

-
- b) an 18-hour minor approved by the faculty adviser

Collateral requirement for Teacher Licensure option

- a) one 12-hour collateral approved by the faculty adviser

It is strongly recommended that all mathematics majors take Physics 201 and 202.

The minimum number of semester hours required in major courses for a major in mathematics is 33 for the Mathematical Sciences Option and 36 for the Teacher Licensure Option. The minimum number of semester hours in all courses (major and non-major) required for the major in mathematics is 120 (121 for Teacher Licensure Option if the collateral is chosen in a biological or physical science).

MINOR

A minor in mathematics consists of Mathematics 201, 202, and 203 plus nine additional semester hours above the 203-level. At least six of those additional hours must be at the 300-level or higher. Mathematics 270 and 370 cannot be used to satisfy the requirements for a minor in mathematics.

COLLATERAL

A collateral in mathematics consists of Mathematics 201 and 202 plus six semester hours above the 202 level. Mathematics 270 and 370 cannot be used to satisfy the requirements for a collateral in mathematics.

OTHER INFORMATION

During registration, beginning students at FMU are placed by members of the Department of Mathematics in their first mathematics course. Adjustments to the following placements may be made due to low scores on the Verbal Section of the SAT. Equivalent ACT scores are used for students who did not take the SAT. Students who took an AP Calculus AB course in high school and scored a five on the examination or an AP Calculus BC course and scored a three or higher on the examination are typically placed in Mathematics 203; those who scored a three or four on the AP Calculus AB examination are advised to enter Mathematics 202; those who scored a one or two are typically placed in Mathematics 201. Students with a strong high school background in both algebra and trigonometry and who make 570 or higher on the Quantitative Section of the SAT are typically placed in Mathematics 201. Beginning students with a strong background in algebra but little or no background in trigonometry and at least 540 on the Quantitative Section of the SAT are typically placed in either Mathematics 131, Mathematics 132, Mathematics 134, Mathematics 137, Mathematics 140, or Mathematics 170 based on their chosen major. Students who have had at least two years of high school algebra and who make between 460 and 530, inclusively, on the Quantitative Section of the SAT are typically placed in either Mathematics 111 or Mathematics 121 based on their chosen major. Students who have less than two years of high school algebra or who make less than 460 on the Quantitative Section of the SAT are typically placed in Mathematics 105 or Mathematics 110/110L based on their chosen major. Mathematics 105 and Mathematics 110/110L are also available to older students who are not recent high school graduates. Students who disagree with their placements in their initial mathematics course may see the department chair or his/her designee by the third day of the semester to schedule a Mathematics Placement Test.

Mathematics 105 and Mathematics 110 and 110L, while earning credit toward graduation, will not satisfy any of the six hours of Mathematics in the General Education Requirements.

Mathematics 170, 270, and 370 are designed for students seeking South Carolina Teacher Licensure in early childhood education or in elementary education or a B.G.S. in Educational Studies. It should be noted that a grade of C or higher in Mathematics 111 or a score of 540 or more on the Quantitative Section of the SAT is the prerequisite for Mathematics 170.

Many areas of concentration require completion of Mathematics 132 or 134 as preparation for certain applied courses.

Students who complete General Education Requirements for a B.A. by taking Mathematics 111 and Logic should consider the restriction such selections place on future choices of a major.

Mathematics 134 is required for majors in business, nursing, middle level education, and medical technology and is recommended for majors in sociology, history, and psychology.

No student can later take for credit any mathematics course that was a prerequisite (or was in the prerequisite sequence) for a mathematics course for which he/she has already received credit UNLESS he/she is repeating that course in order to obtain a better grade or he/she obtains written permission from the department.

A student cannot receive credit for Mathematics 105, 110/110L, 111, or 121 after receiving credit for any mathematics course numbered higher than 121. A student may repeat a course to raise a grade earned in that course.

MATHEMATICS COURSES (MATH)

105 College Algebra I (3) (Prerequisite: Placement Scores. A grade of C or higher in Mathematics 105 is required to advance to Mathematics 111 or Mathematics 121). F, S, SU. The study of real numbers and their operations and properties; order of operations including exponents and roots; linear equations and inequalities in one and two variables, their systems and applications; introduction to functions and graphs; and the study of polynomials and their operations. Earns credit toward graduation but will not satisfy any of the six hours of Mathematics in the General Education Requirements. Credit cannot be given for both Mathematics 105 and Mathematics 110.

