



MEMORANDUM

To: Dr. Martha Venn, Provost and Vice President for Academic Affairs

From: Dr. Barry Monk, Chair of the Department of Mathematics

Date: October 16, 2012

Re: Approval of **Curriculum for the School of Science and Mathematics** for Middle Georgia State College

It is recommended by the Department of Mathematics that the attached curriculum be approved by the Academic Affairs Committee and included in the Middle Georgia State College 2013-2014 catalog. The following academic programs are included in this document:

Program	Status of Program for MSC
Mathematics, A.S.	New Program (formally deactivated in 2010)
Mathematics, B.S.	Changed Program
Minor in Mathematics	Changed Program

The Curriculum Work Team members in each program area were as follows:

Barry Monk (MSC), Don Brown (MSC), Cathie Davis (MGC), Mark Garrison (MGC), Viktoriya Lanier (MGC), John Trimboli (MSC)

Mathematics (B.S.)

The analytical and problem-solving skills cultivated by students majoring in mathematics are both versatile and highly valued in industry, government, and education. The bachelor of science degree program in mathematics is designed to prepare students to (1) attend professional and graduate school in mathematics, (2) teach mathematics in secondary school, or (3) seek employment in mathematical related fields in the public and private sectors. Students majoring in mathematics may arrange their course work according to their interests. There are two tracks of study: Applied Mathematics and Mathematics Education.

The Applied Mathematics track provides excellent preparation for graduate study or careers where mathematical ideas and techniques are used to model and solve real world problems. The Mathematics Education track is designed for students interested in teaching high school level mathematics. Regardless of which track is chosen, all students majoring in mathematics must satisfy a common upper level core. Coursework beyond the upper level core is taken according to the track chosen.

For information on careers in mathematics, please visit <http://math.maconstate.edu>.

Curriculum for Bachelor of Science in Mathematics

Area A Credit: 9 Hours

Essential Skills

- ENGL 1101 - English Composition I **Credit:** 3 hours
- ENGL 1102 - English Composition II **Credit:** 3 hours
- MATH 1112 - Plane Trigonometry **Credit:** 3 hours
or
- MATH 1113 - Precalculus Mathematics **Credit:** 4 hours

*Note: Courses required for Area A must be completed within the first 30 hours.

Area B Credit: 4 Hours

Institutional Options – To Be Determined

Area C Credit: 6 hours

Humanities/Fine Arts

- Literature Elective **Credit:** 3 hours
- Area C Elective **Credit:** 3 hours

Area D Credit: 11 Hours

Science, Math & Technology

- Lab Science Elective Credit: 4 hours
PHYS 2211K-2212K or CHEM 1211K-1212K are recommended.
- Lab Science Elective Credit: 4 hours
PHYS 2211K-2212K or CHEM 1211K-1212K are recommended.
- MATH 1251 - Calculus I **Credit:** 4 hours
3 hours of credit will be applied to Area D and the additional 1 hour of credit may be applied to the upper level curriculum.

Area E Credit: 12 Hours

Social Sciences

- HIST 2111 - United States History to 1865 **Credit: 3 hours**
or
- HIST 2112 – United States History since 1865 **Credit: 3 hours**
- POLS 1101 - American Government **Credit: 3 hours**
- Area E Elective **Credit: 3 hours**
Choose from the following:
HIST 1111 - History of World Civilizations to 1650 **Credit: 3 hours**
HIST 1112 - History of World Civilizations Since 1650 **Credit: 3 hours**
POLS 2301 - Introduction to Comparative Politics **Credit: 3 hours**
POLS 2401 - Introduction to Global Issues **Credit: 3 hours**
- Area E Elective **Credit: 3 hours**

Area F Credit: 18 Hours

Major Field

- MATH 1371 - Computing for the Mathematical Sciences **Credit: 4 hours** or CSCI 1301 - Computer Science I **Credit: 4 hours** or ENGR 1371 - Computing for Engineers **Credit: 4 hours**
- MATH 2252 - Calculus II **Credit: 4 hours**
- MATH 2253 - Calculus III **Credit: 4 hours**
- MATH 2260 - Introduction to Linear Algebra **Credit: 3 hours**
- MATH 2270 - Differential Equations **Credit: 4 hours**
3 hours of credit will be applied to Area F and the additional 1 hour of credit may be applied to the upper level curriculum.

Total Hours: 60

Upper Division Core Courses Required for Bachelor of Science in Mathematics Program

Grade Requirements: A grade of at least a "C" must be earned in all upper division courses used to satisfy the major.

