Mathematics

School

School of Science, Engineering and Technology (http://www.stmarytx.edu/set/)

School Dean

Teresa Beam, Ph.D. (tbeam@stmarytx.edu)

Department

Mathematics (https://www.stmarytx.edu/academics/department/mathematics/)

Department Chair

Paul Uhlig, Ph.D. (puhlig@stmarytx.edu)

Department Mission Statement:

> *The Department of Mathematics provides an integral, quality mathematics education for all students at the University, delivered in the family spirit and focused on the specific needs of their disciplines.We form our majors for vocations in research, industry, and education through active learning that promotes communication, collaboration, and independent exploration and growth.*

Mathematics — from abstract algebra to actuarial science — is about more than the theory of numbers. It discovers the tools from which quantitative and abstract understandings of our world are made possible. Mathematics is truly a universal language by transcending ethnic, societal and national boundaries. The study of mathematics hones essential logical reasoning skills and teaches techniques that can open doors to exciting and high paying quantitative careers in business, government, teaching and research.

Students majoring in mathematics at St. Mary's University are exposed to the theoretical foundations of mathematics and experience its applications in a variety of disciplines. Innovative teaching and learning environments allow students to develop critical thinking and general problem solving strategies. In addition, our mathematics graduates understand the power and usefulness of computers equipped with graphing and symbolic algebra. Classroom assignments enhance the students' abilities to communicate mathematics effectively- both orally and in writing. Students have the opportunity to hear about current research and present their own research at the undergraduate mathematics seminar.

Math courses cannot be transferred after enrolling as a student at St. Mary's University. Eligibility for enrollment in Math courses is based on SAT/ACT scores, Accuplacer Next-Generation math placement scores or college transfer credit.

Mathematics Placement Policy

New students will be placed in the appropriate Math course based on their SAT or ACT Math score.

- Students with SAT/ACT scores not satisfying either NewSAT Math # 510 (OldSAT Math # 470) or ACT Math # 17 may only enroll in **MT0301.**
- Students with NewSAT Math # 510 (OldSAT Math # 470) or ACT Math # 17 may enroll in **MT 1301, MT 1302, MT 1303, or MT 1305.**
- Students with NewSAT Math # 550 (OldSAT Math # 520) or ACT Math # 22 may enroll in **MT 1301, MT 1302, MT 1303, MT 1305, MT 1306, MT 1411, MT 2303, or MT 2306.**
- Students with NewSAT Math # 550 (OldSAT Math # 520) or ACT Math # 22 may seek advanced placement into MT2412 by taking the ACCUPLACER Next-Generation Advanced Algebra and Functions (AAF) test. A score on the AAF # 276 is required to enroll in MT2412. One repeat of the ACCUPLACER Next-Generation AAF test will be allowed.
- Additionally, the CLEP, IB, and AP Exams may be used to satisfy prerequisite courses as stated in the Registrar's Credit by Examination Policy.

Students admitted without SAT/ACT scores, such as international students, will be placed according to the following ACCUPLACER AAF scores:

- AAF < 216 may enroll only in MT0301,
- AAF >= 216 may enroll in MT1301, MT1302, MT1303, or MT1305.
- AAF >= 249 may enroll in MT1301, MT1302, MT1303, MT1305, MT1306, MT 1411, MT 2303, or MT 2306.
- AAF >= 276 may enroll in MT1301, MT1302, MT1303, MT1305, MT1306, MT 1411, MT 2303, MT2306, or MT2412.

