PEDH 5555 — Measurement In Physical Education .......................................................... 3(3-0)
Study of current testing procedures in physical education. Emphasis is placed on evaluation and interpretation of test results as they apply to the individual's abilities, capacities and needs.

PEDH 5565 — Physical Education and The Handicapped Child ..................................... 3(3-0)
Study of motor pattern development for individuals demonstrating specific handicaps including neurological, visual, auditory, speech and orthopedic deviations.

PEDH 5581 — Directed Reading and Research in Physical Education ............................. 3(3-0)
Designed to assist the student in exploring specific areas of interest.

PEDH 5583 — Research Design .......................................................................................... 3(3-0)
Study of current research in physical education with emphasis on basic methodology employed. Includes the development of a pilot study prospectus.

PEDH 5596 — Seminar I .................................................................................................. 3(3-0)
Personal assessment relative to the student's educational goals and professional competencies along with an analysis of current physical education programs in urban and rural settings.

PEDH 5599 — Master's Thesis ......................................................................................... 3(3-0)
Independent research done by the student.

MATHEMATICS EDUCATION
The M.Ed. degree in Secondary Education with a concentration in Mathematics leads to LEVEL 5 certification in mathematics. A student enrolling in this program is expected to hold a baccalaureate-level certification. This program requires a minimum of 36 semester hours of graduate work and successful completion of a comprehensive examination in the area of mathematics. Students must confer with their advisor to design a planned program, which may include undergraduate courses, as needed, to remedy the lack of preparation in mathematics as determined by the Graduate Committee in the Department of Mathematics and Computer Science.

The objectives of the Master of Education program in Mathematics Education are: (1) to provide the students with in-depth knowledge of Mathematics in the areas of algebra, analysis and geometry and their applications; (2) to provide training in the use of technology and educational research in the teaching and learning of mathematics; and (3) to prepare students to use and promote logical thinking skills and problem solving strategies in the teaching and learning of mathematics.

Degree Requirements
1. The Master of Education in Secondary Education with concentration in mathematics requires a minimum of 36 semester hours of graduate course work, at least 27 semester hours of which are taken at Albany State University.
2. The successful completion of a comprehensive examination is a requirement in all Master's degree programs.
3. At least an overall average of "B" in all the mathematics courses in the graduate program is a prerequisite for taking the comprehensive examination in Mathematics.

Regular Admission
Regular admission to the M.Ed. program with concentration in mathematics requires that an applicant have an undergraduate degree in Mathematics or Mathematics Education and have satisfied the regular general admission requirements for admissions set by the College of Education at Albany State University. The student must have a 2.5 minimum overall undergraduate grade point average, minimum standardized test score of 800 on the aptitude portion of the GRE, and initial teaching certification for secondary mathematics in the State of Georgia. In addition, a student who lacks preparation in Mathematics is required, as a prerequisite to graduate admission, to take undergraduate mathematics courses as determined by the Graduate Committee in the Department of Mathematics and Computer Science.
**Provisional Admission**

The student is admitted provisionally if some conditions are placed on their status because of grade point average, standardized test scores or lack of academic preparation in the subject area. A student who lacks sufficient preparation in mathematics is required as a prerequisite, to complete specific undergraduate mathematics courses, as determined by the Graduate Committee in the Department of Mathematics. No graduate credit is given for courses taken at the undergraduate level. A minimum of 3.00 grade point average is required for the satisfactory completion of the prerequisite courses. Additionally, the student must complete nine semester hours of study at the graduate level with an average of "B" or better before he is granted regular admission to the program.

**Non-Degree Admission**

Students may enroll with this status to complete course work for either certification renewal, add-on certification purposes or personal enrichment provided they satisfy the prerequisite requirements for the course. No more than nine semester hours of credit earned in this category may subsequently be applied toward meeting the requirements of the Master’s degree.

**Student Advisement and Program Planning**

A graduate advisor in the Department of Mathematics and Computer Science must approve in advance all courses taken through the teacher education program. Students, evaluated by the department and found to be lacking sufficient preparation for the graduate courses in mathematics, are required to take the necessary prerequisites as determined by the Graduate Committee in the Department of Mathematics and Computer Science.

