

MATH (MTH)

MTH 040: Math Studio Lab (1)

This optional course offers supplemental instruction during fall, winter and spring terms. The Math Studio Lab is for students who place into math but want to take a higher math class while taking this one-on-one co-requisite math studio lab. The lab helps students satisfy their math prerequisites at an accelerated pace. The studio incorporates the practice of compressing courses while being supported by an associate math professor in the lab, meeting once a week. Instructor-Enforced Corequisites: Support to enroll concurrently with MTH 102, 103, 104, 105Z, 110, 111Z, STAT 243Z

Terms Typically Offered: Fall, Winter, Spring

MTH 041: Math Studio Lab (1)

This optional course offers supplemental instruction during fall, winter and spring terms. The Math Studio Lab is for students who place into math but want to take a higher math class while taking this one-on-one co-requisite math studio lab. The lab helps students satisfy their math prerequisites at an accelerated pace. The studio incorporates the practice of compressing courses while being supported by an associate math professor in the lab, meeting once a week. Instructor-Enforced Corequisites: Support to enroll concurrently with MTH 102, 103, 104, 105Z, 110, 111Z, STAT 243Z

Terms Typically Offered: Fall, Winter, Spring

MTH 042: Math Studio Lab (1)

This optional course offers supplemental instruction during fall, winter and spring terms. The Math Studio Lab is for students who place into math but want to take a higher math class while taking this one-on-one co-requisite math studio lab. The lab helps students satisfy their math prerequisites at an accelerated pace. The studio incorporates the practice of compressing courses while being supported by an associate math professor in the lab, meeting once a week. Instructor-Enforced Corequisites: Support to enroll concurrently with MTH 102, 103, 104, 105Z, 110, 111Z, STAT 243Z

Terms Typically Offered: Fall, Winter, Spring

MTH 045: UCC Math Prep (1)

This condensed math preparation course is intended to refresh and strengthen a student's previously learned math skills. The course first establishes a student's current foundational mathematics standing, then creates and facilitates a plan to prepare the student for success in their math pathway. This course uses a combination of online learning and in-class projects to foster math and study skills

Terms Typically Offered: Summer

MTH 046: UCC Math Prep (1)

This condensed math preparation course is intended to refresh and strengthen a student's previously learned math skills. The course first establishes a student's current foundational mathematics standing, then creates and facilitates a plan to prepare the student for success in their math pathway. This course uses a combination of online learning and in-class projects to foster math and study skills

Terms Typically Offered: Fall

MTH 047: UCC Math Prep (1)

This condensed math preparation course is intended to refresh and strengthen a student's previously learned math skills. The course first establishes a student's current foundational mathematics standing, then creates and facilitates a plan to prepare the student for success in their math pathway. This course uses a combination of online learning and in-class projects to foster math and study skills

Terms Typically Offered: Winter

MTH 048: UCC Math Prep (1)

This condensed math preparation course is intended to refresh and strengthen a student's previously learned math skills. The course first establishes a student's current foundational mathematics standing, then creates and facilitates a plan to prepare the student for success in their math pathway. This course uses a combination of online learning and in-class projects to foster math and study skills

Terms Typically Offered: Spring

MTH 102: Math for the Trades (4)

This is an introductory algebra and geometry class in professional-technical mathematics. Topics that are covered include measurement and conversions, signed numbers, algebraic equations and formulas, ratio and proportion, perimeters, areas, volumes, reading and interpreting graphs, and measures of central tendency and variation. Successful completion prepares the student for MTH 103. THIS COURSE MAY NOT SATISFY MATH TRANSFER CREDIT. Recommended-Corequisite support available in MTH 102Q

Terms Typically Offered: Fall, Winter,

MTH 102Q: Support for MTH 102 (2)

This optional support course focuses on the foundational skills and concepts needed to be persistent and successful in MTH 102. Students will receive appropriate support in quantitative and algebraic reasoning, reading comprehension, geometry, problem solving, technology, and study skills in an interactive, in-person setting. THIS COURSE MAY NOT SATISFY MATH TRANSFER CREDIT

Terms Typically Offered: Winter

MTH 103: Advanced Math for the Trades (4)

This course is designed as an extension in algebraic and geometric concepts and applications specific to professional-technical mathematics. This course integrates discipline-specific formulas and mathematical representations required within career and technical education pathways in apprenticeships and manufacturing trades. Topics covered include mathematical operations, discipline specific algebraic equations and applications, two- and three- dimensional geometry topics, and analysis of drive systems. THIS COURSE MAY NOT SATISFY MATH TRANSFER CREDIT.

Registration-Enforced Prerequisite: MTH 102 or placement.

