

MATHEMATICS (MAT) - ROCK COUNTY

Courses

MAT 081 Topics in Geometry 3 Units

Designed for students who have not had high school geometry. Includes methods of proof, properties of simple plane figures, congruence, & similarity. This course is offered through a contractual arrangement with the local WTCS institution as MAT 085. This course is offered by the campus TRIO/student support services program as MAT 087.

MAT 085 Topics in Geometry 3 Units

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MAT 087 Topics in Geometry 3 Units

Designed for students who have not had high school geometry. Includes methods of proof, properties of simple plane figures, congruence, & similarity. This course is offered through a contractual arrangement with the local WTCS institution as MAT 085. This course is offered by the campus TRIO/student support services program as MAT 087.

MAT 090 Basic Mathematics 2-3 Units

Designed for students with minimum algebra background or who have been away from mathematics for several years. Subject areas to be covered include arithmetic of whole numbers, fraction & decimals, ratios & percents, & basic algebraic concepts. Prepares the student for Elementary Algebra. This course is offered through a contractual arrangement with the local WTCS institution as MAT 092. This course is offered by the campus TRIO/student support services program as MAT 094.

MAT 091 Elementary Algebra 3-4 Units

Intended for students with little or no previous algebra. Topics include the real number system & operations with real numbers & algebraic expressions, linear equations & inequalities, polynomials, factoring, & Intro to quadratic equations.

MAT 092 Basic Mathematics 2-3 Units

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MAT 094 Basic Mathematics 2-3 Units

Designed for students with minimum algebra background or who have been away from mathematics for several years. Subject areas to be covered include arithmetic of whole numbers, fraction & decimals, ratios & percents, & basic algebraic concepts. Prepares the student for Elementary Algebra. This course is offered through a contractual arrangement with the local WTCS institution as MAT 092. This course is offered by the campus TRIO/student support services program as MAT 094.

MAT 095 Elementary Algebra 3-4 Units

Intended for students with little or no previous algebra. Topics include the real number system & operations with real numbers & algebraic expressions, linear equations & inequalities, polynomials, factoring, & Intro to quadratic equations.

MAT 097 Elementary Algebra 3-4 Units

Intended for students with little or no previous algebra. Topics include the real number system & operations with real numbers & algebraic expressions, linear equations & inequalities, polynomials, factoring, & Intro to quadratic equations.

MAT 099 Mathematics Tutorial 1-3 Units

MAT 099 is intended for students concurrently enrolled in any mathematics course from MAT 090 to MAT 124. Each section being offered will support students from only one of the courses. These support sections will be run in a highly interactive format providing mathematics instruction & instilling study skills & strategies for succeeding in mathematics courses. The content & skills will empower students to succeed in their concurrent Mathematics course & higher-level Mathematics courses. Concurrent enrollment in any math course from MAT 090 to MAT 124.

COREQ: CONCURRENT ENROLLMENT IN ANY MAT COURSE FROM MAT 090 TO MAT 124

MAT 103A Beginning and Intermediate Algebra 1 Units

Integer, rational, real & complex numbers, polynomials, exponents & radicals, rational expressions & functions are defined. Arithmetic operations of addition, subtraction multiplication & division are extended to these algebraic objects. Equations & inequalities involving the algebraic objects are solved including polynomial equations through the quadratic formula. Applications that utilize linear & quadratic, rational & radical equations are studied as well as algebraic & graphical representation of lines & interpreting graphical representation of functions.

PREREQ: A GRADE OF C OR BETTER IN MAT 090 OR BASED ON PLACEMENT TEST SCORES

MAT 103B Beginning and Intermediate Algebra 3 Units

Integer, rational, real & complex numbers, polynomials, exponents & radicals, rational expressions & functions are defined. Arithmetic operations of addition, subtraction multiplication & division are extended to these algebraic objects. Equations & inequalities involving the algebraic objects are solved including polynomial equations through the quadratic formula. Applications that utilize linear & quadratic, rational & radical equations are studied as well as algebraic & graphical representation of lines & interpreting graphical representation of functions.

PREREQ: A GRADE OF C OR BETTER IN MAT 090 OR BASED ON PLACEMENT TEST SCORES

MAT 105 Introduction to College Algebra 3-4 Units

Emphasizes algebraic techniques with polynomials, fractional expressions, exponents & radicals, linear & quadratic equations, & inequalities. Intro to functions, their graphs, & analytic geometry.

