

M - MATHEMATICS

M 065 Prealgebra. 3 Credits

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.

Lecture Hours 3

Department: General Education - COT

M 088 Mathematical Literacy. 4 Credits

Term Typically Offered: Fall, Spring

Prerequisite(s): appropriate placement score.

Develops mathematical literacy through peer collaboration, problem solving, critical thinking, writing, and communicating mathematics. Students represent and solve relevant, real-world problems using various forms of numbers, equations, and graphs. Topics include proportional reasoning, algebra, introductory statistical formulas, geometry, and measurement.

Lecture Hours 4

Department: General Education - COT

M 090 Introductory Algebra. 3 Credits

Prerequisite(s): M 065 or equivalent.

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, and polynomial and function operations. 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.

Lecture Hours 3

Department: General Education - COT

M 095 Intermediate Algebra. 4 Credits

Prerequisite(s): M 090 or equivalent.

Reviews 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, and polynomial operations. Covers function operations; operations on exponential and radical expressions; factoring; solving rational, absolute value, radical, and systems of equations; and solving and graphing quadratic equations. 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.

Lecture Hours 4

Department: General Education - COT

M 098A Intro & Intermediate Algebra. 1 Credit

Term Typically Offered: Fall, Spring, Summer

Prerequisite(s): appropriate placement score.

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.

Lecture Hours 1

Department: General Education - COT

M 098B Intro & Intermediate Algebra. 1 Credit

Term Typically Offered: Fall, Spring, Summer

Prerequisite(s): appropriate placement score.

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.

Lecture Hours 1

Department: General Education - COT

M 098C Intro & Intermediate Algebra. 1 Credit

Term Typically Offered: Fall, Spring, Summer

Prerequisite(s): appropriate placement score.

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.

Lecture Hours 1

Department: General Education - COT

M 098D Intro & Intermediate Algebra. 1 Credit

Term Typically Offered: Fall, Spring, Summer

Prerequisite(s): appropriate placement score.

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.

Lecture Hours 1

Department: General Education - COT

M 098E Intro & Intermediate Algebra. 1 Credit

Term Typically Offered: Fall, Spring, Summer

Prerequisite(s): appropriate placement score.

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.

Lecture Hours 1

Department: General Education - COT

M 105 Contemporary Mathematics. 3 Credits

Term Typically Offered: Fall, Spring

Prerequisite(s): Appropriate placement score.

Gives students the skills required to understand and interpret quantitative information that they encounter in the news and in their studies, and make numerically based decisions in their lives. Topics include working with units and measurement, set theory, financial mathematics, and essentials of statistics.

