MATHEMATICS & STATISTICS - MAT

MAT 105 Finite Mathematics 3 Credits
Introduction to finite (non-calculus) mathematics and its applications: linear, quadratic, exponential and logarithmic functions and equations; systems of linear equations and linear programming; compound interest problems and annuities.
Fulfills College Core: Field 7 (Mathematical Sciences)
Offered: every fall & spring.

MAT 106 Calculus for the Non-Sciences 3 Credits
Fundamentals of calculus for students in business, or social or behavioral sciences. Credit not allowed if student already has credit for MAT 109 & MAT 110; or MAT 111 or MAT 115.
Fulfills College Core: Field 7 (Mathematical Sciences)
Offered: every fall, spring, & summer.

MAT 109 Calculus with Review I 4 Credits
For science and mathematics majors. Calculus, with topics from pre-calculus. Logarithmic and exponential functions, trigonometric functions, limits, differentiation. Credit not allowed if student already has credit for MAT 111 or MAT 115.
Fulfills College Core: Field 7 (Mathematical Sciences)
Offered: fall.

MAT 110 Calculus with Review II 4 Credits
Continuation of MAT 109. Differentiation, related rates, optimization problems, anti-differentiation, definite integral. Credit not allowed if student already has credit for MAT 111 or MAT 115.
Prerequisite: MAT 109
Offered: spring.

MAT 111 Calculus I 4 Credits
For science and mathematics majors. Calculus of functions of single variable. Functions, limits, differentiation, continuity, graphing, logarithm, exponential and inverse trigonometric functions, related rates, optimization problems, mean value theorem, L’Hospital’s rule, anti-differentiation, definite integral. Credit not allowed if student already has credit for MAT 109 and MAT 110 or for MAT 115.
Fulfills College Core: Field 7 (Mathematical Sciences)
Offered: fall & spring.

MAT 112 Calculus II 4 Credits
Applications of integration, integration techniques, improper integrals, sequences, series, convergence tests, Taylor’s series, applications; parametric and polar curves.
Prerequisite: minimum grade of C- in one of the following MAT 109 & MAT 110, MAT 111 or MAT 115.
Offered: fall & spring.

MAT 115 Calculus for Business 4 Credits
Calculus for business students. Differentiation and integration of functions of one variable. Applications, concepts, examples and problems in economics and business. Credit not allowed if student already has credit for either MAT 109 and MAT 110 or for MAT 111.
Prerequisite: 3 1/2 years of high school mathematics.
Fulfills College Core: Field 7 (Mathematical Sciences)
Offered: fall.

MAT 119 Linear Algebra 4 Credits
Prerequisite: MAT 112 or permission of instructor.
Offered: spring.

MAT 121 Mathematics through History 3 Credits
Liberal arts mathematics course. Tracing the development of mathematical ideas globally and through history, with emphasis on problem solving techniques, quantitative thinking, and deductive reasoning.
Prerequisite: 3 years of high school math or equivalent; sophomore standing or higher.
Fulfills College Core: Field 7 (Mathematical Sciences), Global Awareness
Offered: once a year.

MAT 131 Statistics for Social Sciences 3 Credits
A first course for majors in social or health sciences. Descriptive statistics, calculators, computer programs and introduction to inferential statistics. Credit not allowed if student already has credit for MAT 141 or MAT 351.
Prerequisite: 3 years of high school mathematics or equivalent.
Fulfills College Core: Field 7 (Mathematical Sciences)
Offered: fall & spring.

MAT 141 Inferential Statistics and Computers for Science 4 Credits
Elementary probability theory, descriptive statistics, hypothesis testing, estimation, correlation and regression. The computer will be used with one of the standard statistical packages. Credit not allowed if student already has credit for MAT 131 or MAT 351.
Prerequisite: 3 1/2 years of high school mathematics.
Fulfills College Core: Field 7 (Mathematical Sciences)
Offered: fall & spring.

MAT 150 Mathematics and Politics 3 Credits
Liberal arts course emphasizing applications of math in the social sciences. Covers topics such as voting theory, decisions made by groups, measurement of political power.
Prerequisite: 3 years of high school mathematics or equivalent.
Fulfills College Core: Field 7 (Mathematical Sciences), Justice
Offered: once a year.

MAT 161 Mathematics for Elementary Teachers 3 Credits
Designed to provide a solid foundation for the mathematical topics encountered in elementary schools. The primary goal is to develop a deep understanding of mathematical concepts so future teachers can teach with knowledge and confidence. The main topics are: problem solving processes and strategies, elementary set theory, the theory behind basic arithmetic, number systems, basic probability and statistics, elementary geometry.
Prerequisite: 3 years of high school mathematics or equivalent.
Fulfills College Core: Field 7 (Mathematical Sciences), Justice
Offered: occasionally.

MAT 171 Discrete Mathematics 4 Credits
Fundamental topics with computer science applications. Sets and logic, propositional and predicate calculus, elements of combinatorics and counting, elementary discrete probability, functions and relations, and graphs.
Offered: fall.

MAT 210 Calculus III 4 Credits
Continuation of MAT 111 and MAT 112. Analytic geometry of 3-dimensional space and calculus of functions of several variables.
Prerequisite: minimum grade of C- in MAT 112.
Offered: fall & spring.

MAT 219 Linear Algebra 4 Credits
Prerequisite: MAT 112 or permission of instructor.
Offered: spring.
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<td>Differential Equations</td>
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MAT 381 Mathematics Seminar 1 Credit
Mathematics seminar for majors. To be taken for three semesters.
Prerequisite: junior standing.
Offered: fall & spring.

MAT 421 Complex Analysis 3 Credits
Prerequisites: MAT 321 or PHY 335.
Offered: spring of even-numbered years.

MAT 480 Mathematics Seminar 1 Credit
Mathematics seminar for majors. To be taken for three semesters.
Prerequisite: junior standing.
Fulfills College Core: Oral Communication
Offered: fall & spring.

MAT 498 Internship in Mathematics 1-3 Credits
Internship involving non-routine tasks linking academic concepts to practical experience. May be used for free elective credit only. Internships require an application and approval by the associate dean.
Prerequisite: permission of the chair & associate dean.
Offered: occasionally.

MAT 499 Independent Study 1-4 Credits
Study and work with a faculty supervisor. Project to be determined by faculty agreement. Independent studies require an application and approval by the associate dean.
Prerequisite: permission of the instructor, department chair, & associate dean.
Offered: occasionally.