110 College Algebra with Applications (3) (Prerequisite: Placement scores or permission of department; Prerequisite/Corequisite: Mathematics 110L). Study of real numbers and their operations and properties; linear functions, equations, and inequalities; systems of equations; introduction to functions and graphs; and the study of polynomials and their operations. Earns credit toward graduation but will not satisfy any of the six hours of Mathematics in the General Education Requirements. Credit cannot be given for both Mathematics 110 and Mathematics 105.

110L College Algebra with Modeling (1:3) (Prerequisite/Corequisite: Mathematics 110) Study of algebraic operations, properties of the real number system, data analysis, and problem solving skills to complete a variety of assigned projects and activities involving word problems, linear modeling, and linear programming.

111 College Algebra II (3) (Prerequisite: Grade of C or higher in Mathematics 105 or Mathematics 110 and 110L or placement scores. The grade of C or higher is required in Mathematics 111 to enroll in any higher numbered mathematics course for which Mathematics 111 is a prerequisite.) F, S, SU. The study of polynomials, their operations and factoring, operations with and simplifying rational expressions, roots and radicals, quadratic equations and inequalities, graphs of non-linear functions and the conic sections; exponents and logarithmic functions. Credit cannot be given for both Mathematics 111 and 121.

121 Introduction to Mathematical Modeling and Problem Solving (3) (Recommended for non-math and non-science majors) (Prerequisite: Grade of C or higher in Mathematics 110 and 110L or placement scores or permission of the department.) The study of algebra and polynomial functions and operations to include linear and nonlinear functions, data analysis, basic statistics, and linear regression in applications setting. Credit cannot be given for both Mathematics 111 and 121.

131 Mathematical Modeling and Problem Solving (3) (Prerequisite: Grade of C or higher in 111 or 121 or placement scores.) Students will use discrete dynamical systems to mathematically model and solve real-world problems. Computer applications will be used extensively.

132 College Trigonometry with Analytic Geometry (3) (Prerequisite: Grade of C or higher in Mathematics 111 or placement scores) F, S, SU. College trigonometry, to include trigonometric identities as well as the inverse trigonometric functions, parabolas, ellipses, and hyperbolas. Credit toward graduation cannot be earned for both Mathematics 137 and Mathematics 132.

134 Probability and Statistics (3) (Prerequisite: Grade of C or higher in Mathematics 111 or Mathematics 121 or placement scores) F, S, SU. Basics of probability, including counting, tree diagrams, conditional probability, binomial and normal distributions, mean, variance, standard deviation, and expected value.

137 Pre-Calculus (3) (Prerequisite: A grade of C or higher in Mathematics 111, placement scores, or permission of the department.) A complete treatment of plane trigonometry, including the trigonometric functions, trigonometric identities, and solutions to and applications of right and arbitrary triangles; properties of functions, including their composition, inversion, and piecewise definition; techniques of graphing functions, including polynomial, rational, algebraic, exponential, and logarithmic functions; and other pre-calculus topics as time permits. Credit toward graduation cannot be earned for both Mathematics 137 and Mathematics 132.

140 Applied Calculus (3) (Prerequisite: Grade of C or higher in Mathematics 111 or Mathematics 121 or Mathematics 137 or placement scores) F, S, SU. Topics include limits, derivatives, applications of the derivative, exponential and logarithmic functions, definite integrals, and applications of the definite integral. This course cannot be used in place of Mathematics 201 for any reason, and it is not a sufficient prerequisite for Mathematics 202. Credit toward graduation cannot be earned for both Mathematics 140 and 201.

170 Survey of Mathematics for Early Childhood and Elementary Teachers I (3) (Prerequisite: Grade of C or higher in Mathematics 111 or placement scores) F, S, SU. Origin and development of the real numbers. Emphasis on the precision of Mathematical language as well as computational procedures and algorithms involving whole numbers and integers. The study of algebraic concepts (patterns, relations, and functions) and the role of Mathematical structures in the use of equalities, equations, and inequalities are emphasized. Mathematics 170 is for students seeking South Carolina Teacher Licensure in early childhood education or in elementary education or a B.G.S. in Educational Studies.

201 Calculus I (3) (Prerequisite: Grade of C or higher in either Mathematics 132 or Mathematics 137 or placement scores or permission of department) F, S, SU. The first of a three-course sequence covering an introduction to the analysis of real-valued functions of one real variable. Topics include the limit of a function, continuity, the derivative, and applications. Credit toward graduation cannot be earned for both Mathematics 140 and 201.