Lecture Hours 3

Department: Math/Comp Sci/Statistics

<p>M 108 Business Mathematics. 3 Credits</p> <p>Term Typically Offered: Fall, Spring</p> <p>Prerequisite(s): Passing M 065 or appropriate placement test scores.</p> <p>3cr. Examines the mathematics of business ownership and exposes the mathematical needs of business decisions. Techniques include marketing, payroll, cash flow, simple and compound interest, credit, promissory notes, insurance financial statements, ratio analysis, depreciation, annuities, and inventory valuation.</p> <p>Lecture Hours 3</p> <p>Department: General Education - COT</p>		<p>M 130 Math for Elementary Teachers I. 3 Credits</p> <p>Term Typically Offered: Fall, Spring</p> <p>Prerequisite(s): M 088 or appropriate placement score.</p> <p>Stresses topics in counting and cardinality, operations in base ten, basic operations with fractions, rational numbers, two-dimensional geometry, and proportional reasoning. Emphasis is on problem-solving and non-algorithmic thinking within grade K-5 of the Montana Common Core State Standards for mathematics. Designed for majors in elementary education and secondary education.</p> <p>Lecture Hours 3</p> <p>Department: Math/Comp Sci/Statistics</p>
<p>M 110 Mathematical Computing. 1 Credit</p> <p>Term Typically Offered: Fall, Spring</p> <p>Introduces the use of computer algebra systems to solve mathematical problems.</p> <p>Lecture Hours 1</p> <p>Department: Math/Comp Sci/Statistics</p>		<p>M 131 Math for Elementary Teacher II. 3 Credits</p> <p>Term Typically Offered: Fall, Spring</p> <p>Prerequisite(s): M 130 or consent of instructor.</p> <p>Stresses advanced operations with fractions, ratios and proportional relationships, analytic and three-dimensional geometry, expressions and equations, and statistics and probability. Emphasis is on problem-solving and non-algorithmic thinking within grades 5-8 of the Montana Common Core State Standards for mathematics.</p> <p>Lecture Hours 3</p> <p>Department: Math/Comp Sci/Statistics</p>
<p>M 111 Technical Mathematics. 3 Credits</p> <p>Term Typically Offered: Fall, Spring, Summer</p> <p>Prerequisite(s): M 065 or appropriate placement scores.</p> <p>Applies math to problems drawn from diverse occupational fields. In addition to a review of operations on rational numbers, the topics of measurement, percent, proportion and variation, applications of algebra to the extent of solving quadratic equations, and applications of plane and solid figure geometry are developed for use in a trade or industrial setting. Course may serve as a prerequisite to M 114, but does not satisfy the prerequisite of any other math courses. Credits apply to graduation but do not fulfill General Education requirements.</p> <p>Lecture Hours 3</p> <p>Department: General Education - COT</p>		<p>M 140 College Math for Healthcare. 3 Credits</p> <p>Term Typically Offered: Fall, Spring</p> <p>Prerequisite(s): M 088 or appropriate placement score.</p> <p>Provides students with a solid mathematical foundation necessary to succeed in a health care profession. This course will review algebra, systems of measurement, ratio and proportions, basic probability and statistics concepts, and ionic solutions and pH calculations. This course will apply mathematical reasoning and problem solving as it applies to the healthcare field and is a suitable prerequisite for STAT 216.</p> <p>Lecture Hours 3</p> <p>Department: General Education - COT</p>
<p>M 114 Extended Technical Mathematics. 3 Credits</p> <p>Term Typically Offered: Fall, Spring, Summer</p> <p>Prerequisite(s): M 111 or appropriate placement score.</p> <p>Applies math to problems drawn from diverse occupational fields. Provides college level study of measurement, algebra, geometry, and trigonometry as needed to solve mathematical applications in a trade or technical work environment.</p> <p>Lecture Hours 3</p> <p>Department: General Education - COT</p>		<p>M 143 Finite Mathematics. 4 Credits</p> <p>Term Typically Offered: Fall, Spring</p> <p>Prerequisite(s): M 095 or appropriate placement score.</p> <p>Studies applications of systems of linear equations to problems of optimization, elementary functions, logic, and mathematics of finance. Introduces differentiation.</p> <p>Lecture Hours 4</p> <p>Department: Math/Comp Sci/Statistics</p>
<p>M 120 Math Health Care Applications. 3 Credits</p> <p>Term Typically Offered: Fall, Spring</p> <p>Prerequisite(s): appropriate placement score.</p> <p>Provides students with a solid mathematical foundation necessary to succeed in a health care profession. This course will review algebra, systems of measurement, medication and syringe calculations, ratio and proportions, calculations for intravenous therapy, basic statistics, ionic solutions, and pH calculations. Offered ONLY Online.</p> <p>Lecture Hours 3</p> <p>Department: General Education - COT</p>		<p>M 161 Survey of Calculus. 3 Credits</p> <p>Term Typically Offered: Fall, Summer</p> <p>Prerequisite(s): M 121 or appropriate placement test score.</p> <p>Covers basic calculus concepts including limits, differentiation, and integration with applications to business, science, and social science problems.</p> <p>Lecture Hours 3</p> <p>Department: Math/Comp Sci/Statistics</p>
<p>M 121 College Algebra. 3 Credits</p> <p>Term Typically Offered: Fall, Spring, Summer</p> <p>Prerequisite(s): M 095 or M 098 or appropriate placement score.</p> <p>Covers the concepts of functions, complex numbers, and solving basic system of equations. Investigates linear, quadratic, polynomial, exponential, and logarithmic functions.</p> <p>Department: Math/Comp Sci/Statistics</p>		<p>M 171 Calculus I. 4 Credits</p> <p>Term Typically Offered: Fall, Spring</p> <p>Prerequisite(s): M 122 or appropriate placement score.</p> <p>Covers differentiation and presents applications to the approximation of functions, root finding, and 1-variable optimization. Introduces integration.</p> <p>Lecture Hours 4</p> <p>Department: Math/Comp Sci/Statistics</p>
<p>M 122 College Trigonometry. 3 Credits</p> <p>Term Typically Offered: Fall, Spring</p> <p>Prerequisite(s): M 121 or appropriate placement scores.</p> <p>Covers trigonometric functions and their inverses, polar coordinates, graphing, vectors, and trigonometric identities. Includes sequences and series.</p> <p>Lecture Hours 3</p> <p>Department: Math/Comp Sci/Statistics</p>		<p>M 172 Calculus II. 4 Credits</p> <p>Term Typically Offered: Fall, Spring</p> <p>Prerequisite(s): M 171.</p> <p>Includes techniques and applications of integration, analytic geometry and the theory of sequences and series. This course is a continuation of M 171.</p> <p>Lecture Hours 4</p> <p>Department: Math/Comp Sci/Statistics</p>