Majors in Mathematics

- B.A. in Mathematics (https://catalog.stmarytx.edu/undergraduate/majors-programs/science-engineering-technology/mathematics/mathematics-ba/)
- B.A. in Mathematics with Teacher Certification (Secondary) (https://catalog.stmarytx.edu/undergraduate/majors-programs/science-engineering-technology/mathematics/mathematics-ba-teacher-certification-secondary/)

- B.A. in Mathematics - Concentration in Actuarial Science (https://catalog.stmarytx.edu/undergraduate/majors-programs/science-engineering-technology/mathematics/mathematics-ba-concentration-actuarial-science/)
- B.S. in Mathematics (https://catalog.stmarytx.edu/undergraduate/majors-programs/science-engineering-technology/mathematics/mathematics-bs/)

Minors in Mathematics

- Applied Mathematics (https://catalog.stmarytx.edu/undergraduate/majors-programs/science-engineering-technology/mathematics/applied-mathematics-minor/)
- Mathematics (https://catalog.stmarytx.edu/undergraduate/majors-programs/science-engineering-technology/mathematics/mathematics-minor/)

All courses serving as prerequisites in the School of Science, Engineering and Technology must be completed with a "C" or better in order to advance to the next sequenced course.

MT 0101. Math Lab. 1 Semester Hour.
MT 0101. Math Lab. 1 Semester Hour. This course is a required lab hour for any student enrolled in a section of MT 0301. Prerequisites: None.

MT 0204. Algebra for Clinical Applications Lab. 2 Semester Hours.
MT 1304 Algebra for Clinical Applications is a required course for all nursing majors. This corequisite math lab course supports students in MT 1304, covering developmental math skills to prepare students for MT 1304. This is a P/NP non-credit course that is required for nursing majors who do not meet the prerequisite requirements for MT 1304. Fall only.

MT 0301. Intermediate Algebra. 3 Semester Hours.
Development of algebraic skills necessary as a prerequisite for students not meeting standards for entry into credit courses. This is a non-credit course. Accuplacer AAF Scores: # 216 (Fall;Spring).

MT 0401. Math Skills. 4 Semester Hours.
This non-credit course reviews fundamental mathematics and algebraic skills necessary for entry-level college math courses. Students are placed in the course based on their SAT/ACT Math scores. Weekly participation in a peer-led-team-learning (PLTL) group study session is required. (Fall;Spring).

MT 1301. Mathematical Logic for the Humanities. 3 Semester Hours.
A mathematics course designed for students in the humanities. A variety of concepts are covered. Topics will be drawn from the following areas: introductory treatments of sets, logic, number systems, number theory, geometry, relations, functions, graph theory, optimization algorithms, linear programming, and coding theory. Prerequisite: MT 0301 or MT 0401 or SAT Math # 510 or ACT Math # 17 or AFF # 216 (Fall).

MT 1302. Mathematical Topics in the Social Sciences. 3 Semester Hours.
A mathematics course designed for students in the social sciences. A variety of mathematical topics will be covered, with an emphasis on civically-minded applications: personal finance, voting schemes, apportionment and other forms of resource distribution, introductory probability and statistics, and other topics to be selected by the instructor. The course will be project-oriented. The computational capabilities of Microsoft Excel will be explored. Prerequisite: MT0301 or MT0401 or SAT Math # 510 or ACT Math # 17 or AFF # 216 (Fall; Spring).

MT 1303. College Algebra. 3 Semester Hours.
Linear and quadratic functions, graphing, inverse functions. Polynomial, exponential, logarithmic functions and their graphs, systems of equations. Prerequisite: MT 0301 or MT 0401 or SAT Math # 510 or ACT Math # 17 or AFF # 216 (Fall; Spring).

MT 1304. Algebra for Clinical Applications. 3 Semester Hours.
Mathematics for Clinical Applications is a required course for all nursing majors. This algebra-based course promotes math competency in various calculations used in nursing. Linear, polynomial, exponential, and logarithmic functions and their properties will be covered in this course. Additional topics may include dimensional analysis, solutions and mixtures, balancing equations, interpreting information from graphs, and other applications of algebra to nursing. Prerequisite: Completion of MT0301or MT0401, SAT Math # 510, ACT Math # 17, or Accuplacer # 216. (Fall only; priority registration for Nursing students).

MT 1305. Finite Mathematics. 3 Semester Hours.
Linear functions and applications to business, systems of linear equations and matrices, mathematics of finance, probability and probability distributions. Prerequisite: MT 0301 or MT 0401 or SAT Math # 510 or ACT Math # 17 or AFF # 216. (All courses serving as prerequisites in the School of Science, Engineering and Technology must be completed with a "C" or better in order to advance to the next sequenced course.) (Fall; Spring).

MT 1306. Calculus for Business. 3 Semester Hours.
Differential and integral calculus of algebraic, exponential, and logarithmic functions and models with applications to business. Excel software package will be used. Prerequisite: MT 1303 or MT 1411 or SAT Math # 550 or ACT Math # 22 or AFF # 249. (All courses serving as prerequisites in the School of Science, Engineering and Technology must be completed with a "C" or better in order to advance to the next sequenced course.) (Fall; Spring).

MT 1350. Essential Elements in Math I. 3 Semester Hours.
A study of topics from elementary mathematics with a problem-solving approach. The course is designed for and is to be taken only by elementary education majors. Topics for the course include problem-solving, sets, numeration systems, the real numbers, number theory, and functions. Strategies for teaching elementary mathematics are developed concurrently with the curriculum to promote mathematical excellence in the classroom. National and state educational and assessment standards for both teachers and students will be addressed. Prerequisite: MT 1301, MT 1302, MT 1303, MT 1305, MT 1411, MT 2303, MT 2306 or SAT Math # 470 or ACT Math # 17 (All courses serving as prerequisites in the School of Science, Engineering and Technology must be completed with a "C" or better in order to advance to the next sequenced course.) (Fall).

MT 1351. Essential Elements in Math II. 3 Semester Hours.
A study of topics from elementary mathematics with an inquiry-based learning approach. Topics for the course include foundations of geometry, measurement, area, volume, geometry of motion and change, probability and statistics, and pictorial representation of data. Technology will be integrated throughout the course. Strategies for teaching elementary mathematics are developed concurrently with the curriculum to promote mathematical excellence in the classroom. National and state educational and assessment standards for both teachers and students will be addressed. Prerequisite: MT 1301, MT 1302, MT 1303, MT 1305, MT 1411, MT 2303, MT 2306 or SAT Math # 470 or ACT Math # 17 (All courses serving as prerequisites in the School of Science, Engineering, and Technology must be completed with a “C” or better in order to advance to the next sequenced course.) (Fall).

MT 1411. Precalculus. 4 Semester Hours.
Functions, graphing, and inverse functions. Properties and graphs of exponential and logarithmic functions. Trigonometric functions of angles with right triangle applications. Trigonometric functions of real numbers, inverses, graphs. Trigonometric identities and equations, and polar coordinates. Prerequisite: MT 1303 or SAT Math # 550 or ACT Math # 22 or AFF # 249. (All courses serving as prerequisites in the School of Science, Engineering and Technology must be completed with a “C” or better in order to advance to the next sequenced course.) (Fall; Spring).

MT 1503. Co-requisite College Algebra. 5 Semester Hours.
This course accelerates through a review of fundamental mathematics and algebraic skills, then progresses to covering functions including linear, quadratic, polynomial, exponential and logarithmic families of functions and their graphs. Systems of equations, matrices and determinants are also covered.

MT 2101. Mathematics Working Seminar I. 1 Semester Hour.
Introduction to various topics in mathematics, learning mathematics and problem solving. Exploration of development opportunities and career paths in the fields of pure and applied mathematics, mathematics education and actuarial science, with career planning/preparation. Enrollment restricted to mathematics majors and minors. (Fall).

MT 2102. Mathematics Working Seminar II. 1 Semester Hour.
Introduction to various topics in mathematics, learning mathematics and problem solving. Exploration of development opportunities and career paths in the fields of pure and applied mathematics, mathematics education and actuarial science, with career planning/preparation. Enrollment restricted to mathematics majors and minors. Prerequisite: MT 2101 and MT 2323. (All courses serving as prerequisites in the School of Science, Engineering and Technology must be completed with a “C” or better in order to advance to the next sequenced course.) (Spring).

MT 2103. Mathematics Working Seminar III. 1 Semester Hour.
Introduction to various topics in mathematics, learning mathematics and problem solving. Exploration of development opportunities and career paths in the fields of pure and applied mathematics, mathematics education and actuarial science, with career planning/preparation. Enrollment restricted to mathematics majors and minors. Prerequisite: MT 2102. (All courses serving as prerequisites in the School of Science, Engineering and Technology must be completed with a “C” or better in order to advance to the next sequenced course.) (Spring).

MT 2106. Actuarial Science Sophomore Seminar. 1 Semester Hour.
Introduction to various topics in actuarial science. Exploration of development opportunities and career paths in actuarial science, with career planning/preparation. Available actuarial competition participation will be encouraged, and professionals in the field will be asked to present. Enrollment is restricted to actuarial science majors.

MT 2107. Actuarial Science Junior Seminar. 1 Semester Hour.
Introduction to various topics in actuarial science. Exploration of development opportunities and career paths in actuarial science, with career planning/preparation. Available actuarial competition participation will be encouraged, and professionals in the field will be asked to present. Enrollment is restricted to actuarial science majors.

MT 2303. Introduction to Probability and Statistics. 3 Semester Hours.
This is a non-calculus introduction to the basic principles and practices of statistics. The course begins with the description and display of one - variable and two variable data sets, including histograms, stemplots, and scatterplots, as well as the computation and interpretation of mean, standard deviation, and correlation. Sufficient probability theory is developed to provide the foundation for the simpler inferential methods treated in the course: confidence intervals and tests of significance for one and two populations. A statistical software package is used throughout the course, including student homework projects. Prerequisite: MT 1303 or MT 1306 or MT1411 or MT2412 or SAT Math # 550 or ACT Math # 22 or AFF # 249. (All courses serving as prerequisites in the School of Science, Engineering and Technology must be completed with a “C” or better in order to advance to the next sequenced course.) (Fall; Spring).

MT 2306. Business Statistics. 3 Semester Hours.
This course is designed as an introduction to basic statistical concepts and their applications for business. Topics covered include organizing and displaying data, descriptive statistics, sampling distributions, confidence intervals and hypotheses testing, simple linear regression and correlation. Microsoft Excel is used to help with problem solving. Pre-requisites: MT 1305 or MT1411 or MT2412 or SAT Math # 550 or ACT Math # 22 or AFF # 249.. (All courses serving as prerequisites in the School of Science, Engineering and Technology must be completed with a “C” or better in order to advance to the next sequenced course.) (Fall; Spring).

MT 2317. Differential Equations. 3 Semester Hours.
First-order differential equations; linear differential equations of second order and higher; applications; systems of linear differential equations; the Laplace Transform. Prerequisite: MT 2413. (All courses serving as prerequisites in the School of Science, Engineering and Technology must be completed with a “C” or better in order to advance to the next sequenced course.) (Fall; Spring).

MT 2318. Applied Linear Algebra. 3 Semester Hours.
Introduces concepts of linear algebra with computational emphasis on applications in science and engineering. Topics include finite vector spaces; representing and solving systems of linear equations using multiple methods, including Gaussian elimination and matrix inversion; determinants; matrices and linear transformations; eigenvalues and eigenvectors; canonical forms and singular value decomposition.

MT 2323. Discrete Math Structures. 3 Semester Hours.
An introduction to logic and proof techniques, with other topics of interest to a wide array of SET majors. Logical operations, logical equivalence, predicates and quantifiers, direct proof, proof by induction, recursion, set theory, counting principles, graphs and trees, algorithm efficiency. Prerequisite: MT 1303 or MT 1411 or MT2412 or SAT Math # 520 or ACT Math # 22. (All courses serving as prerequisites in the School of Science, Engineering and Technology must be completed with a “C” or better in order to advance to the next sequenced course.) (Fall, Spring).

MT 2332. Advanced Math for Engineers I. 3 Semester Hours.
Fundamental concepts of linear algebra; fundamental concepts of ordinary differential equations; fundamental concepts of complex number arithmetic and functions of a complex variable. Prerequisite: MT 2413. A student may not receive credit for both MT 2332 and any of the following courses: MT 2317, MT 2318, MT 3324. (All courses serving as prerequisites in the School of Science, Engineering and Technology must be completed with a “C” or better in order to advance to the next sequenced course.) (Fall).