201L Calculus I Workshop (1:3) (Corequisite: Mathematics 201) F, S, SU. Intensive calculus workshop for students enrolled in Mathematics 201. Students work collaboratively in small groups on problems that emphasize the key ideas of calculus. The workshop will also introduce students to technology that can automate and help visualize calculus concepts. Assessed as S (Satisfactory) or U (Unsatisfactory).

202 Calculus II (3) (Prerequisite: Grade of C or higher in Mathematics 201 or qualifying AP score) F, S, SU. Continuation of Calculus I, the course covers the integral, techniques of integration, the exponential function, the logarithm function, and applications.

203 Calculus III (3) (Prerequisite: Grade of C or higher in 202 or qualifying AP score) F, S, SU. Continuation of Calculus II, the course covers sequences, infinite series, improper integrals, and applications.

212 Introduction to FORTRAN (3) (Prerequisite/Corequisite Mathematics 201 or permission of department) (Same as Computer

Science 212) F, S, SU. A study of programming to include input and output procedures, arithmetic and logical operations, DO loops, branching procedures, arrays, declaration statements, and subroutines. Application of these ideas by writing, running, and correcting programs.

222 Problem Solving in the Sciences using Software (3) (Prerequisite: Grade of C or higher in 201 or placement scores.) Provides students from diverse areas of science an introduction to software currently available to solve problems in the sciences with the aid of computers. Packages include, but are not limited to, Maple, Matlab, SAS, and SPSS. Skills that pertain to the practical implementation of solutions to applied problems in the use of these software packages will be presented. Problems from the sciences that require elementary concepts from calculus, algebra, and statistics will be considered. Appropriate presentation of solutions containing computational and graphical components together with documentation will be emphasized.

230 Discrete Mathematics I (3) (Eligibility to take 202 or permission of department) S, SU. Propositional and predicate logic, methods of proof, sequences and summations, recursion, combinatorial circuits, algorithm analysis, set theory, counting techniques, Boolean algebras, and other related topics.

235 Mathematics for the Middle School Teacher (3) (Prerequisite: Grade of C or higher in Mathematics 230) F. Topics include the development of the set of real numbers, problem solving, elementary number theory, rational and irrational numbers, decimals, percents, relations and functions. Mathematics 235 is for students seeking South Carolina Teacher Licensure in middle school education with a Mathematics area of concentration and is not open to other majors.

270 Survey of Mathematics for Early Childhood and Elementary Teachers II (3) (Prerequisite: Grade of C or higher in Mathematics 170 or 201) F, S, SU. Continuation of Mathematics 170. The study of rational numbers (fractional, decimal and percentage forms), of elementary concepts in probability, of data analysis (collecting, organizing, and displaying data), and of appropriate statistical methods are the major components of the course with additional emphasis on problem-solving. Mathematics 270 is for students seeking South Carolina Teacher Licensure in early childhood education and in elementary education or a B.G.S. in Educational Studies.

301 Ordinary Differential Equations (3) (Prerequisite: Grade of C or higher in 202 or permission of the department.) S. General first-order differential equations and second-order linear equations with applications. Other topics may include Mathematical models, computational methods, dynamical systems, aspects of higher-order linear equations, Laplace transforms, and an introduction to partial differential equations.

304 Linear Algebra (3) (Prerequisite: Grade of C or higher in Mathematics 202) F, S, SU. Introduction to the algebra of finite-dimensional vector spaces. Topics covered include finite-dimensional vector spaces, matrices, systems of linear equations, determinants, change of basis, eigenvalues, and eigenvectors.

305 Linear Programming (3) (Prerequisites: 304 and one course from 212 or Computer Science 226) S. Introduction to the theoretical, computational, and applied aspects of the subject. Topics covered include the Mathematical model of linear programming, convex sets and linear inequalities, the simplex method, duality, the revised simplex method, and several of the many applications. Computer solutions for several problems will be required.

306 Multivariable Calculus (3) (Prerequisite: Grade of C or higher in Mathematics 203 or permission of the department, Mathematics 304 recommended. A student with a grade of B or higher in Mathematics 202 may, with permission of the department, take Mathematics 203 concurrently with Mathematics 306 instead of as a prerequisite.) F, S. Vectors and vector calculus; the calculus of real-valued functions of several

variables; topics include partial derivatives, gradients, extrema problems, multiple integrals, iterated integrals, line integrals, and Green's Theorem, as time permits.