**Area A - Nature of the Learner (Minimum of 3 semester hours)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSYC 5515</td>
<td>Educational Psychology</td>
</tr>
<tr>
<td>PSYC 5555</td>
<td>Conditions of Learning</td>
</tr>
<tr>
<td>SPED 5501</td>
<td>Exceptional Children and Youth**</td>
</tr>
</tbody>
</table>

**Area B - Programs and the Problems of Schools (Minimum of 3 semester hours)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDUC 5509</td>
<td>Philosophy of Education</td>
</tr>
<tr>
<td>EDUC 5538</td>
<td>Curriculum Planning</td>
</tr>
<tr>
<td>EDUC 5533</td>
<td>Methods and Materials in Teaching Secondary School Mathematics</td>
</tr>
<tr>
<td>EDUC 5531</td>
<td>Mathematics Concepts for Secondary School Mathematics</td>
</tr>
</tbody>
</table>

**Area C - Teaching Field (Minimum of 15 semester hours)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 5111</td>
<td>Theory of Numbers</td>
</tr>
<tr>
<td>MATH 5112</td>
<td>Linear Algebra**</td>
</tr>
<tr>
<td>MATH 5113</td>
<td>Modern Algebra I*</td>
</tr>
<tr>
<td>MATH 5114</td>
<td>Modern Algebra II</td>
</tr>
<tr>
<td>MATH 5211</td>
<td>Fundamental Concepts of Analysis I*</td>
</tr>
<tr>
<td>MATH 5212</td>
<td>Fundamental Concepts of Analysis II</td>
</tr>
<tr>
<td>MATH 5311</td>
<td>Geometry for Teachers**</td>
</tr>
<tr>
<td>MATH 5312</td>
<td>Foundations of Geometry*</td>
</tr>
<tr>
<td>MATH 5313</td>
<td>Modern Geometry*</td>
</tr>
</tbody>
</table>

**Area D - Research (Minimum of 3 semester hours)**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDUC 5501</td>
<td>Educational Research*</td>
</tr>
<tr>
<td>MATH 5412</td>
<td>Methods of Statistical Analysis**</td>
</tr>
</tbody>
</table>

**Area E - Electives (Minimum of 3 semester hours)**

(Courses may be chosen from either the following courses or from courses in area C above).

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 5202</td>
<td>Technology Oriented Mathematics</td>
</tr>
<tr>
<td>MATH 5213</td>
<td>Complex Analysis</td>
</tr>
</tbody>
</table>
MATH 5214—Differential Equations .......................................................... 3(3-0)
Sets, ordinary differential equations of first and higher order, solutions in series, Laplace transforms, numerical solutions. Prerequisite: MATH 5211 or consent of instructor.

MATH 5215—Numerical Analysis ............................................................... 3(3-0)
Numerical solutions of ordinary differential equations of first and higher order, solutions in series, Laplace transforms, numerical solutions. Prerequisite: MATH 5211 or consent of instructor.

MATH 5414—Introduction to Operations Research ....................................... 3(3-0)
An introduction to the theory and applications of operations research. Prerequisite: MATH 5211 or consent of instructor.

MATH 5670—Special Topics in Mathematical Sciences .................................. 3(3-0)
* Required course
** Required if not previously fulfilled at the undergraduate or graduate level.
Total Hours Required .................................................................................. 36 hours

COURSE DESCRIPTIONS

MATH 5011—Foundations of Arithmetic for Teachers *** .................................. 3(3-0)
Sets, whole numbers, fractions, elementary number theory, algorithms, elementary geometry and a study of the metric system. Designed for teachers of grades K-four.

MATH 5012—Foundations of Arithmetic for Teachers II *** ............................. 3(3-0)
Numeration systems; elementary number theory; rational numbers; real numbers; basic algorithms; graphs and measurements. For teachers of grades four to eight.

MATH 5110—Algebraic Structures for Teachers *** ........................................ 3(3-0)
Elementary study of the properties of groups, integral domains and fields. Prerequisite: MATH 5011 or consent of instructor.

MATH 5111—Theory of Numbers .................................................................... 3(3-0)
Properties of integers, divisibility, congruence of numbers. Lagrange’s theorem, residues and Diophantine equations. Prerequisite: Graduate standing.