PREREQ: A GRADE OF C OR BETTER IN ELEMENTARY ALGEBRA OR MAT 103 OR PLACEMENT BASED ON PLACEMENT TEST SCORE

MAT 108 Quantitative Reasoning 3 Units

This course is intended to develop analytic reasoning & the ability to solve quantitative problems. Topics to be covered include construction & interpretation of graphs, functional relationships, descriptive Stat., geometry & spatial visualization, math of finance, exponential growth, & basic probability. Appropriate use of units & dimensions, estimates, mathematical notation & available technology will be emphasized throughout the course.

PREREQ: A GRADE OF C OR BETTER IN MAT 091 OR EQUIVALENT OR PLACEMENT BASED ON PLACEMENT TEST SCORES

MAT 109 Math Literacy and Algebra for College Students 5 Units

Intro to numeracy, proportional reasoning, algebraic reasoning, & functions. Emphasis on developing conceptual & procedural tools that support the use of key mathematical concepts in context. Algebraic techniques with polynomials, fractional expressions, exponents & radicals, & linear & quadratic equations are also developed.

PREREQ: A GRADE OF C OR BETTER IN MAT 090 OR BASED ON PLACEMENT TEST SCORES

MAT 110 College Algebra 3 Units

Definition of function & sequence; linear & nonlinear functions & graphs including logarithmic & exponential functions; systems of linear equations & Gauss-Jordan method; theory of polynomial equations; conic sections & optional topics such as mathematical induction, matrix solution of linear systems & Cramer's rule.

PREREQ: A GRADE OF C OR BETTER IN MAT 103B OR MAT 105 OR PLACEMENT BASED ON PLACEMENT TEST SCORES

MAT 113 Trigonometry 2 Units

Trigonometric functions, their basic properties & graphs, identities, inverse trigonometric functions, solving trigonometric equations, solutions of triangles.

PREREQ: A GRADE OF C OR BETTER IN MAT, OR CONCURRENT REGISTRATION IN MAT 110, OR PLACEMENT BASED ON PLACEMENT TEST SCORES

MAT 117 Elementary Statistics 3 Units

The primary aim of the course is a basic understanding & use of statistical concepts & methods to facilitate study & research in other disciplines. Includes measures of central tendency, measures of variability, grouped data, the normal distribution, central limit theorem, hypothesis testing, estimation, T-distribution & chi square test.

PREREQ: A GRADE OF C OR BETTER IN MAT 103B OR MAT 105 OR MAT 108 OR EQUIVALENT

MAT 124 Pre-Calculus Mathematics 5 Units

Functions & graphs, including linear, polynomial, logarithmic & exponential functions: complex numbers & theory of equations; binomial theorem; mathematical induction; trigonometric functions, their basic properties & graphs; identities; inverse trigonometric functions; solving trigonometric equations; de Moivre's theorem. Students may not earn more than five credits of any combination of MAT 110, MAT 113 & MAT 124.

PREREQ: A GRADE OF C OR BETTER IN MAT 103B OR MAT 105 OR PLACEMENT BASED ON PLACEMENT TEST SCORES

MAT 130 Mathematics for Elementary Teachers 4 Units

A mathematics content course for prospective elementary teachers. Emphasis is on development of properties of arithmetic. Topics also may include elementary concepts of algebra, probability, & Stat.. Four hours lecture or three hours lecture & two hours Lab per week.

PREREQ: A GRADE OF C OR BETTER IN MAT 103B OR MAT 105 OR MAT 108 OR EQUIVALENT

MAT 132 Geometry for Elementary Teachers 4 Units

The course emphasizes geometric concepts. Topics also may include concepts of algebra, probability & Stat.. Four hours lecture or three hours lecture & two hours Lab per week.

PREREQ: A GRADE OF C OR BETTER IN MAT 103B OR MAT 105 OR MAT 108 OR EQUIVALENT

MAT 140 Survey of Mathematics 3 Units

A course emphasizing the nature of mathematics, an appreciation of mathematical concepts & reasoning, & the development of mathematical systems. It is not intended as preparation for other mathematics courses.

MAT 210 Topics in Finite Mathematics 3-4 Units

Matrices, linear programming & applications, probability, Markov chains, & mathematics of finance.

PREREQ: A GRADE OF C OR BETTER IN MAT 124 OR MAT 211 OR EQUIVALENT AND CONSENT OF INSTRUCTOR

MAT 211 Calculus 4-5 Units

Primarily for students in business, the social Sci.s, & biological Sci.s who wish to acquire some knowledge of the techniques & applications of calculus. Topics include concepts, techniques, & applications of differential & integral calculus including multivariate calculus. Students who are preparing to major in mathematics, engineering, or physical Sci.s should enroll in the MAT 221-MAT 222 sequence. Students may not earn more than six credits by taking both MAT 211 & MAT 221.

