

**Program Report for the
Preparation of Secondary Mathematics Teachers
National Council of Teachers of Mathematics (NCTM)**

NATIONAL COUNCIL FOR ACCREDITATION OF TEACHER EDUCATION

C O V E R S H E E T

Institution: *College of Education, University Of Georgia* State: *GA*

Date submitted: *September 15, 2005*

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Program documented in this report:

Name of institution's program *Mathematics Education Program*

Grade levels for which candidates are being prepared¹ *Grades 7-12*

Degree or award level¹ *Bachelor of Science in Education (B.S.Ed.), Master of Education (M.Ed.)*

Is this program offered at more than one site? Yes No

If yes, list the sites at which the program is offered _____

Title of the state license for which candidates are prepared

Program report status:

Initial review

Rejoinder

Response to national recognition with conditions

State licensure requirement for national recognition:

NCATE requires 80% of the program completers who have taken the test to pass the applicable state licensure test for the content field, if the state has a testing requirement. Does your state require such a test? Test information and data must be reported in Section III.

Yes **No**

¹ This will be a dropdown list of possible grade levels and degrees/awards that could be selected; multiple selections can be made.

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SECTION I CONTEXT

1. *Description of any state or institutional policies that may influence the application of SPA standards.*

One requirement for teacher certification in the state of Georgia is a passing score on two Praxis II exams, Mathematics: content Knowledge (0061) and Mathematics: Proofs, Models, and Problems Part 1 (0063). For this reason, candidates in the Mathematics Education program are encouraged to take the Praxis II during their senior year. This is not mandatory, however, accounting for the fact that some candidates may wish to continue their studies before applying for certification.

2. *Description of the field and clinical experiences required for the program, including the number of hours for early field experiences and the number of hours/weeks for student teaching or internships.*

School Practicum in Secondary Mathematics (undergraduates only) – 3 credit hours
Undergraduate candidates enroll in School Practicum in Secondary Mathematics (EMAT 3450) in fall of their junior year, in the same year as they enroll for the first course of the professional sequence and the technology course. The practicum proper occurs before the start of the fall semester and is followed by a semester-long reflective discussion component that is based on the candidates' experiences in the field. During the practicum, the candidates shadow a teacher of their choice during the pre-planning days and the first week of school. They attend meetings, arrange classroom furniture, label books and calculators, attend planning sessions, or design bulletin boards. In summary, they do everything the teacher does or asks them to do. The in-class reflective discussion component is based on the practicum reports candidates complete after the field experience.

Secondary School Mathematics Field Experience – 3 credit hours
Candidates enroll in Secondary School Mathematics Field Experience (EMAT 5360 for undergraduate candidates, EMAT 7360 for graduate candidates) toward the end of their program. This course gives candidates the opportunity to observe and participate in several high school mathematics classrooms in the vicinity of the university. In some classrooms, candidates serve as “small group instructors,” working with two or three students during class to help tutor them, work with them on activities, or offer remediation. In other classrooms, candidates observe seasoned middle and high school mathematics teachers and reflect on these experiences. Class time at the university is dedicated to discussing candidates' experiences and opinions, as well as reading research related to the field of mathematics education.

Student Teaching in Secondary School Mathematics – 15 credit hours
Student Teaching (EMAT 5460 for undergraduate candidates, EMAT 7460 for graduate candidates) is typically performed during a candidate's last semester. During this time, candidates are paired with a local high school mathematics teacher. During the period of student teaching, university candidates work as both a teacher's aids (helping the supervising teacher with his or her lessons) and autonomous teachers (developing, planning, and presenting lessons as primary instructors).

Supervising teachers frequently report to the candidate and the university with reflections on the candidate's achievement as a pre-service teacher and constructive criticism related to the candidate's teaching practice.

3. *Description of the criteria for admission, retention, and exit from the program, including required GPAs and minimum grade requirements for the content courses accepted by the program.*

Admission to Mathematics Education. A candidate with an overall GPA of 2.5 or higher can be accepted into Mathematics Education program, that is, change from I-EMAT to EMAT, after successful completion (C or better) of Calculus II. Candidates are admitted into the first professional (EMAT 3500) and the technology course (EMAT 4680) with successful completion of MATH 3000 (Linear Algebra) and MATH 3200 (Introduction into Higher Mathematics).

Retention. Candidates are eligible to take the methods courses (EMAT 4/6360 and EMAT5/7360) in fall of their senior year upon being "Admitted to Teacher Education." Admittance to teacher Education is a status that requires the following Mathematics Education requirements in addition to the College of Education requirements:

- A 2.5 overall grade point average
- Oral language competency
- A passing score on Praxis I or an SAT score of at least 1000 (GRE score of at least 1030)
- A grade of C or better in at least three upper-level (i.e., 3000-level or above) Mathematics courses
- Successful completion of the first curriculum course, EMAT 3500 (C or better)

Candidates are eligible to register for student teaching if they successfully complete the methods courses and maintain the overall GPA of 2.5 or higher.

Exit requirements. Successful completion of all program requirements, including student teaching.

The departmental recommendations for admission, retention and exit are given by a faculty member within Mathematics Education, based on his or her knowledge of the candidate's coursework and perceived potential as a mathematics educator.

The degree programs offered through the Department of Mathematics Education—Bachelor of Science in Education (B.S.Ed.), dual degree (B.S.Ed. in Mathematics Education and B.A. in Mathematics), Master of Education (M.Ed.), and Master of Arts (M.A.)—all focus on giving candidates a robust, meaningful understanding both of mathematical content knowledge and of pedagogical theories and practices.

Upper-level content courses are required so as to foster in candidates knowledge of higher mathematics and its implications to secondary school education. In taking these courses, candidates develop a stronger, deeper understanding of the meaning

and utility of mathematics, as well as the connections between and among various facets of the subject.

In addition, candidates take several courses related to the teaching of mathematics and students' learning of it. These courses connect research to practice, giving candidates an understanding of the importance of research in the field, and how to evaluate the veracity of claims made by researchers. These courses also rely on discussions of challenges and controversies related to teaching, encouraging candidates to cultivate and discuss their own pedagogical beliefs.

The requirements for each degree can be found in Attachment A.

4. *Description of the relationship of the program to the unit's conceptual framework.*

The University of Georgia's College of Education "aspires to prepare exemplary, reflective professionals to serve a diverse global community; it seeks to achieve that end through teaching, scholarship, outreach, and partnership at the local, national, and international levels" (<http://www.coe.uga.edu/dean/annualreport/2001/mission.html>). The Mathematics Education program, likewise, focuses on identifying and nurturing its candidates' potential as mathematics educators through multiple means. The Mathematics Education department maintains a strong relationship with those schools that cooperate in activities such as student teaching and other field experiences, since "Collaboration with school personnel to work together for the improvement of mathematics education is an important vehicle for accomplishing outreach commitments." Candidates in the program are able to tutor, guide, and teach students at participating schools, while learning more about the practice of teaching. Through this continuing dialogue between the College of Education and area schools, practice and experience can shape the teacher education system, and vice versa. In addition, candidates and faculty are encouraged to participate in activities related to the field at the local, national, and international levels, and to influence the educational system "through leadership, research, exemplary instruction, service, and other scholarly activities." Candidates and faculty are kept abreast of developments in the field of education and educational research, and these ever-changing policies and findings continually reshape the curriculum and instruction of the department of Mathematics Education. Research generated by the department itself plays a key role in the Mathematics Education program as well: "Scholarly productivity enhances the knowledge base of the discipline, informs instruction and practice, and creates new opportunities for service." Through these means, the Department of Mathematics Education seeks to serve today's educational system at the local, national, and international levels, and to improve the quality of tomorrow's educational system by providing its candidates with the most current, extensive, and valuable instruction possible.

(Quotations taken from the Mathematics Education mission statement, which can be found at <http://jwilson.coe.uga.edu/DEPT/math/docs1/mission.html>)

5. *Indication of whether the program has a unique set of program assessments and the relationship of the program's assessments to the unit's assessment system.*

The Mathematics Education department continually assesses its candidates' progress in the program. This is accomplished by monitoring candidates' grades and overall performance in their program courses. The following transition points serve as important times for reflection and assessment:

1. *Admission to the Mathematics Education program.*

To be accepted into the Mathematics Education program, a candidate must have received passing grades (that is, a C or better) in Calculus I and Calculus II and an overall GPA of at least 2.5.

2. *Admission to Teacher Education*

As mentioned above, candidates must demonstrate the following before being admitted to the Teacher Education:

- A 2.5 overall grade point average
- Oral language competency
- A passing score on Praxis I or an SAT score of at least 1000 (GRE score of at least 1030)
- A grade of C or better in at least three upper-level (i.e., 3000-level or above) Mathematics courses
- Successful completion of the first curriculum course, EMAT 3500 (C or better)
- Departmental recommendation and approval

These restrictions ensure that candidates exhibit qualities of good scholarship and high potential as mathematics educators.

3. *Completion of Teaching & Learning Secondary School Mathematics (EMAT 4/6360)*

Teaching and Learning Secondary School Mathematics (EMAT 4360 for undergraduate candidates, EMAT 6360 for graduate candidates) is a methods course designed to expose candidates to various pedagogical challenges and theories. Candidates must exhibit understanding and success in this course before being allowed to continue into later courses or student teaching.

4. *Completion of Secondary School Mathematics Field Experience (EMAT 5/7360)*

Secondary School Mathematics Field Experience (EMAT 5360 for undergraduate candidates, EMAT 7360 for graduate candidates) is a field experience course that is usually taken at the same time as Teaching and Learning Secondary School Mathematics (the Methods course described above). This course is intended to give candidates an opportunity to observe secondary school mathematics teachers and to teach small groups, so as to put into use the ideas and theories discussed in the methods course. Candidates are expected to thoughtfully reflect on their experiences and to discuss these reflections with other candidates in their Methods and Field Experience courses. Candidates who do not satisfactorily complete this course (with a grade of S) may not continue into later courses.