MATH 5112—Linear Algebra .......................................................................... 3(3-0)
Vector spaces and linear transformations. Other topics include equations, matrices, determinants, characteristic values, the special theorem, linear functions and dual space. Prerequisite: Graduate standing.

MATH 5113—Modern Algebra I & II ............................................................. 3(3-0)
Groups, permutation groups, finite groups, group mappings, rings, ideals, quotient rings, fields, finite fields, polynomial rings, field extensions, vector spaces, dual spaces, algebra of linear transformations. Prerequisite: Graduate standing.

MATH 5220—Algebraic Structures for Teachers I *** ...................................... 3(3-0)
Elementary study of the properties of groups, integral domains and fields. For teachers of grades K-four.

MATH 5221—Algebraic Structures for Teachers II *** ...................................... 3(3-0)
Elementary study of the properties of groups, integral domains and fields. For teachers of grades four to eight.

MATH 5214—Differential Equations ............................................................... 3(3-0)
Ordinary differential equations of first and higher order, solutions in series, Laplace transforms, numerical solutions. Prerequisite: MATH 5211 or consent of instructor.
MATH 5215—Numerical Analysis ................................................................. 3(3-0)
Nature of error, Gaussian elimination for linear systems; iteration, Newton’s method, steepest descent for nonlinear systems, zeros of polynomials and interpolation. Prerequisite: MATH 5211 or consent of instructor.

MATH 5311—Geometry for Teachers*** .................................................. 3(3-0)
Points, lines, planes, parallel and perpendicular lines, congruence, similarity, measurement, constructions, space figures, analytical geometry and non-Euclidean Geometry. Prerequisite: Graduate standing.

MATH 5312—Foundations of Geometry ................................................. 3(3-0)
Euclidean and non-Euclidean geometry, including incidence, order and the parallel postulate. Prerequisite: Graduate standing.

MATH 5313—Modern Geometry .............................................................. 3(3-0)
An algebraic approach to geometry using vectors and transformations. For secondary teachers. Prerequisite: MATH 5112 or consent of the instructor.

MATH 5314—Introduction to Point Set Topology .................................... 3(3-0)
Set theory, general topological spaces, product spaces, sequences, compactness, connectedness, metric spaces and Tychonoff theorem. Prerequisite: Graduate standing.

MATH 5410—Probability and Statistics for Teachers*** ....................... 3(3-0)
Probability, gathering and recording data, construction and use of tables, tabulating and graphing percentiles, mean and standard deviation, frequency distributions, normal distribution and statistical interference correlation. Prerequisite: consent of instructor.

MATH 5412—Methods of Statistical Analysis ........................................ 3(3-0)
Estimation and inference using basic probability distributions, analysis of variance, analysis of covariance, regression, correlation and basic experimental design. Prerequisite: a previous course in statistics.

MATH 5414—Introduction to Operations Research ................................ 3(3-0)
Linear programming, the simplex method, network theory, games theory, Markov analysis; other topics including inventory analysis and queuing theory. Prerequisite: graduate standing.

MATH 5511—History of Mathematics .................................................... 3(3-0)
Growth and development of the discipline of mathematics from antiquity to modern times. Special emphasis given to the evolutionary character of the principal ideas of modern mathematics.

MATH 5670—Special Topics in Mathematical Sciences ....................... 3(3-0)
An exploration of special topics of current interest in the mathematical sciences. Prerequisite: consent of instructor.
*** No credit is given towards the graduate program in Mathematics Education. (See courses on page 87)

MIDDLE GRADES EDUCATION

The basic objective of the Masters of Education program in Middle Grades Education is to provide teachers with the opportunity to:
1. Compare their teaching practices with current research-based practices and make changes where necessary;
2. Extend their knowledge and skills in a chosen area of educational interest;
3. Present intellectually challenging thoughts and practices to students;
4. Integrate new materials and methods of teaching into students’ teaching repertoire;
5. Encourage interest in conducting research;
6. Increase competencies in research techniques; and
7. Increase students’ ability to recognize relevant research, which they can use to become more effective in their classrooms.

As students progress through the program, they should increasingly incorporate the following six characteristics/traits into their interpersonal skills: facilitation, humanness, knowledgeable, motivation, multiculturalism, and solution generation. As the program builds the desire to strengthen these traits, it reinforces the following key components of a middle school: