MATHEMATICS

The Mathematics program is designed to meet the needs of students desiring careers in business, industry, and teaching as well as preparation for advanced studies at the graduate level. Students majoring in mathematics may apply their technical strengths to second majors in many programs such as accounting, business administration, computer science, and science. The faculty of the Mathematics programs has been selected to provide quality instruction in all branches of mathematics. **All** major and minor programs must have the approval of the student's advisor and the department faculty.

All courses counting toward the major or minor must be completed with a grade of "C-" or better.

Note: Students must complete a minimum of 120 credits in order to graduate with a Bachelor's degree.

Programs
Bachelors

- Applied Computational Mathematics, BS (http://catalog.smsu.edu/academic-programs-degrees/mathematics/applied-computational-mathematics-bs/)
- Data Science, BS (http://catalog.smsu.edu/academic-programs-degrees/mathematics/data-science-bs/)
- Mathematics Education, BS (http://catalog.smsu.edu/academic-programs-degrees/mathematics/mathematics-education-bs/)
- Mathematics, BA (http://catalog.smsu.edu/academic-programs-degrees/mathematics/mathematics-ba/)

Minor

- Data Science, Minor (http://catalog.smsu.edu/academic-programs-degrees/mathematics/data-science-minor/)
- Mathematics, Minor (Non-Teaching) (http://catalog.smsu.edu/academic-programs-degrees/mathematics/mathematics-minor/)

Graduate Certificate

- Mathematics, Graduate Certificate (http://catalog.smsu.edu/academic-programs-degrees/mathematics/mathematics-graduate-certificate/)

Faculty

Charles Bingen (https://www.smsu.edu/directory/?d=employee&name=14547798#individualTables)
Mu-wan Huang (https://www.smsu.edu/directory/?d=employee&name=10275004#individualTables)
Dan Kaiser (https://www.smsu.edu/directory/?d=employee&name=00005136#individualTables)
Heather Moreland (https://www.smsu.edu/directory/?d=employee&name=12054449#individualTables)
Sami Shahin (https://www.smsu.edu/directory/?d=employee&name=00188046#individualTables)
Wije Wijesiri (https://www.smsu.edu/directory/?d=employee&name=00014051#individualTables)
Matthew Zabka (https://www.smsu.edu/directory/?d=employee&name=13225581#individualTables)

Undergraduate Courses
Data Science

DATA 100 Introduction to Data Science Credits: 3
An introductory overview of the tools and techniques for extracting knowledge from data. Topics to be covered include Python basics, visualization, sampling, hypothesis testing, estimation, prediction, certainty assessment, and informed decision making. The necessary preparation is three years of high-school mathematics including algebra 2.
Goal: Goal: 04- Mathematical/Logical Reasoning
Fall: All Years **Spring:** All Years
Course Outline (https://eservices.minnstate.edu/registration/rest/rcId/0075/curricId/00204337/)

DATA 250 Computational Data Science Credits: 3
An intermediate course combining data, computation, and inferential thinking. Topics to be covered include data collection and cleaning, visualization, statistical inference, predictive modeling, and distributed computing.
Pre-Requisite : DATA 100 OR COMP 165 AND MATH 200
Fall: All Years
Course Outline (https://eservices.minnstate.edu/registration/rest/rcId/0075/curricId/00204396/)

DATA 435 Predictive Analytics & Modeling Credits: 3
This course extends the ideas of linear models to data sets used in professional settings. Topics includes linear and non-linear regression, logistic regression, discriminant analysis, principle component analysis, cross validation, and related topics. This course will use appropriate statistical software.
Pre-Requisite : MATH 202 AND MATH 430
Fall: Department Discretion **Spring:** Department Discretion
Course Outline (https://eservices.minnstate.edu/registration/rest/rcId/0075/curricId/00204379/)

DATA 468 Big Data Analytics Credits: 3
This course covers methodologies and algorithms to transform big data into meaningful insights. Topics include Hadoop Ecosystem, Hadoop MapReduce, MongoDB, Spark basics, SparkSQL and hands on real world applications.
Pre-Requisite : MATH 200 AND COMP 368 AND DATA 250 OR COMP 166
Course Outline (https://eservices.minnstate.edu/registration/rest/rcId/0075/curricId/00204380/)