MT 2333. Adv Math for Engineers II. 3 Semester Hours.
Fundamental concepts of vector analysis and multivariate calculus; the Laplace Transform; introduction to partial differential equations. Prerequisite: MT 2332. A student may not receive credit for both MT 2333 and either of the following courses: MT 2317 , MT 2414. (All courses serving as prerequisites in the School of Science, Engineering and Technology must be completed with a “C” or better in order to advance to the next sequenced course.) (Spring).

MT 2412. Calculus I. 4 Semester Hours.
Limits, continuity, derivatives, and integrals of algebraic, trigonometric, inverse trigonometric, exponential, and logarithmic functions; indeterminate forms; applications. Prerequisite: MT 1411 or ACCUPLACER test score # 276. (All courses serving as prerequisites in the School of Science, Engineering and Technology must be completed with a “C” or better in order to advance to the next sequenced course.) (Fall; Spring).

MT 2413. Calculus II. 4 Semester Hours.
Applications of integrals; formal integration techniques; numerical integration; improper integrals; sequences; series; power series; Taylor series; applications of series. Prerequisite: MT 2412 (All courses serving as prerequisites in the School of Science, Engineering and Technology must be completed with a “C” or better in order to advance to the next sequenced course.) (Fall; Spring).

MT 2414. Calculus III. 4 Semester Hours.
Partial derivatives, multiple integration, three-dimensional vector calculus. Prerequisite: MT 2413. (All courses serving as prerequisites in the School of Science, Engineering and Technology must be completed with a “C” or better in order to advance to the next sequenced course.) (Spring only).

MT 3305. Essential Elements in Math II. 3 Semester Hours.
Strategies for teaching are developed concurrently with content from the elementary mathematics curriculum. National and state educational standards in mathematics will be addressed. An in-depth analysis of the state assessment standards for both teachers and students will be included. Students will learn and experience research based instructional strategies that promote mathematical excellence in the classroom. This course is intended for Elementary Education majors. (Fall).

MT 3321. Introduction to Modern Algebra. 3 Semester Hours.
Algebraic structures with emphasis on the theory of groups. Prerequisite: MT 2413 and MT 2323. (All courses serving as prerequisites in the School of Science, Engineering and Technology must be completed with a “C” or better in order to advance to the next sequenced course.) (Spring).

MT 3323. Discrete Math Structures. 3 Semester Hours.
Logic, argument forms, methods of proof, proof writing, set theory, counting principles, recursion relations, graphs and trees. Prerequisite: MT 1303 or MT 1411 or MT2412 or SAT Math # 520 or ACT Math # 22 (All courses serving as prerequisites in the School of Science, Engineering and Technology must be completed with a “C” or better in order to advance to the next sequenced course.) (Fall; Spring).

MT 3324. Linear Algebra. 3 Semester Hours.
Introduces concepts of linear algebra with theoretical emphasis on matrix algebra and the structure of vector spaces. Topics include systems of linear equations; matrices, matrix operations, and determinants; vector spaces and subspaces; linear transformations; eigenvalues and eigenvectors. Prerequisite: MT 2413. (All courses serving as prerequisites in the School of Science, Engineering and Technology must be completed with a “C” or better in order to advance to the next sequenced course.) (Spring).

MT 3361. History of Math. 3 Semester Hours.
The history of Mathematics is covered from the time of Pythagoras to the creation of non- Euclidean geometries in the mid- 19th century. This course could be taken by non- Majors.

MT 3372. Math Modeling. 3 Semester Hours.
Creative model construction and the modeling process, model fitting and models requiring optimization, empirical model construction, modeling dynamic behavior. Prerequisite: MT 2317 (All courses serving as prerequisites in the School of Science, Engineering and Technology must be completed with a “C” or better in order to advance to the next sequenced course.) (Spring only).

