

2024-2025 TTC Catalog - Mathematics (MAT)

MAT 001 - MAT 001

Lec: 0 Lab: 0 Credit: *

Indicates credit given for rigorous calculus-track mathematics course work transferred from another college for which there is no equivalent course at TTC. *Hours vary depending on external course.

Division: Science and Mathematics

MAT 002 - MAT 002

Lec: 0 Lab: 0 Credit: *

Indicates credit given for transfer-level mathematics course work transferred from another college for which there is no equivalent course at TTC. *Hours vary depending on external course.

Division: Science and Mathematics

MAT 031 - Developmental Mathematics Basics

Lec: 3.0 Lab: 0 Credit: 3.0

Course Offered

Fall
Spring
Summer

This course includes the study of whole numbers, fractions, decimals, ratios, proportions and percents. Concepts are applied to real-world problem solving.

Appropriate placement

Grade Type: Pass/Fail

Division: Science and Mathematics

MAT 032 - Developmental Mathematics

Lec: 3.0 **Lab:** 0 **Credit:** 3.0

Course Offered

Fall
Spring
Summer

This course includes the study of integers, rational numbers, percent, basic statistics, measurement, geometry and basic algebra concepts. Application skills are emphasized.

Prerequisite

MAT 031
or
appropriate placement

Grade Type: Pass/Fail

Division: Science and Mathematics

MAT 033 - Developmental Mathematics

Lec: 3.0 **Lab:** 0 **Credit:** 3.0

Course Offered

Fall
Spring
Summer

This course includes the study of whole numbers, fractions, decimals, integers, rational numbers, ratios, percents, proportions, measurement, basic statistics, geometry, and basic algebra. Concepts are applied to real-world problem solving, and application skills are emphasized.

appropriate placement

Grade Type: Letter Grade

Division: Science and Mathematics

MAT 101 - Beginning Algebra

Lec: 3.0 **Lab:** 0 **Credit:** 3.0

Course Offered

Fall
Spring
Summer

This course includes the study of rational numbers and their applications, operations with algebraic expressions, linear equations and applications, linear inequalities, graphs of linear equations, operations with exponents and polynomials, and factoring.

Prerequisite

MAT 033

or appropriate placement

Grade Type: Letter Grade

Division: Science and Mathematics

MAT 102 - Intermediate Algebra

Lec: 3.0 **Lab:** 0 **Credit:** 3.0

Course Offered

Fall

Spring

Summer

This course includes the study of linear systems and applications; quadratic expressions, equations, functions, and graphs; and rational and radical expressions and functions.

Prerequisite

MAT 101

with a minimum grade of C

Grade Type: Letter Grade

Division: Science and Mathematics

MAT 103 - Quantitative Reasoning

Lec: 3.0 **Lab:** 0 **Credit:** 3.0

Course Offered

Fall

Spring

Summer

This course is designed to develop quantitative reasoning and critical thinking skills. Topics include logic and computers, probability and statistics, financial mathematics, and additional applications selected to address areas of contemporary interest.

Prerequisite

MAT 033

Grade Type: Letter Grade

Division: Science and Mathematics

MAT 110 - College Algebra

Lec: 3.0 **Lab:** 0 **Credit:** 3.0

Course Offered

Fall
Spring
Summer

This course includes the following topics: polynomial, rational, logarithmic and exponential functions; inequalities; systems of equations and inequalities; matrices; determinants; and solutions of higher degree polynomials.

Prerequisite

MAT 102
with a minimum grade of C

Grade Type: Letter Grade

Restrictions: Students who receive credit for MAT 110 may not receive credit for MAT 112.

Division: Science and Mathematics

MAT 111 - College Trigonometry

Lec: 3.0 **Lab:** 0 **Credit:** 3.0

Course Offered

Fall
Spring
Summer

This course includes the following topics: trigonometric functions, trigonometric identities, solution of right and oblique triangles, solution of trigonometric equations, polar coordinates, complex numbers including De Moivre's Theorem, vectors, conic sections and parametric equations.

Prerequisite

MAT 110
with a minimum grade of C

Grade Type: Letter Grade

Restrictions: Students may not receive credit for both MAT 111 and MAT 112.

Division: Science and Mathematics

MAT 112 - Precalculus

Lec: 5.0 **Lab:** 0 **Credit:** 5.0

Course Offered

Spring
Summer

This course includes algebraic, exponential, logarithmic and trigonometric functions and their graphs; analytic trigonometry; analytic geometry; and applications of trigonometry.

Prerequisite

MAT 102
with a grade of B or higher or appropriate placement

Grade Type: Letter Grade

Restrictions: Students who receive credit for MAT 112 may not receive credit for MAT 109, MAT 110 or MAT 111.

Division: Science and Mathematics

MAT 115 - Analytical Foundations for Calculus

Lec: 4.0 **Lab:** 0 **Credit:** 4.0

Course Offered

Fall
Spring
Summer

This course focuses on fundamental concepts and skills of mathematics needed for calculus. Topics include: Linear equations, inequalities, absolute value, piecewise, polynomials, rational, and trigonometric functions, graphs, and applications.