310 Mathematical Models and Applications (3) (Prerequisite: 202) AS. Introduction to the theory and practice of building and studying mathematical models for various real world situations that may be encountered in the physical, social, life, and management sciences.

311 Transition to Higher Mathematics (3) (Prerequisites: Grade of C or higher in Mathematics 203 or qualifying AP score; Mathematics 230 or 304 is recommended) F,S. This course is principally devoted to understanding and writing mathematical proofs with correctness and style. Elements of mathematical logic such as Boolean logical operators, quantifiers, direct proof, proof by contrapositive, proof by contradiction, and proof by induction are presented. Other material consists of topics such as elementary set theory, elementary number theory, relations and equivalence relations, equivalence classes, the concept of a function in its full generality, and the cardinality of sets.

312 Probability and Statistics for Science and Mathematics (3) (Prerequisites: 230 or 134 and 202 or permission of the department) F. Descriptive statistics, elementary probability, random variables and their distributions, expected values and variances, sampling techniques, estimation procedures, hypothesis testing, decision making, and related topics from inferential statistics.

315 History of Mathematics (3) (Prerequisite: 202) SU. Origins of mathematics and the development of Egyptian and Babylonian, Pythagorean, Greek, Chinese and Indian, and Arabic mathematics as well as mathematics of the Middle Ages and modern mathematics. The development of the calculus, geometry, abstract algebra, analysis, mathematics notation, and basic mathematics concepts will be emphasized as well as the personalities of mathematicians and their contributions to the subject.

317 Number Theory (3) (Prerequisite or corequisite: 202) AF. Introduction to the elementary aspects of the subject with topics including divisibility, prime numbers, congruencies, Diophantine equations, residues of power, quadratic residues, and number theoretic functions.

318 Combinatorics and Graph Theory (3) (Prerequisite: 203) As Needed. In combinatorial theory the course will discuss the basic counting principles, arrangements, distributions of objects, combinations, and permutations. Considerable attention will be given to ordinary and exponential generating functions. Also to be covered will be the standard counting techniques of recurrence, inclusion-exclusion, Burnside's Theorem, and Polyá's Enumeration Formula. In graph theory the course will cover the basic theory of graphs. Also covered will be graph isomorphism, planar graphs, Euler and Hamiltonian circuits, trees, and graph colorings.

330 Special Topics in Mathematics I (3) (Prerequisite: Permission of the department) In-depth study of an area of interest in mathematics. Different areas of study will be offered.

332 Discrete Mathematics II (3) (Prerequisite: Grade of C or higher in either 230 or 311 or permission of department) As needed. Major topics covered include sums, recurrences, relations and functions including integer functions (mod, floor, ceiling), elementary number theory, binomial coefficients, discrete probability, and graphs. Additional topics may be chosen from generating functions (solving recurrences, convolutions), special numbers (e.g., Stirling, Bernoulli, Fibonacci), and asymptotics (O notation, manipulation, and summation formulas).

345 Plane Geometry (3) (Prerequisite: 230 or 311 or 370 or permission of the department) F. Topics include the elements of plane geometry, up to and including congruence, parallelism and similarity, area and volume, ruler and compass constructions, other geometries and transformations.

This course includes topics from the history of mathematics.

370 Intuitive Geometry (3) (Prerequisite: Grade of C or higher in Math 202 or 270) F, S, SU. Continuation of Mathematics 270. Intuitive development of geometric shapes in two- and three-dimensional space. Concepts of congruence, parallelism, perpendicularity, symmetry, transformations, measurement (English and metric systems as well as estimation skills), right angle trigonometry, and coordinate geometry are considered. Mathematics 370 is for students seeking South Carolina Teacher Licensure in early childhood education or in elementary education or a B.G.S. in Educational Studies.

375 Fundamental Skills of Mathematics (3) S. An apprenticeship offered in the freshman mathematics program. Each student will work under the careful supervision of a mathematics faculty member who will assign outside reading as well as evaluate performance in both oral and written examinations.

405 Abstract Algebra (3) (Prerequisite: Grade of C or higher in Mathematics 311 or both Mathematics 306 and grade of C or higher in Mathematics 230 or permission of the department) F. Introduction to the terminology and basic properties of algebraic structures, such as groups, rings, and fields. The course includes topics from the history of mathematics.