DATA 486 Special Topics in Data Science Credits: 1-4
A study of data science topics not ordinarily covered in the established courses. Prerequisite: consent of Data Science faculty.
Fall: Department Discretion **Spring:** Department Discretion
Course Outline (https://eservices.minnstate.edu/registration/rest/rcId/0075/curricId/00205616/)

DATA 494 Independent Study Credits: 1-3
An independent study of a data science topic not covered elsewhere.
Fall: Department Discretion **Spring:** Department Discretion
Course Outline (https://eservices.minnstate.edu/registration/rest/rcId/0075/curricId/00205617/)

DATA 495 Senior Capstone Credits: 2
Students will design, develop, implement, and effectively communicate an original data science project.
Pre-Requisite : DATA 250 AND COMP 368 and senior status.
Fall: All Years **Spring:** All Years
Course Outline (https://eservices.minnstate.edu/registration/rest/rcId/0075/curricId/00206296/)

DATA 499 Internship in Data Science Credits: 1-12
On-the-job supervised experience and study dealing with applications of data science.
Fall: Department Discretion **Spring:** Department Discretion **Summer** Department Discretion
Course Outline (https://eservices.minnstate.edu/registration/rest/rcId/0075/curricId/00205636/)

Mathematics

MATH 101 Great Ideas of Mathematics Credits: 3
This course investigates mathematics by introducing selected mathematical models and examining how they are applied to real world problems. Students are expected to use mathematical techniques in the application of the models studied in the course. The required preparation is MATH 060 or three years of high school mathematics.
Goal: Goal: 04- Mathematical/Logical Reasoning
Fall: All Years **Spring:** All Years **Summer** Department Discretion
Course Outline (https://eservices.minnstate.edu/registration/rest/rcId/0075/curricId/00000298/)

MATH 110 College Algebra Credits: 3
A study of the fundamental concepts of algebra. Topics include: equations and inequalities polynomial, rational, exponential, and logarithmic functions and their graphs, and systems of linear equations.Prerequisites: This course requires either of these prerequisites MATH 060 - Intermediate Algebra (Minimum grade: 2.0 GPA Equivalent) or A score of 60 on test Intermediate Alg Placement Test - CAT, unless student meets Algebra College Level placement Corequisites: Math 090 if prerequisite placement score is not met. Math 090 section number and Math 110 section number must be the same.
Pre-Requisite : MATH 060 with C or better or a score of 22 on ACT Math or 530 on SAT Math or 60 on Intermediate Alg placement Test-CAT or 76 on Accuplacer Elementary Algebra and 50 on Accuplacer College Level Math or 1158 on MCA
Goal: Goal: 04- Mathematical/Logical Reasoning
Fall: All Years **Spring:** All Years **Summer** All Years
Course Outline (https://eservices.minnstate.edu/registration/rest/rcId/0075/curricId/00000300/)

MATH 115 Finite Mathematics Credits: 3
Solving systems of linear equations, matrix operations, and an introduction to linear programming, including the simplex method, mathematics of finance, counting techniques, and probability. The required preparation is MATH 110 or three years of high school mathematics.
Goal: Goal: 04- Mathematical/Logical Reasoning
Fall: All Years **Spring:** All Years **Summer** All Years
Course Outline (https://eservices.minnstate.edu/registration/rest/rcId/0075/curricId/00000301/)

MATH 125 Trigonometry & Special Functions Credits: 3
Trigonometry, both circular functions and right triangle, trigonometric equations, logarithms, exponential functions, and complex numbers. The required preparation is MATH 110 or three years of high school mathematics, not including trigonometry. Students who do not meet the stated requirements may be dropped from the course.
Pre-Requisite : MATH 110 or a score of 22 on ACT Math or 530 on SAT Math or 60 on Intermediate Alg placement Test-CAT or 76 on Accuplacer Elementary Algebra and 50 on Accuplacer College Level Math
Goal: Goal: 04- Mathematical/Logical Reasoning
Course Outline (https://eservices.minnstate.edu/registration/rest/rcId/0075/curricId/00000302/)

MATH 129 Mathematics for Elementary Education Credits: 3
This is the mathematics content course for elementary education majors, which focuses on the content areas that must be taught at the elementary school level. Topics include problem solving, numeracy, discrete math, probability, statistics, and geometry. An understanding of the underlying mathematical concepts is developed to allow students to master the associated mathematical procedures.
Pre-Requisite : MATH 110 or MATH 125 or MATH 135 or MATH 140 or a score of 24 on test ACT Math
Fall: All Years **Spring:** All Years
Course Outline (https://eservices.minnstate.edu/registration/rest/rcId/0075/curricId/00002680/)