MT 3375. Theory of Interest. 3 Semester Hours.
An introductory course covering topics related to interest theory and financial derivatives. Topics will include the growth of money, equations of value and yield rates, annuities, amortizations, bonds, and stocks. Additional advanced topics from financial derivatives may also be included. This course is suitable for students intending to take professional actuarial exams. Prerequisite: MT 2413 (Odd-year Fall only).

MT 3384. Topics in Applied Statistics. 3 Semester Hours.
One semester courses currently available under the following titles: 1) Introduction to Non- parametric Statistical Inference; 2) Introduction to Applied Regression and Correlation; 3) Fundamentals of Sampling; 4) Analysis of Variance. Prerequisite: MT 2303. When different topics are treated, the number may be repeated for additional credit. (All courses serving as prerequisites in the School of Science, Engineering and Technology must be completed with a “C” or better in order to advance to the next sequenced course.).

MT 3392. Elementary Math Analysis. 3 Semester Hours.
Sequences, subsequences, convergence, Heine-Borel Theorem, functions, limits, continuity, uniform continuity, compactness, derivatives, Mean-Value Theorem, L'Hospital's Rule, Inverse Function Theorem, Riemann integration, and Fundamental Theorem of Calculus. Emphasis is on rigorous proof and communicating mathematics in verbal and written form. Prerequisite: MT 2413 and MT 2323 (All courses serving as prerequisites in the School of Science, Engineering and Technology must be completed with a “C” or better in order to advance to the next sequenced course.) (Even-year Fall Only).

MT 3414. Calculus III. 4 Semester Hours.
Partial derivatives, multiple integration, three-dimensional vector calculus. Prerequisite: MT 2413. (All courses serving as prerequisites in the School of Science, Engineering and Technology must be completed with a “C” or better in order to advance to the next sequenced course.) (Spring only).

MT 4311. Complex Variables. 3 Semester Hours.
Complex numbers, analytic functions, elementary functions, mapping by elementary functions, integrals, series, residues and poles. Prerequisite: MT 2414 and 2323 (All courses serving as prerequisites in the School of Science, Engineering and Technology must be completed with a “C” or better in order to advance to the next sequenced course.) (Odd-year Fall only).

MT 4312. Boundary Value Problems. 3 Semester Hours.
Fourier Series, Fourier and Laplace transforms and boundary value problems of partial differential equations. Prerequisite: MT 2317 (All courses serving as prerequisites in the School of Science, Engineering and Technology must be completed with a “C” or better in order to advance to the next sequenced course.).

MT 4331. Probability Theory. 3 Semester Hours.
Discrete and continuous probability spaces; random variables and their distributions. Prerequisite: MT 2413 or consent of instructor (All courses serving as prerequisites in the School of Science, Engineering and Technology must be completed with a “C” or better in order to advance to the next sequenced course.) (Fall; Spring).

MT 4332. Statistics. 3 Semester Hours.
Descriptive statistics. Sampling distributions, estimation, tests of hypotheses, regression and correlation. Prerequisite: MT 4331 (All courses serving as prerequisites in the School of Science, Engineering and Technology must be completed with a “C” or better in order to advance to the next sequenced course.) (Fall; Spring).

MT 4333. Applied Statistical Methods. 3 Semester Hours.
This course will cover regression analysis and time series. The topics in regression will include: single and multiple linear regression, hypothesis testing and confidence intervals, testing of models, data analysis and appropriateness of models. The topics in time series/forecasting will include: linear time series models, moving average, regression-based and/or ARIMA models, estimation, data analysis and forecasting with time series models, forecast errors and confidence intervals. Prerequisite: MT4332 (All courses serving as prerequisites in the School of Science, Engineering and Technology must be completed with a “C” or better in order to advance to the next sequenced course.) (Even-year Fall only).

