

# CALCULUS AND PRECALCULUS (MAC)

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## MAC1105 COLLEGE ALGEBRA (3.00 Credits)

This course includes topics such as: solving linear and quadratic inequalities; solving systems of linear equations; solving quadratic, absolute value, radical, exponential, and logarithmic equations; and properties and analysis of functions and their graphs. Applications appear throughout the course.

Total Contact Hrs: 48.00

Lecture Hrs: 48.00

Complete all the courses in the following option:

- Prerequisite: MAT1033 (minimum grade: C)

## MAC1105C COREQUISITE COLLEGE ALGEBRA (5.00 Credits)

This course meets the needs of students with myriad levels of mathematical experience by providing support for learning prerequisite skills. This course is delivered as a combination of lecture along with structured activities intended to give students the experience of doing mathematics on their own or in groups with instructor guidance. The algebra objectives of the course include factoring polynomials; simplifying radicals; operations on rational expressions; writing equations of lines and circles; solving and graphing the solutions of linear and quadratic inequalities; solving systems of linear equations; solving quadratic, absolute value, radical, rational, exponential, and logarithmic equations; and properties and analysis of relations, functions and their graphs. Applications appear throughout the course.

Total Contact Hrs: 80.00

Lecture Hrs: 48.00

Lab Hrs: 32.00

## MAC1114 TRIGONOMETRY (3.00 Credits)

This course, in conjunction with MAC1140, is designed to prepare the student for the study of calculus. Topics include a functional approach to trigonometry, trigonometric equations, trigonometric identities, solving triangles, vectors, polar coordinates and equations, and parametric equations. A graphing calculator may be required. Recommendation of the Mathematics Department or at least a grade of "C" in the prerequisite course is required.

Total Contact Hrs: 48.00

Lecture Hrs: 48.00

Complete all the courses in one of the following options:

- Option 1 - Prerequisite: MAC1105C (minimum grade: C)
- Option 2 - Prerequisite: MAC1105 (minimum grade: C)

## MAC1140 PRE CALCULUS ALGEBRA (3.00 Credits)

This course, in conjunction with MAC1114, is designed to prepare the student for the study of calculus. Topics include sequences, series matrices, determinants, conic sections and systems of equations. Also included are polynomial, rational, exponential, and logarithmic functions and equations; and polynomial and rational and absolute value inequalities. Functions and graphs are emphasized. A graphing calculator may be required.

Recommendation of the Mathematics Department or at least a grade of "C" in the prerequisite course is required.

Total Contact Hrs: 48.00

Lecture Hrs: 48.00

Complete all the courses in one of the following options:

- Option 1 - Prerequisite: MAC1105C (minimum grade: C)
- Option 2 - Prerequisite: MAC1105 (minimum grade: C)

## MAC1147 PRECALCULUS ALGEBRA AND TRIGONOMETRY (5.00 Credits)

This course is designed to satisfy the dual requirements of MAC1114 and MAC1140, thus preparing the student for the study of calculus. In this course the student will study various function families (e.g. polynomial, exponential, logarithmic, trigonometric) from both analytic and graphical viewpoints, and will use them to model real-life situations. The student will be exposed to additional topics that will deepen their mathematical understanding, including systems, matrices and determinates, sequences and series, parametric equations, and polar coordinates and equations. A graphing calculator may be required. Recommendation of the Mathematics Department or at least a grade of "B" in the prerequisite course is required.

Total Contact Hrs: 80.00

Lecture Hrs: 80.00

Complete all the courses in one of the following options:

- Option 1 - Prerequisite: MAC1105C (minimum grade: B)
- Option 2 - Prerequisite: MAC1105 (minimum grade: B)

MAC2233 CALCULUS FOR BUSINESS, SOCIAL AND LIFE SCIENCES (3.00 Credits)

This is a general education course which includes the college-level skills of calculus such as: functions, graphs, limits, differentiation, integration, average and instantaneous rates of change, and other applications. Recommendation of the Mathematics Department or at least a grade of C in the prerequisite course is required.

Total Contact Hrs: 48.00

Lecture Hrs: 48.00

Complete all the courses in one of the following options:

- Option 1 - Prerequisite: MAC1140 (minimum grade: C)
- Option 2 - Prerequisite: MAP2302 (minimum grade: C)
- Option 3 - Prerequisite: MAS2103 (minimum grade: C)
- Option 4 - Prerequisite: MAC2311 (minimum grade: C)
- Option 5 - Prerequisite: MAC2312 (minimum grade: C)
- Option 6 - Prerequisite: MAC2313 (minimum grade: C)
- Option 7 - Prerequisite: MAC1105C (minimum grade: C)
- Option 8 - Prerequisite: MAC1105 (minimum grade: C)
- Option 9 - Prerequisite: MAC1114 (minimum grade: C)

MAC2311 CALCULUS AND ANALYTICAL GEOMETRY I (5.00 Credits)

This is the first of a three-course sequence in calculus. Topics include: analytic geometry, functions, limits, continuity, derivatives and their applications, transcendental functions, antiderivatives, and definite integrals. Certain sections of this course may require the use of a graphing calculator. Recommendation of the Mathematics Department or at least a grade of C in each of the prerequisite courses is required.

Total Contact Hrs: 80.00

Lecture Hrs: 80.00

Complete all the courses in one of the following options:

- Option 1 - Prerequisite: MAC1114 (minimum grade: C) and MAC1140 (minimum grade: C)
- Option 2 - Prerequisite: MAC1147 (minimum grade: C)

MAC2312 CALCULUS AND ANALYTICAL GEOMETRY II (5.00 Credits)

This is the second of a three-course sequence in calculus. Topics include techniques of integration, conics, polar coordinates, indeterminate forms, L'Hopital's Rule, proper integrals, infinite series, parametric equations, improper integrals, volume, arc length, surface area, work, and other applications of integration. A graphing calculator may be required in certain sections of this course. Recommendation of the Mathematics Department or at least a grade of C in the prerequisite course is required.

Total Contact Hrs: 80.00

Lecture Hrs: 80.00

Complete all the courses in the following option:

- Prerequisite: MAC2311 (minimum grade: C)

MAC2313 CALCULUS AND ANALYTICAL GEOMETRY III (5.00 Credits)

This is the third of a three-course sequence in calculus. Topics include vectors in 3-space, three-dimensional surfaces, multivariate functions, cylindrical and spherical coordinates, multiple integrals, partial derivatives, and vector fields. A graphing calculator may be required in certain sections of this course. Recommendation of the Mathematics Department or at least a grade of C in the prerequisite course is required.

Total Contact Hrs: 80.00

Lecture Hrs: 80.00

Complete all the courses in one of the following options:

- Option 1 - Prerequisite: MAC2312 (minimum grade: C)
- Option 2 - Prerequisite: MAC2312U (minimum grade: C)