MATH 135 Precalculus Credits: 5
A detailed study of the mathematics needed for calculus. Concepts are presented and explored from symbolic, graphical, and numerical perspectives. Basic concepts covered include polynomial, rational, exponential, logarithmic, and trigonometric functions, complex numbers, linear systems, numerical patterns, sequences and series. Students must have passed Math 060 with a B- or better, or Math 110 with a C- or better, or met one of the other stated prerequisites. Students who do not meet the stated requirements may be dropped from the course.
Pre-Requisite : MATH 060 with C or better or MATH 110 or a score of 22 on ACT Math or 530 on SAT Math or 60 on Intermediate Alg placement Test-CAT or 76 on Accuplacer Elementary Algebra and 50 on Accuplacer College Level Math
Goal: Goal: 04- Mathematical/Logical Reasoning
Fall: All Years **Spring:** All Years
Course Outline (https://eservices.minnstate.edu/registration/rest/rcId/0075/curricId/00002104/)

MATH 150 Calculus I Credits: 5
Differential calculus of elementary functions, including applications. Introduction to integration. The required preparation is MATH 125 or MATH 135 or three years of high school mathematics including trigonometry.
Goal: Goal: 04- Mathematical/Logical Reasoning
Fall: All Years **Spring:** All Years
Course Outline (https://eservices.minnstate.edu/registration/rest/rcId/0075/curricId/00000306/)

MATH 151 Calculus II Credits: 4
A continuation of Calculus I to include further techniques of integration and applications, Taylor approximations, sequences and series, plane analytical geometry, parametric equations, including polar coordinates. Students who do not receive a grade of C- or better in Math 150 (or equivalent) may be dropped from the course.
Pre-Requisite : Pre-Requistites: Students who do not receive a grade of C- or better in Math 150 (or equivalent) may be dropped from the course. MATH 150
Goal: Goal: 04- Mathematical/Logical Reasoning
Fall: All Years **Spring:** All Years
Course Outline (https://eservices.minnstate.edu/registration/rest/rcId/0075/curricId/00181638/)

MATH 200 Introduction to Statistics Credits: 3
Introduction to measures of central tendency, measures of dispersion, frequency distributions, large and small samples, testing of hypotheses, and correlation analysis. Use of computers in statistical analysis. The required preparation is MATH 110 or three years of high school mathematics.
Goal: Goal: 04- Mathematical/Logical Reasoning
Fall: All Years **Spring:** All Years **Summer** Department Discretion
Course Outline (https://eservices.minnstate.edu/registration/rest/rcId/0075/curricId/00000308/)

MATH 201 Statistical Software Credits: 1
Use of statistical software including SPSS and MINITAB. Graphical and numerical methods of summarizing data, hypothesis testing, regression analysis, ANOVA, and other statistical procedures. Check the validity of statistical model assumptions. The required preparation is completion or enrollment in MATH 200 or equivalent or familiarity with statistical procedures.
Fall: All Years **Spring:** All Years
Course Outline (https://eservices.minnstate.edu/registration/rest/rcId/0075/curricId/00163039/)

MATH 202 Statistical Programming in R Credits: 1
Use of statistical software R for data analyses. Graphical and numerical methods of summarizing data, hypothesis testing, regression analysis, ANOVA, and other statistical procedures. Check the validity of statistical model assumptions. The required preparation is completion or enrollment in Math 200 or equivalent, or familiarity with statistical procedures.
Fall: All Years **Spring:** All Years
Course Outline (https://eservices.minnstate.edu/registration/rest/rcId/0075/curricId/00204317/)

MATH 252 Calculus III Credits: 4
Vectors and the geometry of two and three space, functions of several variables, differentiability, arc length and surface area, extrema and Lagrange multipliers, multiple integration, line and surface integrals, and the theorems of Green, Gauss, and Stokes. Students who do not receive a grade of a C- or better in Math 151 (or equivalent) may be dropped from the course.
Pre-Requisite : MATH 151
Fall: All Years
Course Outline (https://eservices.minnstate.edu/registration/rest/rcId/0075/curricId/00181631/)

