MATHEMATICS

The study of mathematics develops analytic and quantitative skills, which are valuable in today's data-driven economy. A bachelor's degree with a major in math is great preparation for graduate school (such as schools of law, medicine, education, or business) as well as direct employment in industry, government, research, and business. In addition, math courses serve as the foundation for many related science, technology, engineering, and mathematics (STEM) programs.

See the Mathematics page for program and contact information.

Programs

Transfer

Associate of Arts Oregon Transfer

• Mathematics - Associate of Arts Oregon Transfer (AAOT)

Courses

MTH 001 Adjust My Placement (AMP) (1 Credit)
Provides a structured setting to refresh and review math skills. Participate in problem-solving activities designed to strengthen critical thinking skills. Provides an opportunity for students to be successful in a higher-level math class than they originally placed. Math advising is also part of this course. Intended for students to strengthen previously-learned mathematical skills and problem-solving abilities. To receive the maximum benefit of this course, it is important to enroll in a math course the term immediately following. Meets twice a week for 7 weeks, beginning the second week of the term.

MTH 015 Basic Mathematics (4 Credits)
Recommended preparation: Minimum placement Math Level 4.
Introduces mathematics and its application, explains language and symbols used in math, develops concepts in whole numbers, fractions, decimals, percents, ratio, proportion, and integers, while emphasizing study and learning skills necessary for success in math courses and overcoming anxiety toward math.

MTH 029 Fraction Review Workshop (2 Credits)
Provides a concentrated experience for students needing a review of fractions and associated number theory skills. This course is not a replacement for students who place into or need to take MTH 015. May be taken concurrently with another math class. P/NP grading.

MTH 060 Beginning Algebra (4 Credits)
Recommended preparation: MTH 015 or higher or minimum placement Math Level 7.
Introduces algebra, integers, rational and real numbers, algebraic expressions, linear equations in one and two variables, and graphical representations with a focus on modeling and applications.

MTH 095 Intermediate Algebra (4 Credits)
Recommended preparation: MTH 060 or minimum placement Math Level 10.
Continues the algebra foundation necessary to study college level algebra. Includes polynomial, exponential, radical, and rational expressions. Linear and quadratic functions will be used to model situations and interpret data. An understanding of the connection between narrative, numeric, algebraic, and graphical representations of functions is emphasized. Graphing by hand and using technology are implemented as appropriate. Graphing calculator required (TI-83 or TI-84 recommended).

MTH 098 Math Literacy (4 Credits)
Recommended preparation: MTH 015 or minimum placement in Math Level 7.
Builds on MTH 015 to present mathematics in the context of "math you encounter in your daily life". Introduces and applies pattern recognition, estimation and number sense, working with units, negative numbers, order of operations, and using basic equations and formulas. Explores how to clearly communicate arguments supported by quantitative evidence using words, tables, graphs, and when appropriate, equations and mathematical models.

MTH 099 Selected Topics: Mathematics (1-4 Credits)
Offers selected topics in mathematics for courses generally available only once. Topics and credits to be arranged. P/NP grading.

MTH 102 Applied Technical Mathematics (4 Credits)
Prerequisites: MTH 060 or higher or minimum placement Math Level 10.
Presents algebraic, geometric, and trigonometric concepts in a practical and applied workplace problem-solving context. Includes mathematical operations with real numbers, measurement, ratios, proportions, percentages, dimensional analysis, order of operations, solving equations numerically and symbolically, right triangle trigonometry, area, perimeter, surface area, volume, and weights.

MTH 105 Math in Society (4 Credits)
Recommended preparation: MTH 095 or MTH 098 or higher or minimum placement Math level 14.
Math in Society is a rigorous mathematics course designed for students across multiple disciplines in both transfer degrees and career and technical degrees and certificates. Provides a solid foundation in quantitative reasoning, symbolic reasoning, and problem solving techniques needed to be a productive, contributing citizen in the 21st century.

MTH 111 College Algebra (4 Credits)
Recommended preparation: MTH 095 or minimum placement Math Level 18.
Introduces graphs and functions (linear, quadratic, polynomial, rational, exponential and logarithmic) using a graphing calculator. First term of a precalculus sequence for science students. Graphing calculator required. TI-83 or TI-84 recommended.

MTH 112 Trigonometry (4 Credits)
Recommended preparation: MTH 111 or minimum placement Math Level 20.
Examines the applied, real-world and theoretical mathematical implications of the trigonometric functions. The symbolic, numerical, and graphical representations of these functions and their applications form the core of the course. Emphasizes solving problems symbolically, numerically and graphically and understanding the connections among these methods in interpreting and analyzing results. Graphing calculator required. TI-83 or TI-84 recommended.

MTH 188 Special Studies: Mathematics (1-4 Credits)
Explores topics of current interest in the mathematics discipline.

MTH 199 Selected Topics: Mathematics (1-4 Credits)
This course is in development.

MTH 211 Fundamentals of Elementary Mathematics I (4 Credits)
Recommended preparation: MTH 095 or minimum placement Math Level 18.
Introduces problem solving, sets, natural and whole numbers, number theory and fractions. First term of a sequence for students planning to become elementary teachers but open to any students wanting to study the foundations of mathematics.