MT 4334. Mathematical Statistics. 3 Semester Hours.
This course develops the mathematical foundations of statistics. Topics covered include sampling distributions; estimation methods, including matching moments, percentile matching, and maximum likelihood estimation; properties of estimators, including bias, variance, mean square error, consistency, efficiency, and UMVUE; statistical inference methods, including the construction of confidence intervals for unknown parameters; and hypothesis testing, including the Neyman-Pearson lemma, significance and power, the likelihood ratio test, and information criteria. Prerequisite: MT4331 and MT4332 (or permission of the instructor).

MT 4341. Modern Geometry. 3 Semester Hours.
A study of elementary geometry from an advanced point of view. Topics include the history of geometry, the axiomatic method and theorem proving, Euclidean constructions, non- Euclidean geometries, curriculum and learning issues involving geometry, and technology and the use of software in the teaching of geometry. (Most semesters, but Spring course).

MT 4342. Topics in Advanced Mathematics. 3 Semester Hours.
Topics to be chosen by instructor. When different topics are treated, MT 4342 may be repeated for additional credit on approval of the Chairperson. Prerequisite: MT 2413, MT 2323, and consent of instructor.

MT 4351. Numerical Analysis I. 3 Semester Hours.
Roots of equations, interpolation and approximation, numerical differentiation and integration, solutions of linear systems of equations and matrix inversion. Prerequisite: MT 2413 and MT 2317 (All courses serving as prerequisites in the School of Science, Engineering and Technology must be completed with a “C” or better in order to advance to the next sequenced course.) (Fall only).

MT 4352. Numerical Analysis II. 3 Semester Hours.
The numerical solution of ordinary differential equations; introduction to partial differential equations; numerical solutions of nonlinear systems of equations. Prerequisite: MT 2317 and MT 4351. (All courses serving as prerequisites in the School of Science, Engineering and Technology must be completed with a “C” or better in order to advance to the next sequenced course.).

MT 4395. Senior Mathematics Seminar. 3 Semester Hours.
A capstone course for mathematics majors in the Bachelor of Science, Bachelor of Arts, and Bachelor of Arts-Concentration in Actuarial Science programs. Each student selects a mathematical area of interest, researches the selected area, generates a reference list and research paper, and presents the paper to a seminar of faculty and students. Advanced mathematical topics will also be covered (topics may vary). Prerequisite: MT 2103 and MT3324 and either MT3321 or MT3392 or MT 4311 or MT4331 or MT 4342. (All courses serving as prerequisites in the School of Science, Engineering and Technology must be completed with a “C” or better in order to advance to the next sequenced course.) (Fall only).

MT 4396. Actuarial Exam P/1 Preparation. 3 Semester Hours.
This course will prepare students in the actuarial sciences concentration for the professional actuarial Exam P/1. Topics reviewed will cover calculus, general probability, random variables with univariate probability distributions, random variables with multivariate probability distributions, and other topics typically encountered on Exam P/1. Can only be taken by students seeking the B.A. in Mathematics – Concentration in Actuarial Science degree or students with a strong interest in passing actuary exams. Prerequisite: MT 4331 and consent of instructor. (Spring semester, odd years).

MT 4397. Actuarial Exam FM/2 Preparation. 3 Semester Hours.
This course will prepare students in the actuarial sciences concentration for the professional actuarial Exam FM/2. Topics reviewed will cover the time value of money, annuities, loans, bonds, general cash flows and portfolios, immunization, interest rate swaps, determinants of interest rates, and other topics typically encountered on Exam FM/2. Can only be taken by students seeking the B.A. in Mathematics – Concentration in Actuarial Science degree or students with a strong interest in passing actuary exams. Prerequisite: MT 3375 and consent of instructor. (Spring semester, even years).

MT 5160. Independent Study. 1 Semester Hour.
Prerequisite: Consent of instructor and Chairperson.

MT 5260. Independent Study. 2 Semester Hours.
Prerequisite: Consent of instructor and Chairperson.

MT 5311. Topics in Analysis. 3 Semester Hours.
When different topics are treated, MT 5311 may be repeated for additional credit on approval of the Chairperson. Prerequisite: MT 2414 or consent of instructor.

MT 5360. Independent Study. 3 Semester Hours.
Prerequisite: Consent of instructor and Chairperson.