<p>M 242 Methods of Proof. 3 Credits Term Typically Offered: Spring Prerequisite(s): M 171. Covers 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. Lecture Hours 3 Department: Math/Comp Sci/Statistics</p>		<p>M 330 History of Mathematics. 3 Credits Term Typically Offered: Fall Emphasizes the historical development of mathematics during 5,000 years, from primitive counting through set theory. Particularly useful for those teaching mathematics. Lecture Hours 3 Department: Math/Comp Sci/Statistics</p>
<p>M 273 Multivariable Calculus. 4 Credits Term Typically Offered: Fall Prerequisite(s): M 172. 4cr. 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. Lecture Hours 4 Department: Math/Comp Sci/Statistics</p>		<p>M 333 Linear Algebra. 4 Credits Term Typically Offered: Spring Prerequisite(s): M 171. Covers linear systems and matrices, determinants, vector spaces, linear transformations, eigenvalues and eigenvectors, and orthogonality. Exact topics may vary year to year. Lecture Hours 4 Department: Math/Comp Sci/Statistics</p>
<p>M 274 Intro Differential Equations. 4 Credits Term Typically Offered: Spring Prerequisite(s): M 172. 4cr. 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. Lecture Hours 4 Department: Math/Comp Sci/Statistics</p>		<p>M 371 Numerical Computing. 4 Credits Term Typically Offered: Spring Prerequisite(s): M 333. 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. Lecture Hours 4 Department: Math/Comp Sci/Statistics</p>
<p>M 294 Seminar/Workshop. 1-8 Credits Provides students an opportunity to investigate intensively topics pertinent to the field of Mathematics. Department: Math/Comp Sci/Statistics</p>		<p>M 397 Educ Methods: Peer Tutoring. 1 Credit Prerequisite(s): mathematics major or minor and approval of the director of the Math Lab. R-3 Provides practical experience imparting basic mathematical skills to the students in the Math Lab. Department: Math/Comp Sci/Statistics</p>
<p>M 298 Internship/Cooperative Educ. 1-9 Credits 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). Department: Math/Comp Sci/Statistics</p>		<p>M 431 Abstract Algebra I. 3 Credits Term Typically Offered: Fall Prerequisite(s): M 242 and M 333. Covers groups, rings, fields and vector spaces. Exact topics may vary from year to year. Lecture Hours 3 Department: Math/Comp Sci/Statistics</p>
<p>M 305 Discrete Structures I. 4 Credits Term Typically Offered: Fall Prerequisite(s): M 171. 4cr. Covers logic, recursion, induction and basic data models. Surveys combinatorics and the theory of algorithms with attention to design analysis and verification techniques. Lecture Hours 4 Department: Math/Comp Sci/Statistics</p>		<p>M 471 Mathematical Analysis. 3 Credits Prerequisite(s): M 242 and M 273. Presents the basic theorems of one and multivariable analysis as a basis for higher analysis and its applications. Lecture Hours 3 Department: Math/Comp Sci/Statistics</p>
<p>M 306 Discrete Structures II. 4 Credits Term Typically Offered: Spring Prerequisite(s): M 305. Discusses algorithm design in the context of graph theory. Introduces automata and formal languages. Covers logic, computability, artificial intelligence and robotics. Department: Math/Comp Sci/Statistics</p>		<p>M 472 Intro to Complex Analysis. 3 Credits Prerequisite(s): M 273. Covers topics in multivariable calculus and/or complex variables. Lecture Hours 3 Department: Math/Comp Sci/Statistics</p>
<p>M 329 Modern Geometry. 3 Credits Term Typically Offered: Fall Prerequisite(s): M 242 or M 305 or consent of instructor. 3cr. 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. Lecture Hours 3 Department: Math/Comp Sci/Statistics</p>		<p>M 492 Independent Study. 1-4 Credits Prerequisite(s): consent of instructor and department chairperson. Provides outstanding students an individual opportunity to explore material not covered by regular mathematics courses. Department: Math/Comp Sci/Statistics</p>
		<p>M 494 Seminar/Workshop. 1-4 Credits Prerequisite(s): mathematics major or minor, or consent of instructor. Investigates intensively topics pertinent to the area of Mathematics. Department: Math/Comp Sci/Statistics</p>

M 498 Internship/Cooperative Educ. 1-9 Credits

Provides university credit for a work experience in the area of Mathematics, supervised by faculty. Learning agreement must be completed prior to registration (restricted).

Department: Math/Comp Sci/Statistics

M 499 Capstone. 3 Credits

Term Typically Offered: Fall

Prerequisite(s): Senior Standing in Math.

Requires students to analyze and create mathematical arguments that lead to written or oral reports. Synthesizes the ideas and techniques acquired in prior mathematics courses. Incorporates the department assessment exams.

Department: Math/Comp Sci/Statistics

M 570 Independent Study. 1-3 Credits

Term Typically Offered: Fall, Spring, Summer

Prerequisite(s): Graduate standing and permission of instructor.

Provides students an opportunity to explore material not covered by regular mathematics courses.

Department: Math/Comp Sci/Statistics

M 580 Special Topics. 1-4 Credits

Term Typically Offered: Fall, Spring, Summer

Prerequisite(s): Graduate standing and permission of instructor.

Investigates intensively topics pertinent to the area of Mathematics.

Lecture Hours 1-4

Department: Math/Comp Sci/Statistics