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.

Degrees

Transfer

Associate of Arts Oregon Transfer

- Mathematics - Associate of Arts Oregon Transfer (AAOT)

Courses

DATA 101 Introduction to Data Science (4 Credits)
Prerequisites: MTH 095 or higher (except MTH 098, MTH 102) or minimum placement Math Level 18.
Recommended preparation: MTH 105Z.
Introduces students to the essential concepts of data science, emphasizing the critical thinking and analytical skills required to work with data. Develops ability to tell a story from real-world data sets, using key computational and quantitative techniques such as spreadsheets, programming and statistical inference. Engages with diverse data from various domains, applying data preparation, analysis and visual storytelling methods. Explores the ethical implications of data collection, decision-making driven by data, and privacy concerns, developing the skills to communicate these issues responsibly and effectively.

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)
Prerequisites: MTH 015 (or higher) or STAT 243Z 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)
Prerequisites: MTH 060 or higher (except MTH 098, MTH 105Z, and STAT 243Z) 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. Uses graphing technology.

MTH 098 Math Literacy (4 Credits)
Prerequisites: MTH 015 (or higher) or STAT 243Z 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 105S Corequisite for Math in Society (2 Credits)
Prerequisites: MTH 095 or higher (except MTH 102) or STAT 243Z or minimum placement Math level 14.
Corequisites: MTH 105Z.
Focuses on supporting the foundational skills, concepts, and communication needed to be persistent and successful in MTH 105Z (Math in Society). Provides appropriate support as needed in rounding, percentages, variables, mathematical operations, working with exponents, formulas, spreadsheets, and study skills in an interactive setting. Only one credit of this course will transfer to an Oregon Public University. P/NP grading.

MTH 105Z Math in Society (4 Credits)
Prerequisites: MTH 095 or higher (except MTH 102) or STAT 243Z or minimum placement Math level 16.
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.

MTH 111S Corequisite for Precalculus I: Functions (2 Credits)
Prerequisites: MTH 095 or higher (except MTH 098, MTH 102, MTH 105Z, MTH 244, and STAT 243Z) or minimum placement Math Level 16.
Corequisites: MTH 111Z.
Focuses on supporting the foundational skills, concepts, and communication needed to be persistent and successful in MTH 111Z (Precalculus I: Functions). Provides appropriate support as needed in algebra, functions, problem solving, graphing, technology, and study skills in an interactive setting. Only one credit of this course will transfer to an Oregon Public University. P/NP grading.

MTH 111Z Precalculus I: Functions (4 Credits)
Prerequisites: MTH 095 or higher (except MTH 098, MTH 102, MTH 105Z, MTH 244, and STAT 243Z) or minimum placement Math Level 18.
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.

MTH 112Z Precalculus II: Trigonometry (4 Credits)
Prerequisites: MTH 111Z or higher (except MTH 211, MTH 212, MTH 213, MTH 244, and STAT 243Z) or minimum placement Math Level 20.
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.

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

MTH 211 Fundamentals of Elementary Mathematics I (4 Credits)
Prerequisites: MTH 095 or higher (except MTH 098, MTH 102, MTH 105Z, MTH 244, and STAT 243Z) 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)
Prerequisites: 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)
Prerequisites: 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)
Prerequisites: MTH 112Z or higher (except MTH 211, MTH 212, MTH 213, MTH 244, and STAT 243Z) 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 232 Discrete Mathematics II (4 Credits)
Prerequisites: MTH 231.
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.

MTH 241 Calculus for Management/Social Science (4 Credits)
Prerequisites: MTH 111Z or higher (except MTH 211, MTH 212, MTH 213, MTH 244, and STAT 243Z) 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 244 Introduction to Probability and Statistics 2 (4 Credits)
Prerequisites: STAT 243Z.
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 graphing technology.

MTH 251S Corequisite for MTH 251Z (2 Credits)
Prerequisites: MTH 112Z or higher (except MTH 211, MTH 212, MTH 213, MTH 241, MTH 244, MTH 245, and STAT 243Z) or minimum placement Math Level 22.
Corequisites: MTH 251Z.
Focuses on supporting the foundational skills, concepts, and communication needed to be persistent and successful in MTH 251Z (Calculus I). Provides appropriate support as needed in factoring, algebraic simplification, solving equations, functions, and study skills in an interactive setting. P/NP grading.

MTH 251Z Differential Calculus (4 Credits)
Prerequisites: MTH 112Z or higher (except MTH 211, MTH 212, MTH 213, MTH 241, MTH 244, MTH 245, and STAT 243Z) or minimum placement Math Level 22.
This course explores limits, continuity, derivatives, and their applications for real-valued functions of a single variable. These topics will be explored graphically, numerically, and symbolically in real-life applications. This course emphasizes abstraction, problem-solving, modeling, reasoning, communication, connections with other disciplines, and the appropriate use of technology.

MTH 252S Corequisite for MTH 252Z (2 Credits)
Prerequisites: MTH 251Z (or higher) or minimum placement Math Level 24.
Corequisites: MTH 252Z.
Focuses on supporting the foundational skills, concepts, and communication needed to be persistent and successful in MTH 252Z (Calculus II). Provides appropriate support as needed in factoring, algebraic simplification, solving equations, functions, and study skills in an interactive setting. P/NP grading.

MTH 252Z Integral Calculus (4 Credits)
Prerequisites: MTH 251Z (or higher) or minimum placement Math Level 24.
This course explores Riemann sums, definite integrals, and indefinite integrals for real-valued functions of a single variable. These topics will be explored graphically, numerically, and symbolically in real-life applications. This course emphasizes abstraction, problem-solving, modeling, reasoning, communication, connections with other disciplines, and the appropriate use of technology.

MTH 253Z Calculus: Sequences and Series (4 Credits)
Prerequisites: MTH 252Z (or higher).
This course explores real-valued sequences and series, including power and Taylor series. Topics include convergence and divergence tests and applications. These topics will be explored graphically, numerically, and symbolically. This course emphasizes abstraction, problem-solving, reasoning, communication, connections with other disciplines, and the appropriate use of technology.

MTH 254 Vector Calculus I (4 Credits)
Prerequisites: MTH 252Z (or higher).
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)
Prerequisites: 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)
Prerequisites: MTH 253Z or higher.
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)
Prerequisites: MTH 112Z or higher (except MTH 211, MTH 212, MTH 213, MTH 244, and STAT 243Z) or minimum placement Math Level 22.
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. Repeatable for credit. P/NP grading.

MTH 298 Independent Study: Mathematics (1-6 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.

STAT 243Z Elementary Statistics I (4 Credits)
Prerequisites: Choose one of DATA 101, MTH 105Z (or higher), or minimum placement Math Level 20.
A first course in statistics focusing on the interpretation and communication of statistical concepts. Introduces exploratory data analysis, descriptive statistics, sampling methods and distributions, point and interval estimates, hypothesis tests for means and proportions, and elements of probability and correlation. Technology will be used when appropriate.