

MAT

Courses

MAT 105 Quantitative Reasoning

3 Credits. 2 Lecture Hours. 2 Lab Hours.

A course that emphasizes numeracy, model-building, probability, and statistics in real-world contexts. Topics include proportional reasoning, linear and exponential modeling, descriptive statistics, personal finance, and using spreadsheets as a problem-solving tool. Students complete projects to apply course concepts.

Prerequisites: AFM 092 (minimum grade C) or appropriate placement test score

MAT 111 Business Mathematics

3 Credits. 2 Lecture Hours. 2 Lab Hours.

An algebra-based course on practical applications of mathematics. Topics include: review of arithmetic, algebra, and percents; payroll; banking; taxes; insurance; financial math, and elementary statistics. Students need a scientific calculator.

Prerequisites: AFM 092 (minimum grade C) or appropriate placement test score

MAT 115 Pre-Statistics

3 Credits. 2 Lecture Hours. 2 Lab Hours.

A course on mathematical modeling of real data using curve fitting of functions. Topics include: modeling linear, linear systems, quadratic, exponential, and radical functions; and verifying the model using coefficient of determination and limitations of the model. Students need a graphing calculator.

Prerequisites: AFM 092 (minimum grade C) or appropriate placement test score

MAT 120 Technical Mathematics

3 Credits. 2 Lecture Hours. 2 Lab Hours.

A course on practical applications of algebra, geometry, and trigonometry. Topics include: percents, fractions, measurement, unit conversions, scientific notation, pre-algebra, basic algebra, plane and solid geometry, and right and oblique triangle trigonometry. Students need a scientific calculator.

Prerequisites: AFM 092 (minimum grade C) or appropriate placement test score

MAT 121 Technical Algebra and Geometry with Statistics

3 Credits. 2 Lecture Hours. 2 Lab Hours.

A course on technical applications of algebra, geometry, and statistics. Topics include: simplifying algebraic expressions, solving equations (linear, quadratic, rational, and radical), graphing equations in two variables, inequalities, elementary statistics, right triangle trigonometry, and vectors. Students need a graphing calculator.

Prerequisites: AFM 094 (minimum grade A) or MAT 120 (minimum grade C) or appropriate placement test score

MAT 125 Algebra and Trigonometry

4 Credits. 3 Lecture Hours. 2 Lab Hours.

A course on applications of algebra, geometry, and trigonometry. Topics include: simplifying algebraic expressions, right and oblique triangles, and solving equations (linear, quadratic, rational, and trigonometric). Students need a graphing calculator.

Prerequisites: AFM 097 (minimum grade C) or MAT 120 (minimum grade A) or MAT 121 (minimum grade C) or appropriate placement test score

MAT 126 Functions and Calculus

4 Credits. 3 Lecture Hours. 2 Lab Hours.

A continuation of MAT 125. Topics include: functions (linear, exponential, logarithmic, trigonometric, polynomial, and rational), complex numbers, graphing, solving equations, and applications of differential and integral calculus. Students need a graphing calculator. Prerequisites: MAT 125 (minimum grade C) or appropriate placement test score

MAT 131 Statistics 1

3 Credits. 2 Lecture Hours. 2 Lab Hours.

A course on descriptive and inferential statistics. Topics include: the purpose of statistics, univariate and bivariate descriptive statistics, probability, normality and sampling distributions, confidence intervals, and hypothesis testing.

Prerequisites: AFM 097 or MAT 105 or MAT 115 or MAT 121 or MAT 150 (minimum grade C for all), or appropriate placement test score
Ohio Transfer Module Approved

MAT 132 Statistics 2

3 Credits. 2 Lecture Hours. 2 Lab Hours.

A continuation of MAT 131. Topics include: confidence intervals and hypothesis tests for two-sample means and proportions, contingency tables, one-way analysis of variance, and multiple regression.

Prerequisites: MAT 131 (minimum grade C)
Ohio Transfer Module Approved

MAT 151 College Algebra

4 Credits. 3 Lecture Hours. 2 Lab Hours.

A course on concepts and applications of algebra. Topics include: representing linear, exponential, logarithmic, power, polynomial, and rational functions numerically, graphically, and algebraically. Students need a graphing calculator.

Prerequisites: AFM 097 or MAT 150 (minimum grade C for both), or appropriate placement test score
Ohio Transfer Module Approved

MAT 152 Trigonometry

4 Credits. 4 Lecture Hours. 0 Lab Hour.

A course on concepts and applications of trigonometry. Topics include: trigonometric functions and identities, inverse of trigonometric functions, vectors, complex numbers, and parametric equations. Students need a graphing calculator.