407 Real Analysis I (3) (Prerequisite: Grade of C or higher in Mathematics 311 or permission of the department) S. At the intermediate-level covers the following topics: Cauchy sequences and the construction of real numbers, sequences and series of real numbers, the real line as a metric space, continuity and uniform continuity, derivatives of real-valued functions of one real variable, spaces of continuous functions, Lebesgue measure and the Lebesgue integral, and Fourier series.

409 Complex Analysis I (3) (Prerequisite: Grade of C or higher in Mathematics 311 or permission of the department) AS. Complex numbers and functions, derivatives and integrals of complex functions, the Cauchy integral theorem and its consequences, residue theory, and conformal mapping. Additional topics as time permits.

411 Topology I (3) (Prerequisite: Grade of C or higher in Mathematics 311 or permission of the department) As Needed. Introduction to Point Set Topology including discussion of limit points, continuity, compactness, connectedness, metric spaces, locally compact spaces, locally connected spaces, and the Baire Category Theorem.

420 Mathematical Probability (3) (Prerequisite: 306 and a grade of C or higher in Mathematics 230 or 311) AS. Introduction to probability theory to include the topics of probability spaces, conditional probability and independence, combinatorial theory, random variables, special discrete and continuous distributions, expected value, jointly distributed random variables, order statistics, moment generating functions and characteristic functions, Law of Large Numbers, and the Central Limit Theorem.

422 Nonlinear Optimization (3) (Prerequisite: 306) AS. Nonlinear optimization topics including derivatives, partial derivatives, one-dimensional search techniques, multi-dimensional search techniques, both unconstrained and constrained optimization techniques including LaGrange Multipliers and Kuhn-Tucker Conditions, and specialized techniques. Emphasis is on optimization theory, numerical algorithms with error analysis, and solving applied problems.

425 Numerical Analysis (3) (Prerequisite: 203 and one of 212 or Computer Science 226) (Same as Computer Science 425) F. Techniques and types of errors involved in computer applications to mathematical problems. Topics include techniques for solving equations, systems of equations, and problems in integral calculus. Computer solutions for several problems will be required.

430 Special Topics in Mathematics II (3) (Prerequisite: Permission of

the department) In-depth study of an area of interest in mathematics. Different areas of study will be offered.

497 Special Studies (3), (2), or (1) (Prerequisite: Permission of department) S. Open only to juniors or seniors with a grade point average of 3.0 or higher in their major courses. A maximum of three semester hours may be earned. All individual research projects are reviewed by three faculty members from two different disciplines. May be taken for credit (three hours) towards the Honors degree by special arrangement.

499 Mathematics Capstone Course (3) (Prerequisite: A grade of C or higher in Mathematics 230 or 311, at least 24 hours of mathematics required for the major; and permission of the department; should be taken the semester before graduation) F, S. This course will include review and integration of the concepts from the core courses required for the mathematics major as well as an in-depth exploration in some advanced mathematics area. Requirements will include an internal exam and completion of a capstone mathematics project sponsored by a faculty member and approved by the Department of Mathematics.

502 Geometry for Teachers (3) (Prerequisite: Bachelor's degree plus eligibility for licensure in mathematics or science, or senior status as a mathematics major, or permission of department) SU. Accelerated training in methods of proof, Euclidean, non-Euclidean, transformational, and finite geometries, plus constructions. With written departmental approval, seniors may take courses numbered 500-599 for either undergraduate or graduate credit. Designation of credit as undergraduate or graduate must be made at registration. Freshmen, sophomores, and juniors may not take 500-level courses. Occasionally will be offered in the fall and/or spring semester.

508 Linear Algebra for Teachers (3) (Prerequisite: Bachelor's degree plus eligibility for licensure in mathematics or science, or senior status as a mathematics major, or permission of department) SU. Matrices, vector spaces, and linear transformations. With written departmental approval, seniors may take courses numbered 500-599 for either undergraduate or graduate credit. Designation of credit as undergraduate or graduate must be made at registration. Freshmen, sophomores, and juniors may not take 500-level courses. Occasionally will be offered in the fall and/or spring semester.