MATH 300 Modern Geometry Credits: 3
The postulation systems of geometry, including Euclidean and non-Euclidean geometries, projective and affine geometry. Students must earn a grade of C- or better in all prerequisite courses. The Department of Mathematics & Computer Science reserves the right to remove students from the course who do not meet the course prerequisites.
Pre-Requisite : MATH 151
Fall: Even Years
Course Outline (https://eservices.minnstate.edu/registration/rest/rcId/0075/curricId/00000313/)

MATH 310 Number Theory Credits: 3
The integers, including Peano postulates, divisibility, congruencies, Diophantine equations, and continued fractions. Students must earn a grade of C- or better in all prerequisite courses. The Department of Mathematics & Computer Science reserves the right to remove students from the course who do not meet the course prerequisites.
Pre-Requisite : MATH 151
Fall: Department Discretion **Spring:** Department Discretion
Course Outline (https://eservices.minnstate.edu/registration/rest/rcId/0075/curricId/00000315/)

MATH 320 Foundations of Mathematics Credits: 3
The nature of mathematics, the axiomatic method, the theory of sets, the real number continuum, and various viewpoints on the foundations of mathematics. Students must earn a grade of C- or better in all prerequisite courses. The Department of Mathematics & Computer Science reserves the right to remove students from the course who do not meet the course prerequisites.
Pre-Requisite : MATH 150
Spring: All Years
Course Outline (https://eservices.minnstate.edu/registration/rest/rcId/0075/curricId/00001675/)

MATH 325 Combinatorics & Graph Theory Credits: 3
A survey of some of the techniques of combinatorials mathematics and their application. Topics include connectivity, planarity and colorability of graphs, graph isomorphisms, enumeration techniques, recurrence relations, and generating functions. Students must earn a grade of C- or better in all prerequisite courses. The Department of Mathematics & Computer Science reserves the right to remove students from the course who do not meet the course prerequisites.
Pre-Requisite : MATH 320
Fall: All Years
Course Outline (https://eservices.minnstate.edu/registration/rest/rcId/0075/curricId/00204458/)

MATH 345 Numerical Analysis Credits: 3
Finite differences and applications; interpolation formulas; inversion of matrices; numerical methods of solution of equations; numerical differentiation and integration. Students must earn a grade of C- or better in all prerequisite courses. The Department of Mathematics & Computer Science reserves the right to remove students from the course who do not meet the course prerequisites.
Pre-Requisite : MATH 151
Spring: Even Years
Course Outline (https://eservices.minnstate.edu/registration/rest/rcId/0075/curricId/00000318/)

MATH 350 Differential Equations Credits: 3
Exact solutions and applications of differential equations. Students must earn a grade of C- or better in all prerequisite courses. The Department of Mathematics & Computer Science reserves the right to remove students from the course who do not meet the course prerequisites.
Pre-Requisite : MATH 151
Spring: All Years
Course Outline (https://eservices.minnstate.edu/registration/rest/rcId/0075/curricId/00000319/)

MATH 360 Linear Algebra Credits: 3
Matrices and determinants with applications to vector spaces (linear transformations and eigenvalues) and the solution of systems of linear equations. Students must earn a grade of C- or better in all prerequisite courses. The Department of Mathematics & Computer Science reserves the right to remove students from the course who do not meet the course prerequisites.
Pre-Requisite : MATH 151
Fall: All Years
Course Outline (https://eservices.minnstate.edu/registration/rest/rcId/0075/curricId/00000321/)

MATH 370 Operations Research Credits: 3
Several types of optimizing techniques, including linear programming, simulations, applications of probability, and dynamic programming.
Pre-Requisite : MATH 151
Fall: Department Discretion **Spring:** Department Discretion
Course Outline (https://eservices.minnstate.edu/registration/rest/rcId/0075/curricId/00000322/)

MATH 386 Special Topics in Mathematics Credits: 1-4
A study of different topics in mathematics. See current course schedule for topic listing when offered.
Fall: Department Discretion **Spring:** Department Discretion **Summer** Department Discretion
Course Outline (https://eservices.minnstate.edu/registration/rest/rcId/0075/curricId/00204459/)

MATH 394 Directed Studies in Mathematics Credits: 1-4
Independent study of mathematical topics not ordinarily covered in the established courses. May be repeated.
Fall: Department Discretion **Spring:** Department Discretion
Course Outline (https://eservices.minnstate.edu/registration/rest/rcId/0075/curricId/00000323/)