PREREQ: A GRADE OF C OR BETTER IN MAT 110 OR MAT 124 OR EQUIVALENT OR PLACEMENT BASED ON PLACEMENT TEST SCORES

MAT 221 Calculus and Analytical Geometry I 5 Units

Analytic geometry, functions, limits & continuity, the derivative, integrals, techniques & applications of differentiation, applications of integration, logarithmic & exponential functions, & trigonometric functions. Students may not earn more than six credits by taking both MAT 211 & MAT 221.

PREREQ: A GRADE OF C OR BETTER IN MAT 124 OR (MAT 110 AND MAT 113) OR EQUIVALENT, OR PLACEMENT BASED ON PLACEMENT TEST SCORES

MAT 222 Calculus & Analytical Geometry II 5 Units

Continuation of 221. Techniques of integration, polar coordinates, conic sections, infinite series, & vectors of two & three dimensions. Note: the order of topics covered in MAT 221 & MAT 222 may depend on the text used & the instructor.

PREREQ: A GRADE OF C OR BETTER IN MAT 222, OR PLACEMENT BASED ON THE DEPARTMENT CALCULUS PROFICIENCY TEST OR AP EXAM

MAT 223 Calculus & Analytical Geometry III 4-5 Units

Continuation of MAT 222. Analytic geometry of three dimensions, functions of several variables, partial differentiation, multiple integration, & Intro to differential equations.

PREREQ: A GRADE OF C OR BETTER IN MAT 222 OR EQUIVALENT

MAT 224 Linear Mathematics 4 Units

Intro to linear algebra, vector spaces, matrices, linear transformations & eigenvalues. Ordinary differential equations & linear systems of differential equations. Laplace transforms.

PREREQ: A GRADE OF C OR BETTER IN MAT 223 OR EQUIVALENT

MAT 230 Discrete Mathematics 3 Units

An Intro to discrete mathematics with emphasis on topics applicable to computer Sci.. Topics include symbolic logic, sets & relations, induction & recursion, counting techniques, algorithm analysis, graphs & digraphs, & Boolean algebra.

PREREQ: A GRADE OF C OR BETTER IN MAT 124 OR EQUIVALENT OR CONSENT OF INSTRUCTOR

MAT 234 Calculus of Several Variables 3-4 Units

Continuation of MAT 222. Analytic geometry of three dimensions, functions of several variables, & multiple integration. This course is equivalent to MAT 223 without differential equations. Students may not receive credit for both MAT 223 & MAT 234.

PREREQ: A GRADE OF C OR BETTER IN MAT 222 OR EQUIVALENT

MAT 240 Statistical Analysis 3 Units

Elements of probability theory; collection & presentation of sample data; basic problems of statistical inference; applications, including quality control; regression; & hypothesis testing.

PREREQ: A GRADE OF C OR BETTER IN MAT 211 OR MAT 221 OR EQUIVALENT

MAT 262 Linear Algebra 3 Units

Matrix algebra, linear systems of equations, vector spaces, subspaces, linear dependence, rank of matrices, determinants, linear transformations, eigenvalues & eigenvectors, diagonalization, inner products & orthogonal vectors, & symmetric matrices.

PREREQ: A GRADE OF C OR BETTER IN MAT 222 OR EQUIVALENT

MAT 271 Ordinary Differential Equations 3 Units

Ordinary differential equations of the first & second order, series solutions, higher order linear equations, the Wronskian, Laplace transform & applications, numerical methods & boundary value problems.

PREREQ: A GRADE OF C OR BETTER IN MAT 222 OR EQUIVALENT

MAT 290 Special Topics in Mathematics 1-3 Units

A course focusing on a selected topic or set of topics selected by the instructor to meet special needs & interests of students.

PREREQ: A GRADE OF C OR BETTER IN MAT 124 OR MAT 211 OR EQUIVALENT AND CONSENT OF INSTRUCTOR

MAT 294 Internship in Mathematics 1-3 Units

An individually arranged internship in an area field site, public agency, community organization, or industry to gain practical experience in a Mathematics discipline. Students will work under the supervision of a faculty member & will receive credit based on hours employed & completion of a final report summarizing their experiences. The class will give students the opportunity to learn the interrelationships between Mathematics & applications in business or the community. Repeatable for a maximum of six credits.

MAT 299 Independent Reading in Mathematics 1-3 Units

Prereq: Sophomore standing & cons. instr

PREREQ: SOPHOMORE STATUS OR CONSENT OF INSTRUCTOR