509 Abstract Algebra for Teachers (3) (Prerequisite: Bachelor's degree plus eligibility for licensure in mathematics or science, or senior status as a mathematics major, or permission of department) SU. Review of real and complex numbers, sets, functions, induction, and well ordering. Introduction to semi-groups, groups, rings, homomorphism, and isomorphism. Elementary theory of groups, elementary theory of rings. As time permits, topics will include factor groups, quotient rings, cyclic groups, finite groups, abelian groups, polynomial rings, division rings, and fields. With written departmental approval, seniors may take courses numbered 500-599 for either undergraduate or graduate credit. Designation of credit as undergraduate or graduate must be made at registration. Freshmen, sophomores, and juniors may not take 500-level courses.

511 Discrete Mathematics for Teachers (3) (Prerequisite: Bachelor's degree plus eligibility for licensure in mathematics or science, or senior status as a mathematics major, or permission of department) SU. Study of propositional and predicate logic, set theory, combinatorics and finite probability, relations, functions, Boolean Algebras, simplification of circuits, and other selected topics in discrete mathematics. With written departmental approval, seniors may take courses numbered 500-599 for either undergraduate or graduate credit. Designation of credit as undergraduate or graduate must be made at registration. Freshmen, sophomores, and juniors may not take 500-level courses. Occasionally will be offered in the fall and/or spring semester.

515 History of Mathematics for Teachers (3) (Prerequisite: Bachelor's degree plus eligibility for licensure in mathematics or science, or senior

status as a mathematics major, or permission of department) SU. General survey of the history of mathematics with special emphasis on topics that are encountered in high school or college (undergraduate) mathematics courses. The course will cover the mathematics of ancient times, beginning with the Egyptians, Babylonians, and Greeks, and continue to the present. Particular attention will be given to the contributions of selected mathematicians. With written departmental approval, seniors may take courses numbered 500-599 for either undergraduate or graduate credit. Designation of credit as undergraduate or graduate must be made at registration. Freshmen, sophomores, and juniors may not take 500-level courses. Occasionally will be offered in the fall and/or spring semester.

516 Calculus for Teachers (3) (Prerequisite: Bachelor's degree plus eligibility for licensure in mathematics or science, or senior status as a mathematics major, or permission of department) F, S, SU. Full development of limits, derivatives, and integrals. With written departmental approval, seniors may take courses numbered 500-599 for either undergraduate or graduate credit. Designation of credit as undergraduate or graduate must be made at registration. Freshmen, sophomores, and juniors may not take 500-level courses. Concentration is on concepts and applications. Occasionally will be offered in the fall and/or spring semester.

518 Probability and Statistics for Teachers (3) (Prerequisite: Bachelor's degree plus eligibility for licensure in mathematics or science, or senior status as a mathematics major or permission of the department) SU. Survey of areas of probability theory to include selected topics from sample spaces; combinatorial theory; random variables and their distributions; conditional probability; joint and marginal distributions; expected values and variances; and the Central Limit Theorem. Survey of descriptive and inferential statistics to include selected topics from the use of tables, graphs, and formulas; sampling techniques; estimation and confidence intervals; hypothesis testing; decision making; and correlation and regression. With written departmental approval, seniors may take courses numbered 500-599 for either undergraduate or graduate credit. Designation of credit as undergraduate or graduate must be made at registration. Freshmen, sophomores, and juniors may not take 500-level courses. Occasionally will be offered in the fall and/or spring semester.

520 AP Calculus AB Certification for Teachers (3) (Prerequisite: Bachelor's degree plus eligibility for licensure in mathematics, or permission of department, or permission of State Department of Education.) SU. Study of the topics covered in the AP Calculus AB course and how a teacher should cover these topics. There are essentially six main areas: function theory, definitions of limits and derivatives, differentiation techniques, applications of the derivative, the definite integral and techniques of integration, and applications of the integral.

521 AP Calculus BC Certification for Teachers (3) (Prerequisite: 520 or the equivalent, or permission of State Department of Education, or permission of department) SU. Study of topics covered in the AP Calculus BC course and how a teacher should cover these topics. In addition to all subject matter covered in Mathematics 520, which will be reviewed during the course, the following topics will be emphasized: the calculus of vector functions and parametrically defined functions; polar coordinates; integration by parts, partial fractions, and trigonometric substitution; L'Hopital's rule; improper integrals; convergence of sequences of numbers and functions; series of real numbers; power series; Taylor polynomials and error approximation.

530 Special Topics in Mathematics for Teachers (3) (Prerequisite: Bachelor's degree plus eligibility for licensure in mathematics or science, or senior status as a mathematics major, or permission of department) SU. A topic of interest to secondary mathematics teachers will be logically and rigorously covered.