5. *Completion of Student Teaching & Seminar (EMAT 5/7460 & 4/6950)*

Candidates must demonstrate the ability to teach mathematics classrooms through a student teaching experience, usually in their senior year. Student teaching (EMAT 5460 for undergraduate candidates, EMAT 7460 for graduate candidates) gives candidates an opportunity to display and hone their skills at full-class instruction, and the student teaching seminar (EMAT 4950 for undergraduate candidates, EMAT 6950 for graduate candidates) allows them to discuss their experiences with classmates and professors. Candidates must successfully complete the student teaching and the related seminar before being allowed to graduate with a Mathematics Education degree. “Success” is based on the mentor teacher’s opinions of the student teacher’s efficacy as a mathematics educator.

SECTION I ATTACHMENT A

A program of study that outlines the courses and experiences required for candidates to complete the program.

B.S.Ed. in Mathematics Education

- *Core Courses*

B.S.Ed. candidates are required to complete a series of core courses, usually completed by the end of their sophomore year. This requirement is fulfilled by completing the required number of courses in each of the following areas:

- Area A – Essential Skills – 9 hours – This section consists of two introductory English courses and either pre-calculus (MATH 1113) or, if pre-calculus is exempted, Calculus I (MATH 2200)
- Area B – Institutional Electives – 4 hours – The courses are electives approved by the candidate’s advisor.
- Area C – Fine Arts, Humanities – 6 hours – These courses can be selected from a list of approved courses, including classes in music, philosophy, linguistics, and other areas.
- Area D – Science, Math, Technology – 11 hours – Two laboratory sciences from an approved list of sciences and either Calculus I or II (depending on the course taken in Area A).
- Area E – Social Sciences – 12 hours – These courses can be selected from a list of approved courses, including an US history and a political science course and classes in psychology, economics, geography, and other areas,.
- Area F – Courses for Major – 18 hours – Three courses in this area are required: EFND 2030 (Foundations of Education), EPSY 2020 (Learning and Development in Education), and SPED 2000 (Survey of Special Education). The remaining courses can be selected from a list of approved courses, including classes in math, physics, statistics, and other areas.
- PEB – 1 hour – A physical education course.

A complete listing of the core courses for B.S.Ed. candidates can be found at <http://jwilson.coe.uga.edu/DEPT/math/UndergradCoord/CoreProgFrame.html>

- *Teaching Field*

A minimum of 29 hours of upper-level content courses are required, including at least one course in each of the following: linear algebra, geometry, abstract algebra, statistics or probability, instructional computing, and introduction to higher mathematics.

A complete listing of the teaching field courses can be found at <http://jwilson.coe.uga.edu/DEPT/math/UndergradCoord/TeachingFieldFrame.html>

- *Professional Education*
After being accepted into Mathematics Education, usually in a candidate's junior year, he or she begins courses in professional education. These are courses related specifically to teaching.
A complete listing of the professional education courses can be found at <http://jwilson.coe.uga.edu/DEPT/math/UndergradCoord/ProfEdFrame.html>

Dual Degree – B.S.Ed. in Mathematics Education + B.S. in Mathematics

Since Fall 2003, candidates have been able to work simultaneously toward both a Bachelor of Science degree in Mathematics and a B.S.Ed. in Mathematics Education. This program requires the same number of Teaching Field courses (as approved by the Mathematics Department) and the same Professional Education courses as the B.S.Ed. program, and has a slightly different configuration of core courses. The requirements for the dual degree can be found at <http://jwilson.coe.uga.edu/DEPT/math/UndergradCoord/DualIntro.html>

M.Ed. or M.A. in Mathematics Education

To be accepted into the Master's program in the Department of Mathematics Education, an applicant must submit the following:

- GRE:
 - Verbal score: at least 400
 - Quantitative score: at least 400
 - Verbal + Quantitative score: at least 850
- Three letters of recommendation, which are used by the graduate school "to help us assess your scholarly potential for completing a graduate program, and...to assist us in advising you."

All Master's candidates must complete the following course work:

- One course in Educational Psychology – 3 hours
- Curriculum and Instruction Courses – 8-9 hours:
 - Teaching Secondary School Mathematics (3 hours)
 - Curriculum in Mathematics Education (3 hours)
 - Seminar in Mathematics (2-3 hours)
- At least 6 teaching field courses in the Mathematics, Statistics, or Mathematics Education departments – at least 18 hours
- One course in research – 3 hours

In addition, M.A. candidates must complete the following:

- A Mathematics Education thesis
- An oral final comprehensive exam

M.Ed. candidates must satisfy the following requirements:

- Electives – candidates have two options to fulfill elective requirements
 - Plan A – applied project or thesis – 3 hours
 - Plan B – two elective courses, approved by an advisor – 6 hours
- A written final comprehensive exam