MTH 212 Fundamentals of Elementary Mathematics II (4 Credits)
Recommended preparation: MTH 211.
Covers decimals, percents, ratio and proportion, integers, rational and real numbers, and statistics and probability. Second term of a sequence for students planning to become elementary teachers but open to any student wanting to study the foundations of mathematics.

MTH 213 Fundamentals of Elementary Mathematics III (4 Credits)
Recommended preparation: MTH 211.
Covers geometric shapes, measurement, congruence and similarity, and coordinate and transformational geometry. Third term of a sequence for students planning to become elementary teachers but open to any student wanting to study the foundations of mathematics.

MTH 231 Discrete Mathematics (4 Credits)
Recommended preparation: MTH 112 or minimum placement Math Level 22.
Examines applied, real-world and theoretical mathematical implications of the mathematical concepts elementary logic and set theory, functions, direct proof techniques, contradiction and contraposition, mathematical induction and recursion, elementary combinatorics, basic graph theory, minimal spanning trees. Expands and explores symbolic, numerical, and graphical representations of mathematical concepts. Emphasizes solving problems symbolically, numerically, and graphically and understanding the connections among these methods in interpreting and analyzing results.

MTH 241 Calculus for Management/Social Science (4 Credits)
Recommended preparation: MTH 111 or minimum placement Math Level 20.
Introduces basic concepts of differential and integral calculus for students majoring in management and social science. Includes elementary differential and integral calculus of polynomial, logarithmic, and exponential functions and their applications to business, management, and social sciences. Uses graphing technology.

MTH 243 Introduction to Probability and Statistics I (4 Credits)
Recommended preparation: MTH 111 (for MTH 241 or MTH 251) or MTH 105 or minimum placement Math Level 20.
Introduces probability and descriptive statistics. Includes critical readings of graphs and data, basic probability theory, random variables, and binomial and normal probability distributions. Culminates with the Central Limit Theorem. A graphing calculator is required. TI -83 or TI -84 recommended.

MTH 244 Introduction to Probability and Statistics 2 (4 Credits)
Prerequisites: MTH 243.
Introduces methods of inferential statistical analysis. Includes confidence intervals, hypothesis testing, linear correlation and regression, chi-square tests, and analysis of variance (ANOVA). May cover nonparametric methods. Uses spreadsheet and graphic technology.

MTH 251 Calculus I (4 Credits)
Recommended preparation: MTH 112 (or higher) or minimum placement Math Level 22.
Introduces concepts of differential calculus for science, mathematics and engineering students. Includes limits and continuity; the derivative; rates of change; derivatives of polynomial, rational and trigonometric, log, and exponential functions; applications including related rates and optimization; and antiderivatives. Graphing calculator required.

MTH 252 Calculus II (4 Credits)
Recommended preparation: MTH 251 or minimum placement Math Level 24.
Introduces concepts of integral calculus to science, mathematics and engineering students. Includes antidifferentiation, the Fundamental Theorem of Calculus, integration techniques, numerical methods, improper integrals and mathematical modeling with applications to geometry, physics, economics and population dynamics. Graphing calculator required.

MTH 253 Calculus III (4 Credits)
Recommended preparation: MTH 252.
Introduces additional calculus concepts to science, mathematics, and engineering students. Includes selected topics in linear algebra, parametric and polar functions, applications of calculus to parametric and polar functions, infinite series, and Taylor series and polynomials.

MTH 254 Vector Calculus I (4 Credits)
Recommended preparation: MTH 253.
Introduces concepts of vector calculus to science and engineering students. Includes vectors and vector functions, parametric curves, functions of several variables, partial derivatives, gradients, directional derivatives and optimization problems. Uses graphing technology.

MTH 255 Vector Calculus II (4 Credits)
Recommended preparation: MTH 254.
Continues the study of vector analysis for science and engineering students. Includes double and triple integrals with applications to area, volume, and center of mass; introduction to vector analysis including divergence, curl, line integrals and work, surface integrals; conservative fields and the theorems of Green and Stokes. Uses graphing technology.

MTH 256 Applied Differential Equations (4 Credits)
Recommended preparation: MTH 253 or MTH 261A.
Introduces the application of differential equations for science, technology, engineering and mathematics (STEM) students. Includes solutions to first- and second-order linear and nonlinear equations, systems of linear first-order differential equations and applications appropriate for science and engineering; numerical, graphical, series and analytical solutions are covered.

MTH 261A Introduction to Linear Algebra (2 Credits)
Recommended preparation: MTH 252.
Provides an introduction to linear algebra concepts for science, math, and engineering majors. Topics include vectors, matrices, systematic solution to linear systems, determinants, linear dependence and independence, linear transformations, and eigenvalues and eigenvectors.

MTH 280 Co-op Work Experience Mathematics (1-4 Credits)
Prerequisites: Instructor approval.
Provides experience in which students apply previous classroom learning in an occupational setting. Credits depend on the number of hours worked. P/NP grading.

MTH 288 Special Studies: Mathematics (1-4 Credits)
Explores topics of current interest in the mathematics discipline.

MTH 298 Independent Study: Mathematics (1-4 Credits)
Prerequisites: Instructor approval.
Recommended preparation: prior coursework in the discipline.
Individualized, advanced study to focus on outcomes not addressed in existing courses or of special interest to a student. P/NP grading.

MTH 299 Selected Topics: Mathematics (1-4 Credits)
Provides a learning experience in math not currently available; this course is in development to be proposed as a permanent course.