MATH 430 Probability & Statistics Credits: 3
An introduction to calculus of probabilities and mathematical statistics, including discrete and random variables, mathematical expectation, probability distributions, sampling, hypothesis tests, regression, and correlation. Students must earn a grade of C- or better in all prerequisite courses. The Department of Mathematics & Computer Science reserves the right to remove students from the course who do not meet the course prerequisites.
Pre-Requisite : MATH 151 AND MATH 200 AND MATH 320
Spring: Odd Years
Course Outline (https://eservices.minnstate.edu/registration/rest/rcId/0075/curricId/00002665/)

MATH 440 Abstract Algebra Credits: 3
Topics may include groups, rings, fields, or fields. Students must earn a grade of C- or better in all prerequisite courses. The Department of Mathematics & Computer Science reserves the right to remove students from the course who do not meet the course prerequisites.
Pre-Requisite : MATH 151 AND MATH 320
Fall: Odd Years
Course Outline (https://eservices.minnstate.edu/registration/rest/rcId/0075/curricId/00000325/)

MATH 450 Real Analysis Credits: 3
A theoretical investigation of the real numbers. Topics include sequences, series and convergence, limits and continuity of functions, differentiation, and integration. Students must earn a grade of C- or better in all prerequisite courses. The Department of Mathematics & Computer Science reserves the right to remove students from the course who do not meet the course prerequisites.
Pre-Requisite : MATH 151 AND MATH 320
Spring: Odd Years
Course Outline (https://eservices.minnstate.edu/registration/rest/rcId/0075/curricId/00202205/)

MATH 455 Applied Mathematics Credits: 3
Partial differential equations of physics and engineering including Laplace, heat and wave equations, Fourier series methods and the methods of separation of variables. Additional topics may include Sturm-Liouville problems, Greens functions, and the method of characteristics. Students must earn a grade of C- or better in all prerequisite courses. The Department of Mathematics & Computer Science reserves the right to remove students from the course who do not meet the course prerequisites.
Pre-Requisite : MATH 252 AND MATH 350
Fall: Even Years
Course Outline (https://eservices.minnstate.edu/registration/rest/rcId/0075/curricId/00177177/)

MATH 460 Complex Analysis Credits: 3
The algebra of complex numbers, analytic functions, mapping properties of the elementary functions, Cauchys Theorem, Cauchys integral formula and residues. Students must earn a grade of C- or better in all prerequisite courses. The Department of Mathematics & Computer Science reserves the right to remove students from the course who do not meet the course prerequisites.
Pre-Requisite : MATH 252 and junior status.
Spring: Even Years
Course Outline (https://eservices.minnstate.edu/registration/rest/rcId/0075/curricId/00000329/)

MATH 480 Mathematics Seminar Credits: 1
This course is designed to acquaint the student with current research in mathematics by a review of current mathematical literature sources. Students integrate and synthesize their backgrounds by presenting a problem solving or research project. The Department of Mathematics & Computer Science reserves the right to remove students from the course who do not meet the course prerequisites.
Fall: All Years
Course Outline (https://eservices.minnstate.edu/registration/rest/rcId/0075/curricId/00000330/)

MATH 486 Advanced Topics in Mathematics Credits: 1-4
A study of more advanced topics in mathematics not normally provided as part of the curriculum.
Fall: Department Discretion **Spring:** Department Discretion
Course Outline (https://eservices.minnstate.edu/registration/rest/rcId/0075/curricId/00000331/)

MATH 499 Internship in Mathematics Credits: 1-16
On-the-job supervised experience and study dealing with applications of mathematics.
Fall: Department Discretion **Spring:** Department Discretion
Course Outline (https://eservices.minnstate.edu/registration/rest/rcId/0075/curricId/00000332/)

Graduate Courses

MATH 501 Introduction to Mathematical Logic Credits: 3
An introduction to mathematical logic. Topics include: Sentential logic, the predicate calculus, the statement calculus and its completeness theorem, first order theories, consistency and completeness, and Godels Theorem. This course meets CECP Guidelines.
Spring: Department Discretion
Course Outline (https://eservices.minnstate.edu/registration/rest/rcId/0075/curricId/00184422/)

MATH 510 Advanced Number Theory Credits: 3
Number theory, which is one of the most ancient branches of mathematics and continues to be an active area of research, is the study of integers, the most basic structure of mathematics, and many of their fascinating properties. For example, it has a major recent day application in communications and cryptography. Topics include proof by induction, divisibility, primes, uniqueness of factorization, congruencies, Chinese Remainder Theorem, Cryptography, Pythagorean triples and other Diophantine equations, Pells Equation, primarily testing, factoring methods, primitive roots, perfect numbers, rational versus irrational, and continued fractions, quadratic congruencies, and quadratic reciprocity. The required preparation for this course is an undergraduate major in mathematics or mathematics education.
Summer Odd Years
Course Outline (https://eservices.minnstate.edu/registration/rest/rcId/0075/curricId/00182630/)

