematics education.

2. Because certification occurs through the Masters in Education including certification (MIC), students should be aware that they will need to be formally admitted to the MIC program. Admission/Retention/Exit regulations for all teacher certification programs are specified in the section "Admission, Retention and Exit from Teacher Education Programs" on pages 187-188 of the *2011-2012 UK Bulletin*.

3. Oral and written communication skills of applicants for the MIC program in mathematics education will be assessed at the time of the interview, and through the entrance portfolio.

4. At exit from the secondary mathematics education major, grades 8-12, students will:

- demonstrate understanding of mathematical concepts and procedures and the connections among them;
- use multiple representations of mathematical concepts and procedures;
- reason mathematically and solve mathematical problems;
- communicate mathematics effectively at different levels of formality; and

- use historical, cultural, and contemporary perspectives in mathematics discourse.

## Statement on Student Teaching

There is no student teaching required for completion of the secondary mathematics education, grades 8-12, major. Student teaching occurs as part of the Masters in Education with certification.

## UK Core Requirements

See the *UK Core* section of the *2011-2012 Undergraduate Bulletin* at: [www.uky.edu/Registrar/bulletinCurrent/ukc.pdf](http://www.uky.edu/Registrar/bulletinCurrent/ukc.pdf) for the complete UK Core requirements. The courses listed below are (a) recommended by the college, or (b) required courses that also fulfill UK Core areas. Students should work closely with their advisor to complete the UK Core requirements.

<b>I. Intellectual Inquiry in Arts and Creativity</b>	
Choose one course from approved list .....	3
<b>II. Intellectual Inquiry in the Humanities</b>	
Choose one course from approved list .....	3
<b>III. Intellectual Inquiry in the Social Sciences</b>	
PSY 100 Introduction to Psychology .....	4
<b>IV. Intellectual Inquiry in the Natural, Physical, and Mathematical Sciences</b>	
Choose one course from approved list .....	3
<b>V. Composition and Communication I</b>	
CIS/WRD 110 Composition and Communication I .....	3
<b>VI. Composition and Communication II</b>	
CIS/WRD 111 Composition and Communication II .....	3
<b>VII. Quantitative Foundations</b>	
MA 113 Calculus I .....	4
<b>VIII. Statistical Inferential Reasoning</b>	
STA 210 Making Sense of Uncertainty:	
An Introduction to Statistical Reasoning .....	3
<b>IX. Community, Culture and Citizenship in the USA</b>	
Choose one course from approved list .....	3
<b>X. Global Dynamics</b>	
Choose one course from approved list .....	3
<b>UK Core Hours</b> .....	<b>32</b>

## Program Related Studies (15 hours)

EDC 362 Field Experiences in Secondary Education .....	3
CS 101 Introduction to Computing I .....	3
STA 291 Statistical Methods .....	3
EDC 421 Survey of Secondary Mathematics Curriculum .....	3
Natural Science (choose one course in an area different from the UK Core requirement) .....	3

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The University of Kentucky is accredited by the Commission on Colleges of the Southern Association of Colleges and Schools to award baccalaureate, masters, doctorate, and professional degrees. Contact the Commission on Colleges at 1866 Southern Lane, Decatur, Georgia 30033-4097 or call 404-679-4500 for questions about the accreditation of the University of Kentucky.

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## Major (36 hours) and Minor

(variable hours, depending on program)

Major in mathematics for secondary education (36 hours), with any university-approved minor\* (18-21 hours). The university-approved minor is non-certifiable.

*\*University approved minors must be planned with an advisor in the appropriate department if the student wishes to have it recorded on the UK transcript.*

### **Mathematics Major for Secondary Education, Grades 8-12**

(36 hours)

#### **Required**

MA 113 Calculus I .....	4
MA 114 Calculus II .....	4
MA 213 Calculus III .....	4
MA 261 Introduction to Number Theory .....	3
MA 310 Mathematical Problem Solving for Teachers .....	3
MA 341 Topics in Geometry .....	3
MA 320 Introductory Probability .....	3
MA 322 Matrix Algebra and Its Applications .....	3
MA 330 History of Mathematics .....	3

Select six hours from the following:

MA 214 Calculus IV .....	3
MA 321 Introduction to Numerical Methods .....	3
MA 351 Elementary Topology I .....	3
MA 361 Elementary Modern Algebra I .....	3
MA 415G Combinatorics and Graph Theory .....	3
MA 416G Principles of Operations Research I .....	3

#### **Electives**

Electives for 120 total credit hours chosen with the help of an advisor.

**TOTAL HOURS** ..... **120**