Prerequisite

MAT 102
with a minimum grade of C or appropriate placement score

Grade Type: Letter Grade

Division: Science and Mathematics

MAT 120 - Probability and Statistics

Lec: 3.0 **Lab:** 0 **Credit:** 3.0

Course Offered

Fall
Spring
Summer

This course includes introductory probability and statistics, including organization of data, sample space concepts, random variables, counting problems, binomial and normal distributions, central limit theorem, confidence intervals and test of hypothesis for large and small samples, type I and type II errors, linear regression, and correlation.

Corequisite

MAT 033
or appropriate placement

Grade Type: Letter Grade

Division: Science and Mathematics

MAT 123 - Contemporary College Mathematics

Lec: 3.0 **Lab:** 0 **Credit:** 3.0

Course Offered

Fall
Spring
Summer

This course provides an appreciation and understanding of the mathematics underlying several topics in contemporary society. Topics may include voting methods, apportionment problems, Euler and Hamilton circuits, population growth and fractals.

Corequisite

MAT 033
or appropriate placement

Grade Type: Letter Grade

Division: Science and Mathematics

MAT 130 - Elementary Calculus

Lec: 3.0 **Lab:** 0 **Credit:** 3.0

This course includes differentiation and integration of polynomials; rational, logarithmic and exponential functions; and interpretation and application of these processes. This is a terminal course designed for students who do not wish to take additional calculus courses. Its transferability usually depends on the student's major.

Prerequisite

or

MAT 110

or

MAT 112

with a minimum grade of C

Grade Type: Letter Grade

Restrictions: Students may not receive credit for both MAT 130 and MAT 140.

Division: Science and Mathematics

MAT 132 - Discrete Mathematics

Lec: 3.0 **Lab:** 0 **Credit:** 3.0

Course Offered

Fall

Spring

Summer

This course includes the following topics: mathematical logic and proofs; set operations; relations and digraphs; functions; recurrence relations; and combinatorics. (This course is designed primarily for computer science students.)

Prerequisite

MAT 110

or

MAT 111

or

Corequisite

MAT 112

or

Prerequisite or Corequisite

MAT 115

(with a grade of "C" or better in prerequisite choices listed) or appropriate placement.

Grade Type: Letter Grade

Division:

MAT 140 - Analytic Geometry and Calculus I

Lec: 4.0 **Lab:** 0 **Credit:** 4.0

Course Offered

Fall
Spring
Summer

This course includes derivatives and integrals of polynomials; rational, logarithmic, exponential, trigonometric and inverse trigonometric functions; curve sketching; maxima and minima of functions; related rates; work; and analytic geometry.

Prerequisite

MAT 111

or

MAT 112

or

Corequisite

MAT 115

with a minimum grade of C

Grade Type: Letter Grade

Restrictions: Students may not receive credit for both MAT 140 and MAT 130

Division: Science and Mathematics

MAT 141 - Analytic Geometry and Calculus II

Lec: 4.0 **Lab:** 0 **Credit:** 4.0

Course Offered

Fall
Spring
Summer

This course continues calculus of one variable, including analytic geometry, techniques of integration, volumes by integration and other applications, infinite series including Taylor series, and improper integrals.

Prerequisite

MAT 140

with a minimum grade of C

Grade Type: Letter Grade

Division: Science and Mathematics

MAT 155 - Contemporary Mathematics

Lec: 3.0 **Lab:** 0 **Credit:** 3.0

Course Offered

Fall
Spring
Summer

This course includes techniques and applications of the following topics: properties of and operations with real numbers, elementary algebra, consumer mathematics, applied geometry, measurement, graph sketching, interpretations and descriptive statistics.

Prerequisite

MAT 033
or appropriate placement

Grade Type: Letter Grade

Division: Science and Mathematics

MAT 170 - Algebra, Geometry and Trigonometry I

Lec: 3.0 **Lab:** 0 **Credit:** 3.0

Course Offered

Fall
Spring
Summer

This course includes elementary algebra, geometry, trigonometry and applications.

Corequisite

MAT 033
or appropriate placement

Grade Type: Letter Grade

Division: Science and Mathematics

MAT 240 - Analytic Geometry and Calculus III

Lec: 4.0 **Lab:** 0 **Credit:** 4.0

Course Offered

Fall
Spring
Summer

This course covers multivariable calculus including vectors, partial derivatives and their applications to maximum and minimum problems with and without constraints, line integrals, multiple integrals in rectangular and other coordinates, and Stokes' and Green's theorems.

Prerequisite

MAT 141

with a minimum grade of C

Grade Type: Letter Grade

Division: Science and Mathematics

MAT 242 - Differential Equations

Lec: 4.0 **Lab:** 0 **Credit:** 4.0

Course Offered

Fall

Spring

Summer

This course includes solution of linear and elementary nonlinear differential equations by standard methods with sufficient linear algebra to solve systems, applications, series, Laplace transform and numerical methods.

Prerequisite

MAT 141

with a minimum grade of C

Grade Type: Letter Grade

Division: Science and Mathematics