Terms Typically Offered: Spring

MTH 104: Math Literacy (4)

This course provides foundational mathematical skills in quantitative and algebraic reasoning, measurement, geometry, graphing, and problem-solving needed for success in college courses in programs that do not require precalculus or calculus. This course will explore mathematical skills needed for college readiness. Emphasizes an understanding of the role of mathematics and how it affects decision making in life. Successful completion prepares the student for MTH 105Z: Math in Society. THIS COURSE MAY NOT SATISFY MATH TRANSFER CREDIT

Terms Typically Offered: Summer, Fall, Winter, Spring

MTH 105Q: Co-req for MTH 105Z (1)

This optional support course focuses on the foundational skills and concepts needed to be persistent and successful in MTH 105Z. Students will receive appropriate support in quantitative and algebraic reasoning, reading comprehension, geometry, problem solving, technology, and study skills in an interactive, in-person setting. THIS COURSE MAY NOT SATISFY MATH TRANSFER CREDIT. Instructor Enforced

Corequisite: MTH 105Z.

Terms Typically Offered: Summer, Fall, Winter, Spring

MTH 105Z: Math in Society (4)

An exploration of present-day applications of mathematics focused on developing numeracy. Major topics include quantitative reasoning and problem-solving strategies, probability and statistics, and financial mathematics; these topics are to be weighted approximately equally. This course emphasizes mathematical literacy and communication, relevant everyday applications, and the appropriate use of current technology. Successful completion of this course prepares students for STAT 243Z: Elementary Statistics I.

Corequisite: support available in MTH 105Q.

Instructor-Enforced Prerequisite: MTH 95, MTH 98, MTH 104, or equivalent with a C or better; or by placement.

Terms Typically Offered: Summer, Fall, Winter, Spring

MTH 110: Foundations for Precalculus (4)

This course is intended for students with prior exposure to foundational algebraic topics. This course is a study of linear, quadratic, polynomial, radical, and exponential functions; and their uses. Primary topics are basic properties of functions, analysis and graphing, algebraic simplification, and equation solving. Applications, modeling using data, and problem solving are embedded throughout the course. The use of graphing technology is an integral part of the class. Successful completion prepares the student for MTH 111Z: Precalculus I: Functions, MTH 211: Fundamentals of Elementary Mathematics, and STAT 243Z: Elementary Statistics I. THIS COURSE MAY NOT SATISFY MATH TRANSFER CREDIT

Terms Typically Offered: Fall

MTH 111Z: Precalculus I Functions (4)

A course primarily designed for students preparing for trigonometry or calculus. This course focuses on functions and their properties, including polynomial, rational, exponential, logarithmic, piecewise-defined, and inverse functions. These topics will be explored symbolically, numerically, and graphically in real-life applications and interpreted in context. This course emphasizes skill building, problem solving, modeling, reasoning, communication, connections with other disciplines, and the appropriate use of present-day technology. Successful completion of this course prepares students for MTH 112Z: Precalculus II Trigonometry; MTH 231: Elements of Discrete Mathematics I; MTH 241: Calculus for Social Science I; MTH 261: Linear Algebra.

Instructor-Enforced Prerequisite: MTH 095, MTH 110 or equivalent with a grade of C or better, or by placement.

Terms Typically Offered: Fall, Winter, Spring, Summer

MTH 112Z: Precalculus II Trigonometry (4)

A course primarily designed for students preparing for calculus and related disciplines. This course explores trigonometric functions and their applications as well as the language and measurement of angles, triangles, circles, and vectors. These topics will be explored symbolically, numerically, and graphically in real-life applications and interpreted in context. This course emphasizes skill building, problem solving, modeling, reasoning, communication, connections with other disciplines, and the appropriate use of present-day technology.

Registration-Enforced Prerequisite: MTH 111Z or equivalent with a grade C or better, or instructor permission.

Terms Typically Offered: Summer, Fall, Winter, Spring

MTH 211: Fundamentals-Elem Math I (4)

This is the first quarter of a three quarter sequence of mathematics for prospective teachers. This course will provide a background in basic mathematical concepts. As these concepts are studied we will examine alternative approaches to the teaching of mathematics, problem solving, integrating math with other subjects, the history of math, the use of computers in math education, and current trends in math education. The goal of the course is to produce educators who have mastered the basics of math, to produce educators who enjoy math and are able to share this enthusiasm with their students, and to produce educators who are able to teach math using a variety of approaches.

Registration-Enforced Prerequisite: MTH 095, MTH 110 or equivalent with a grade of C or better, placement by approved measure, or instructor permission.

Terms Typically Offered: Fall

MTH 212: Fundamentals-Elem Math II (4)

This is the second quarter of a three quarter sequence of mathematics for prospective elementary school teachers. The topics covered include a study of the mathematics of fractions and proportions, integers and the real number system. Focus will be on representations and models for numbers and operations on them.

Registration-Enforced Prerequisite: MTH 211 with a grade of C or better, or instructor permission.

Terms Typically Offered: Winter

MTH 213: Fundamentals-Elem Math III (4)

This is the third quarter of a three quarter sequence of mathematics for prospective elementary school teachers. Topics include statistics, probability, geometry and measurement. Focus will be on representations and models for illustration of topics.

Registration-Enforced Prerequisite: MTH 212 with a grade of C or better, or instructor permission.