****Choose Applied Mathematics Track or Mathematics Education Track****

Applied Mathematics Track: 60 Hours

Upper Level Core Credit: 21 Hours

- MATH 2120 - Discrete Mathematics **Credit:** 3 hours
- MATH 3040 - Bridge to Higher Mathematics **Credit:** 3 hours
- MATH 3600 - Probability and Statistics **Credit:** 3 hours
- MATH 4150 - Linear Algebra **Credit:** 3 hours
- MATH 4621 - Mathematical Statistics I **Credit:** 3 hours
- MATH 4910 - Mathematical Models **Credit:** 2 hours
- MATH 4920 - Senior Seminar **Credit:** 2 hours
- One hour of credit for MATH 1251 taken in Area D
- One hour of credit for MATH 2270 taken in Area D

Major Field Courses Credit: 27 Hours

- MATH 3251 - Applied Combinatorics **Credit:** 3 hours
- MATH 4260 - Mathematical Analysis **Credit:** 3 hours
- MATH 4300 - Regression Analysis **Credit:** 3 hours
- MATH 4480 - Graph Theory **Credit:** 3 hours
- MATH 4622 - Mathematical Statistics II **Credit:** 3 hours
- MATH 4651 - Numerical Analysis I **Credit:** 3 hours
- MATH 4652 - Numerical Analysis II **Credit:** 3 hours
- MATH 4901 - Operations Research I **Credit:** 3 hours
- MATH 4905 - Optimization **Credit:** 3 hours

Electives Credit: 12 Hours

- MATH Electives - Credit: 12 hours
Any mathematics course above the 3000 level excluding Early Childhood Education or Middle Grades Education courses (MATH 3106, 3110, 3150, 3156, 3310, 3320, and 3330).

Total Hours: 120

Mathematics Education Track

Upper Level Core Credit: 21 Hours

- MATH 2120 - Discrete Mathematics **Credit:** 3 hours
- MATH 3040 - Bridge to Higher Mathematics **Credit:** 3 hours
- MATH 3600 - Probability and Statistics **Credit:** 3 hours
- MATH 4150 - Linear Algebra **Credit:** 3 hours
- MATH 4621 - Mathematical Statistics I **Credit:** 3 hours
- MATH 4910 - Mathematical Models **Credit:** 2 hours
- MATH 4920 - Senior Seminar **Credit:** 2 hours
- One hour of credit for MATH 1251 taken in Area D
- One hour of credit for MATH 2270 taken in Area D

Major Field Courses Credit: 12 Hours

- MATH 3010 - History of Mathematics **Credit:** 3 hours
- MATH 3510 - Foundations of Geometry **Credit:** 3 hours
- MATH 4110 - Number Theory **Credit:** 3 hours
- MATH 4480 - Graph Theory **Credit:** 3 hours

Education Courses Credit: 33 Hours

Students must be admitted to the Education Program prior to taking upper division education courses.

- EDUC 2110 - Investigating Critical and Contemporary Issues in Education **Credit:** 3 hours
- EDUC 2120 - Exploring Socio-Cultural Perspectives on Diversity in Educational Contexts **Credit:** 3 hours
- EDUC 2130 - Exploring Learning and Teaching **Credit:** 3 hours
- EDUC 3401 - Explorations into Teaching: A Room With A View **Credit:** 1 hour
- EDUC 3402 - Making Classroom Connections **Credit:** 2 hours
- EDUC 3550 - Assessment for Learning **Credit:** 3 hours
- EDUC 3600 - Teaching and Learning in Secondary Mathematics Environments **Credit:** 4 hours
- EDUC 3602 - Internship in Secondary School Mathematics **Credit:** 3 hours
- EDUC 4604 - Student Teaching in Secondary School Mathematics **Credit:** 8 hours
- SPED 3110 - Introduction to the Exceptional Learner **Credit:** 3 hours

Mathematics (A.S.)

Transfer Program in Mathematics Leading to Associate of Science

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*Note: Courses required for Area A must be completed within the first 30 hours.

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- MATH 2252 - Calculus II **Credit:** 4 hours
- MATH 2253 - Calculus III **Credit:** 4 hours
- MATH 2260 - Introduction to Linear Algebra **Credit:** 3 hours
- MATH 2270 - Differential Equations **Credit:** 4 hours
3 hours of credit will be applied to Area F and the additional 1 hour of credit may be applied to the upper level curriculum.

Total Hours: 30

Mathematics (Minor)

Macon State College's Department of Mathematics offers a minor in Mathematics for undergraduates enrolled in any discipline or program other than Mathematics. The Mathematics minor is designed to provide students with an opportunity to attain greater breadth and depth in mathematics than their major field of study normally requires. Greater knowledge of mathematics and mathematical techniques are useful to a wide range of disciplines and provides students with critical thinking and analytical skills that are highly demanded in today's workforce.

Coursework

Grade Requirements: A grade of at least a "C" must be earned in all courses used to satisfy the minor.

Note: Courses taken to satisfy a major in any field of study may not be used for credit toward the completion of this minor.

Required Courses (7 hours)

- MATH 2253 - Calculus III **Credit:** 4 hours
- MATH 2260 - Introduction to Linear Algebra **Credit:** 3 hours or MATH 2270 - Differential Equations **Credit:** 3 hours

Electives (9 hours)

- MATH Electives - Credit: 9 hours
Any mathematics course above the 3000 level excluding Early Childhood Education or Middle Grades Education courses (MATH 3106, 3110, 3150, 3156, 3310, 3320, and 3330).

Total Hours: 16