Course Descriptions

Mathematics
LA 848, (406) 657-2228

M 065 Prealgebra
[formerly M 061 Basic Mathematics]
3 cr. Covers pre-algebra concepts involving terminology, fractions, decimals, percent, ratio and proportion, measurement, geometry, and statistics. Credits do not apply toward graduation requirements nor fulfill General Education requirements. However, the credits do count towards enrollment status for financial aid.

M 090 Introductory Algebra
[formerly MATH 101 Introductory Algebra]
3 cr. Prerequisite: Proficiency in basic mathematics. Covers introductory algebra concepts involving terminology, exponents, operations on rational numbers, multiplication of polynomials, and basic factoring. Credits do not apply toward graduation requirements and do not fulfill General Education requirements. However, the credits do count towards enrollment status for financial aid.

M 095 Intermediate Algebra
[formerly MATH 105 Algebra for College Students]
4 cr. Prerequisite: M 090 or equivalent. Reviews elementary algebraic concepts and covers more advanced factoring, operations on rational expressions and radical expressions, quadratic equations, the rectangular coordinate system, and exponential and logarithmic functions. Credits do not apply toward graduation requirements and do not fulfill General Education requirements. However, the credits do count towards enrollment status for financial aid.

M 098 Introductory & Intermediate Algebra
5 cr. Prerequisites: M 065 or equivalent COMPASS score. (F, Sp, Su) Covers basic algebra concepts including terminology; operations on rational numbers; solving and graphing linear equations and inequalities in one and two variables; determining equations of lines; polynomial and function operations; operations on exponential and radical expressions; factoring; solving rational, absolute value, radical, and systems of equations; solving and graphing quadratic equations. This is a modularized course based on mastery learning in which students will earn credit for each module (A, B, C, D, E) by examination.

*** M 105 Contemporary Mathematics**
[formerly MATH 141 Contemporary Mathematics]
3 cr. Prerequisite: M 095 or three years of high school mathematics. (F, Sp) Introduces the student to areas of interest in applied and pure mathematics. Content may vary.

M 110 Mathematical Computing
[formerly MATH 110 Mathematical Computing]
1 cr. (F, Sp) Introduces the use of computer algebra systems to solve mathematical problems.

*** M 121 College Algebra**
[formerly MATH 106 College Algebra]
3 cr. Prerequisite: M 095. (F, Sp, Su) Covers polynomial, rational, exponential, and logarithmic functions.

*** M 122 College Trigonometry**
3 cr. Prerequisite: M 121 or appropriate placement scores. (F, Sp) Covers trigonometric functions and their inverses, polar coordinates, graphing, and trigonometric identities. Includes sequences and series.

M 130 Mathematics for Elementary Teachers I
[formerly MATH 201 Fundamentals of Mathematics I]
3 cr. Prerequisite: M 095 or equivalent. (F, Sp) Restricted to majors in elementary education and special education. Stresses problem solving techniques, sets, properties of number systems, algorithms for operations, number theory, and probability.

*** M 131 Mathematics for Elementary Teachers II**
[formerly MATH 202 Fundamentals of Mathematics II]
3 cr. Prerequisite: M 130 or consent of instructor. (F, Sp) Focuses on geometry, measurement, computer programming for elementary mathematics, and utilization of computer software for geometry.

*** M 143 Finite Mathematics**
[formerly MATH 121 Finite Mathematics]
4 cr. Prerequisite: M 095 or equivalent. (F, Sp) Studies applications of systems of linear equations to problems of optimization, elementary functions, logic, and mathematics of finance. Introduces differentiation.

*** M 161 Survey of Calculus**
3 cr. Prerequisite: M 121 or Math Placement Test within the past 12 months. (F, Sp) Covers basic calculus concepts including limits, differentiation, and integration with applications to business, biology, and social science problems.

*** M 171 Calculus I**
[formerly MATH 112 Calculus I]
4 cr. Prerequisite: M 122. (F, Sp) Covers differentiation and presents applications to the approximation of functions, root finding, and 1-variable optimization. Introduces integration.

M 172 Calculus II
[formerly MATH 113 Calculus II]
4 cr. Prerequisite: M 171. (F, Sp) Includes techniques and applications of integration, analytic geometry and the theory of sequences and series. This course is a continuation of M 171.

M 242, Methods of Proof, 3 cr. Prerequisite: M 172. (Sp). Reasoning and communication in mathematics, including logic, generalization, existence, definition, proof, and the language of mathematics. Topics include functions, relations, set theory, recursion, algebra, number theory, and other areas of mathematics.

M 273 Multivariable Calculus
[formerly MATH 312 Multivariable Calculus]
4 cr. Prerequisite: M 172 and either M 110 or EGEN 105. (F) Covers vector-valued functions, functions of two and three variables, partial differentiation, as well as multiple, line, and surface integrals; includes a variety of applications.

M 274 Introduction to Differential Equations
[formerly MATH 302 Intermediate Differential Equations]
4 cr. Prerequisite: M 172 and either M 110 or EGEN 105. (Sp) Presents methods for the solution of first and higher-order differential equations including variation of parameters, undetermined coefficients, the Laplace transform, and power series expansions. Introduces phase plane methods.