Prerequisites: MAT 151 (minimum grade C) or appropriate placement test score
Ohio Transfer Module Approved

MAT 153 Pre-Calculus

6 Credits. 6 Lecture Hours. 0 Lab Hour.

A course on concepts and applications of pre-calculus. Topics include: review of linear, exponential, power, polynomial, and rational functions; trigonometric functions; trigonometry; vectors; complex numbers; and parametric equations. Students need a graphing calculator.

Prerequisites: AFM 097 or MAT 150 (minimum grade B for both) or appropriate placement test score or instructor consent
Ohio Transfer Module Approved

**MAT 161 College Algebra for Diagnostic Medical Sonography
4 Credits. 3 Lecture Hours. 2 Lab Hours.**

A course on concepts and applications of algebra. Topics include: representing linear, exponential, logarithmic, power, polynomial, and rational functions numerically, graphically, and algebraically; and concepts of plane and solid geometry. Students need a graphing calculator.

Prerequisites: AFM 097 or MAT 150 (minimum grade C for both) or appropriate placement test score

**MAT 198 First Year Special Topics in Mathematics
1-9 Credits. 0 Lecture Hour. 0 Lab Hour.**

A course on selected topics related to Mathematics, which gives students opportunities to study information not currently covered in other courses. Grades issued are A, B, C, D, or F.

Prerequisites: Vary by section

**MAT 199 First Year Independent Project in Mathematics
1-9 Credits. 0 Lecture Hour. 0 Lab Hour.**

A project related to Mathematics that is completed by one or more students to meet specific educational goals. Projects must have prior approval and supervision by Mathematics faculty. Grades issued are Satisfactory or Unsatisfactory.

Prerequisites: Vary by section

**MAT 215 Business Calculus
6 Credits. 6 Lecture Hours. 0 Lab Hour.**

A course on calculus emphasizing business applications. Topics include: analysis of functions using limits, the derivative and derivative function, rules of differentiation, applications of derivative calculus, and the definite integral. Students need a graphing calculator.

Prerequisites: MAT 151 (minimum grade C)

Ohio Transfer Module Approved

**MAT 251 Calculus 1
5 Credits. 5 Lecture Hours. 0 Lab Hour.**

A course on concepts and applications of calculus. Topics include: the library of functions, analysis of functions with limits, the derivative and the derivative function, interpretations of the derivative, rules of differentiation, and introduction to integral calculus. Students need a graphing calculator.

Prerequisites: MAT 126 or MAT 152 or MAT 153 (minimum C grade) or appropriate placement test score

Ohio Transfer Module Approved

**MAT 252 Calculus 2
5 Credits. 5 Lecture Hours. 0 Lab Hour.**

A continuation of MAT 251. Topics include: methods of integration (substitution, parts, tables, numerical and CAS) with modeling applications, sequences and series, Taylor series approximations, and solutions to differential equations. Students need a graphing calculator.

Prerequisites: MAT 251 (minimum grade C) or appropriate placement test score

Ohio Transfer Module Approved

**MAT 253 Calculus 3
5 Credits. 5 Lecture Hours. 0 Lab Hour.**

A continuation of MAT 252. Topics include: vectors and vector-valued functions; functions of several variables; partial derivatives and directional derivatives with gradients; tangent planes and local linearization; and optimization methods with Lagrange multipliers, iterated integration, and calculus of vector fields. Students need a graphing calculator.

Prerequisites: MAT 252 (minimum grade C) or appropriate placement test score

Ohio Transfer Module Approved

Ohio Transfer Assurance Guide Approved

**MAT 260 Elementary Differential Equations
4 Credits. 4 Lecture Hours. 0 Lab Hour.**

An introduction to topics involving ordinary differential equations.

Topics include: solutions to and applications of first-order and linear higher-order differential equations, series solutions near ordinary and regular singular points, and Laplace transforms.

Prerequisites: MAT 252 (minimum grade C)

**MAT 298 Second Year Special Topics in Mathematics
1-9 Credits. 0 Lecture Hour. 0 Lab Hour.**

A course on selected topics related to Mathematics, which gives students opportunities to study information not currently covered in other courses. Grades issued are A, B, C, D, or F.

Prerequisites: Vary by section

**MAT 299 Second Year Independent Project in Mathematics
1-9 Credits. 0 Lecture Hour. 0 Lab Hour.**

A project related to Mathematics that is completed by one or more students to meet specific educational goals. Projects must have prior approval and supervision by Mathematics faculty. Grades issued are Satisfactory or Unsatisfactory.

Prerequisites: Vary by section