

MATH CALCULUS & PRECALC (MAC)

MAC 1105 College Algebra

Credit Hours: 3

Prerequisites: MAT 1033 with a grade of "C" or higher or appropriate placement test scores

General Education Category: Mathematics Attribute, Mathematics CORE COURSE, Mathematics Skills Gen Ed

This course prepares the student for precalculus, statistics, essentials of calculus, and other related disciplines. This course includes functions and function notation; domain, range, and graphs of functions and relations; operations on functions; inverse functions; linear, quadratic, rational, radical, exponential and logarithmic equations and functions; piecewise and higher degree monomial functions; systems of equations and inequalities; applications. This course is a state-designated core course. Course meets General Education and College Level Mathematics Skills requirements.

MAC 1114 College Trigonometry

Credit Hours: 3

Prerequisites: MAC 1105 with a grade of "C" or higher

General Education Category: Mathematics Attribute, Mathematics Skills Gen Ed

Provides background for the calculus sequence or other disciplines involving skills in trigonometry. Includes properties and graphs of trigonometric functions and inverse trigonometric functions; trigonometric identities; conditional trigonometric equations, solutions of triangles; vector algebra; parametric equations; polar coordinates; applications. Course meets General Education and College Level Mathematics Skills requirements.

MAC 1140 Precalculus Algebra

Credit Hours: 3

Prerequisites: MAC 1105 with a grade of "C" or higher

General Education Category: Mathematics Attribute, Mathematics Skills Gen Ed

This is an in-depth course in algebra which provides the algebra skills necessary for calculus. Topics include properties and graphs of polynomial, rational, and other algebraic functions; polynomial and rational inequalities; exponential and logarithmic functions, their properties and graphs; piecewise functions, conic sections; matrices and determinants; sequences and series; mathematical induction; and the binomial theorem. Course meets General Education and College Level Mathematics Skills requirements.

MAC 1147 Precalculus Algebra/Trigonometry

Credit Hours: 5

Prerequisites: MAC 1105 with a grade of "C" or higher and High School Trigonometry

General Education Category: Mathematics Attribute, Mathematics Skills Gen Ed

Equivalent to MAC 1140 and MAC 1114 but more intensely paced. Topics include properties and graphs of polynomial, rational, and other algebraic functions; polynomial and rational inequalities; exponential and logarithmic functions, their properties and graphs; piecewise functions; conic sections; matrices and determinants; sequences and series; mathematical induction; the binomial theorem; properties and graphs of trigonometric functions; solutions of triangles; vector algebra; parametric equations; polar coordinates; applications. Course meets General Education and College Level Mathematics Skills requirements.

MAC 1233 Essentials of Calculus

Credit Hours: 3

Prerequisites: MAC 1105 with a grade of "C" or higher

General Education Category: Mathematics Attribute

This course includes the topics of limits, continuity, differentiation and integration of algebraic, exponential and logarithmic functions, with applications to business, natural and social sciences. Course meets General Education and College Level Mathematics Skills requirements.

MAC 1311H Honors Calculus 1 with Analytic Geometry

Credit Hours: 5

Prerequisites: MAC 1147 with a grade of "C" or higher or MAC 1140 and MAC 1114 - both courses with a grade of "C" or higher and admission to the EFSC Honors Program

General Education Category: Mathematics Attribute, Mathematics CORE COURSE

The course includes a study of transcendental functions, limits, continuity, derivatives and their applications, antiderivatives, and definite integrals. The course is the first of in a three- course sequence. The honors course requires students to work and learn cooperatively, carry out group activities in and out of class, submit team and individual projects, and increase depth of topic exploration. Instruction will emphasize a constructivist approach. This course is a state-designated core course. Course meets General Education and College Level Mathematics Skills requirements.

MAC 2311 Calculus 1 with Analytic Geometry

Credit Hours: 5

Prerequisites: MAC 1147 with a grade of "C" or higher or MAC 1140 and MAC 1114 - both courses with a grade of "C" or higher

General Education Category: Mathematics Attribute, Mathematics CORE COURSE

The course includes a study of transcendental functions, limits, continuity, derivatives and their applications, antiderivatives, and definite integrals. The course is the first of a three course sequence. This course is a state-designated Core course. Course meets General Education and College Level Mathematics Skills requirements.

MAC 2312 Calculus 2 with Analytic Geometry

Credit Hours: 5

Prerequisites: MAC 2311 or MAC 1311H with a grade of "C" or higher

General Education Category: Mathematics Attribute, Mathematics Skills Gen Ed

The course includes a study of techniques of integration, selected topics in analytic geometry, polar coordinates, sequences and series, parametric equations, indeterminate forms, and application of the definite integral. The course is the second of a three course sequence. Course meets General Education and College Level Mathematics Skills requirements.

MAC 2312H Honors Calculus 2 with Analytical Geometry

Credit Hours: 5

Prerequisites: MAC 2311 or MAC 1311H with a grade of "C" or higher and admission to the EFSC Honors Program

General Education Category: Mathematics Attribute, Mathematics Skills Gen Ed

The course includes a study of techniques of integration, selected topics in analytic geometry, polar coordinates, sequences and series, parametric equations, indeterminate forms, and application of the definite integral. The course is the second in a three-course sequence. The honors course requires students to work and learn cooperatively, carry out group activities in and out of class, submit team and individual projects, and increase depth of topic exploration. Instruction will emphasize a constructivist approach. Course meets General Education and College Level Mathematics Skills requirements.

MAC 2313 Calculus 3 with Analytic Geometry

Credit Hours: 5

Prerequisites: MAC 2312 or MAC 2312H with a grade "C" or higher

General Education Category: Mathematics Attribute, Mathematics Skills
Gen Ed

The course includes a study of three-dimensional coordinate systems, vectors, vector spaces, functions of several variables / multivariable functions, partial differentiation, conservative vector spaces, multiple integration, parametrization, line integrals, flux, circulation, surface integral, Green's Theorem, Divergence Theorem, and Stokes' Theorem. This is the third of a three-course sequence in calculus.

MAC 2948 Service-Learning Field Studies 1

Credit Hours: 1

This course gives students opportunity to understand the relationship of theory to practice through participation in a service-learning experience. Students are required to complete 20 hours of volunteer work, a service-learning contract, and an oral and written reflection of the experience.