M 294 Seminar/Workshop
[formerly MATH 292 Seminar]
V1-3 cr. Provides students an opportunity to investigate intensively topics pertinent to the field of Mathematics.

M 294 Seminar/Workshop
[formerly MATH 293 Workshop]
V1-8 cr. Provides an opportunity for experimental study in an area of Mathematics.

M 298 Cooperative Education/Internship
[formerly MATH 296 Cooperative Education/Internship]
V1-9 cr. Provides university credit for a sophomore work experience in the area of Mathematics supervised by faculty. Learning agreement must be completed prior to registration (restricted).

M 302 Trends in Elementary Mathematics
[formerly MATH 320 Trends in Elementary Mathematics]
3 cr. Prerequisites: M 131 or consent of instructor. Focuses on a consideration of applications of mathematics that are within the scope of the elementary (K-8) mathematics curriculum. Examples will be drawn from existing elementary mathematics curriculum projects and be adapted from projects at higher levels. The use of this content will serve to reflect the curriculum changes that have been called for by the Curriculum and Evaluation Standards (NCTM, 1989) and will show how math is responding to the expectation that the curriculum demonstrate greater relevance. Topics to be covered include geometry and technology, measurement, social science applications, business applications, and science applications (especially using probability). Technology will be incorporated as appropriate in all activities.

M 305 Discrete Structures I
[formerly MATH/COMP 305 Discrete Structures I]

4 cr. Prerequisite: M 172 and CSCI 111A. (F) Covers logic, recursion, induction and basic data models. Surveys combinatorics and the theory of algorithms with attention to design analysis and verification techniques.

M 306 Discrete Structures II
[formerly MATH/COMP 306 Discrete Structures II]
4 cr. Prerequisites: M 305. (Sp) Discusses algorithm design in the context of graph theory. Introduces automata and formal languages. Covers logic, computability, artificial intelligence and robotics.

M 329 Modern Geometry
[formerly MATH 311 Geometry]
(WR) 3 cr. Prerequisite: M 333 or consent of instructor. (Sp) Deals with the fundamentals of synthetic and modern geometry. Covers topics in non-Euclidean geometry as well as topics in Euclidean geometry, such as finite geometry, space geometry, constructions, and solid geometry.

M 330 History of Mathematics
[formerly MATH 331 History of Mathematics]
(WR) 3 cr. Prerequisite: junior standing or consent of instructor. (F) Emphasizes the historical development of mathematics during 5,000 years, from primitive counting through set theory. Particularly useful for those teaching mathematics

M 333 Linear Algebra
[formerly MATH 301 Applied Linear Algebra]
4 cr. Prerequisite: M 273. (Sp) Covers linear systems and matrices, determinants, vector spaces, linear transformations, eigenvalues and eigenvectors, and orthogonality. Exact topics may vary year to year.

MATH 341 Probability – See STAT 341

M 371 Numerical Computing
[formerly MATH/COMP 371 Numerical Computing]
(TN) 4 cr. Prerequisite: M 333. (Sp) Presents floating-point arithmetic, approximate solution of equations and systems of equations, polynomial
interpolation, numerical integration and differentiation, and the approximate solution of ordinary differential equations. Exact topics may vary from year to year.

M 397 Education Methods: Peer Tutoring
[formerly MATH 390 Peer Tutoring]
1 cr. R-3 Prerequisites: mathematics major or minor and approval of the director of the Math Lab. Provides practical experience imparting basic mathematical skills to the students in the Math Lab.

M 431 Abstract Algebra I
[formerly MATH 421 Algebraic Structures]

3 cr. Prerequisite: M 333. (F) Covers groups, rings, fields and vector spaces. Exact topics may vary from year to year.

M 471 Mathematical Analysis
[formerly MATH 412 Mathematical Analysis I]
3 cr. Prerequisite: M 273. Presents the basic theorems of one and multivariable analysis as a basis for higher analysis and its applications.

M 472 Introduction to Complex Analysis
[formerly MATH 413 Mathematical Analysis II]
3 cr. Prerequisite: M 471. Covers topics in multivariable calculus and/or complex variables.

M 492 Independent Study
[formerly MATH 491 Independent Study]
V1-3 cr. Prerequisites: consent of instructor and department chairperson. Provides outstanding students an individual opportunity to explore material not covered by regular mathematics courses.

M 494 Seminar/Workshop
[formerly MATH 492 Seminar]
V1-3 cr. Prerequisite: mathematics major or minor, or consent of instructor. Investigates intensively topics pertinent to the area of Mathematics.

M 494 Seminar/Workshop
[formerly MATH 493 Workshop]
V1-3 cr. Provides an opportunity for experimental study in an area of Mathematics.

M 498 Internship/Cooperative Education
[formerly MATH 496 Cooperative Education/Internship]
V1-9 cr. Provides university credit for a work experience in the area of Mathematics, supervised by faculty. Learning agreement must be completed prior to registration (restricted).

M 499 Capstone
[formerly MATH 498 Capstone Seminar]
V1-3 cr. Prerequisite: Senior Standing in Math. (F) Studies a single area of mathematics in depth, drawing on ideas and techniques from previous courses. Requires students to analyze and create mathematical arguments that lead to written or oral reports.