MATH 515 Advanced Discrete Mathematics Credits: 3
An extension of the usual material presented in an undergraduate course in Discrete Mathematics. Topics will include: coding theory, Polya enumeration, scheduling and bin packing, and combinatorial games. A current computer software package will be utilized to explore these topics. The required preparation for this course is an undergraduate major in mathematics or mathematics education.
Spring: Department Discretion
Course Outline (https://eservices.minnstate.edu/registration/rest/rcId/0075/curricId/00182631/)

MATH 530 Statistics Credits: 3
This course is designed to give students both the theoretical and practical aspects of statistics. Topics include probability distributions of discrete and continuous random variables, mathematical expectations, multivariate distributions, correlations, confidence intervals, hypothesis testing, linear regression, and use of technology. The required preparation for this course is an undergraduate course in statistics, and an undergraduate major in mathematics or mathematics education.
Summer Odd Years
Course Outline (https://eservices.minnstate.edu/registration/rest/rcId/0075/curricId/00182649/)

MATH 540 Abstract Algebra Credits: 3
A first graduate course in abstract algebra. Topics may include: groups, subgroups, quotient groups, homomorphisms, isomorphisms, group actions, direct and semidirect products, the Sylow theorems, rings, integral domains, fields, field extensions, and Galios Theory. The required preparation for this course is an undergraduate major in Mathematics or Mathematics Education
Fall: Department Discretion **Spring:** Department Discretion **Summer** Department Discretion
Course Outline (https://eservices.minnstate.edu/registration/rest/rcId/0075/curricId/00188366/)

MATH 545 Advanced Geometry Credits: 3
This course reviews Euclidean, synthetic, analytic, plane and solid geometry, then compares Euclidean geometry to the more recent developments in geometry dealing with non-metric properties. Projective geometry, affine geometry, and topological geometry are used as examples of non-Euclidean systems. The required preparation for this course is an undergraduate major in mathematics or mathematics education.
Summer Even Years
Course Outline (https://eservices.minnstate.edu/registration/rest/rcId/0075/curricId/00182651/)

MATH 550 Real Analysis Credits: 3
Topics include: metric spaces, compactness, countability, convergence, continuity, uniform convergence and continuity, differentiation, and integration. The objective of this course is to provide a foundation in the mathematical analysis behind the Calculus. The required preparation for this course is an undergraduate major in Mathematics or Mathematics Education
Summer Even Years
Course Outline (https://eservices.minnstate.edu/registration/rest/rcId/0075/curricId/00182633/)

MATH 560 Applied Linear Algebra Credits: 3
An extension of the usual material presented in an undergraduate course in Linear Algebra. Topics include vector spaces and linear transformations, algebra of polynomials, invariant subspaces, LU, QR and singular value decompositions, symmetric, positive definite, and Hermitian matrices, inner product spaces, and the spectral theorem. The required preparation for this course is an undergraduate major in mathematics or mathematics education.
Spring: Department Discretion
Course Outline (https://eservices.minnstate.edu/registration/rest/rcId/0075/curricId/00182634/)

MATH 586 Selected Topics in Mathematics Credits: 1-3
A study of more advanced topics in mathematics not normally provided as part of the curriculum.
Fall: Department Discretion **Spring:** Department Discretion **Summer** Department Discretion
Course Outline (https://eservices.minnstate.edu/registration/rest/rcId/0075/curricId/00186634/)

MATH 589 Special Topics in Mathematics Credits: 1-4
Advanced interdisciplinary study of Mathematics. Student may use interdisciplinary research involving Mathematics, and/or Statistics, projects, paper review, or other experiences outside the classroom in real world situations as credit for prior learning towards the 18 graduate credits requirement in Mathematics.
Fall: Department Discretion **Spring:** Department Discretion **Summer** Department Discretion
Course Outline (https://eservices.minnstate.edu/registration/rest/rcId/0075/curricId/00200211/)

Note: While every effort is made to ensure accuracy, SMSU reserves the right to correct any clerical errors herein. Also, you can submit feedback.