Terms Typically Offered: Spring

MTH 231: Elem Discrete Math I (4)

This is an introductory course in discrete mathematics, designed to introduce basic non-calculus mathematics required in the study of computer science. Topics include elementary logic, set theory, functions, mathematical induction, matrices, and combinatorics.

Registration-Enforced Prerequisite: MTH 111Z or equivalent with a grade of C or better, or instructor permission.

Terms Typically Offered: Winter

MTH 232: Elem Discrete Math II (4)

A second course in discrete mathematics. Builds on the topics of MTH231 including topics in combinatorics, mathematical proofs, probability, graph theory and number theory. Applications include cryptography and analysis of algorithms.

Registration-Enforced Prerequisite: MTH 231.

Terms Typically Offered: Spring

MTH 241: Calculus f-Mgmt-Soc Sci (4)

This is the first of two courses in elementary calculus designed especially for business and social science majors. The student will gain an understanding of differential calculus numerically, algebraically, and graphically, and will be able to use it to analyze and solve problems. Throughout the course, applications to business, economics, and social science will be stressed. Computers and graphing calculators will be used to learn and demonstrate the mathematical concepts.

Registration-Enforced Prerequisite: MTH 111Z with a grade of C or better, or instructor permission.

Terms Typically Offered: Winter

MTH 242: Calculus Mgmt-Soc Sci II (4)

This is the second of two courses in elementary calculus designed especially for business and social science majors. The student will gain an understanding of integer calculus numerically, algebraically, and graphically, and will be able to use it to analyze and solve problems. Throughout the course, applications to business, economics, and social science will be stressed. Computers and graphing calculators will be used to learn and demonstrate the mathematical concepts.

Registration-Enforced Prerequisite: MTH 241 with a grade of C or better, or instructor permission.

Terms Typically Offered: Spring

MTH 251: Calculus I (5)

This course deals entirely with differential calculus. The course (1) develops the main ideas of calculus forming a sound theoretical basis (proving some of the theorems and deriving the various formulas and methods), (2) presents applications of the calculus, (3) provides the necessary background for MTH 252, and (4) uses technology to teach and demonstrate the mathematical concepts of calculus.

Registration-Enforced Prerequisite: MTH 112Z or with a grade of C or better, or instructor permission.

Terms Typically Offered: Fall, Winter

MTH 252: Calculus II (4)

This course is a continuation of MTH 251. The course (1) presents a blend of theory and applications of integral calculus and (2) provides the necessary background for MTH 253, and (3) uses computers to learn and demonstrate the mathematical concepts of the calculus.

Registration-Enforced Prerequisite: MTH 251 with a grade of C or better, or instructor permission.

Terms Typically Offered: Winter, Spring

MTH 253: Calculus III (4)

This is the third quarter of a four-quarter sequence for math majors and engineering students. Topics include improper integrals, conic sections, polar coordinates, parametric equations, and infinite series. Computers and graphing calculators will be used to learn and demonstrate the mathematical concepts.

Registration-Enforced Prerequisite: MTH 252 with a grade of C or better, or instructor permission.

Terms Typically Offered: Spring

MTH 254: Vector Calculus I (4)

Multivariable Calculus covers topics in calculus extended to functions involving several variables. The course is split into two main sections: functions of one independent variable whose range has several components (vector-valued functions) and functions of several independent variables whose range has one component (multivariable functions). The class will discuss basics such as domain, graph and range and calculus topics such as differentiation and integration. Applications to various fields of interest will be emphasized throughout the course.

Registration-Enforced Prerequisite: MTH 252 with a grade of C or better, or instructor permission.

Terms Typically Offered: Fall

MTH 256: Differential Equations (4)

This course deals with ordinary differential equations (as opposed to partial differential equations.) Various methods are presented for solving first, second, and higher order differential equations. Extensive work is done on applications. We will use the computer to demonstrate and illustrate the mathematical concepts involved.

Registration-Enforced Prerequisite: MTH 252 with a grade of C or better.

Terms Typically Offered: Winter

MTH 261: Intro to Linear Algebra (2)

This class is designed as a companion course to MTH 253 to satisfy entry requirements into Oregon State University's School of Engineering, but can also be taken as an introduction to Linear Algebra. Linear Algebra deals with the study of linear systems, matrices and linear transformations. Topics include: the systematic solution of linear systems by reduction methods, the algebra of matrices, representation of linear systems using matrices, linear transformations and eigenvalues. Applications to various fields of interest will be emphasized throughout the course. Use of technology and mathematics will be emphasized throughout the course. Use of graphing calculators and/or computer software will be expected of students.

Registration-Enforced Prerequisite: MTH 111Z with a grade of C or better, or instructor permission.

Terms Typically Offered: Spring

MTH 265: Statistics-Scientists-Engineer (4)

This course covers probability and inferential statistics applied to scientific and engineering problems. Includes random variables, expectation, sampling, estimation, hypothesis testing, regression, correlation and analysis of variance. This course satisfies the OSU requirement of ST 314 for engineering programs.

Registration-Enforced Prerequisite: MTH 252 with a grade of C or better.

Terms Typically Offered: Spring