

LEARNING OBJECTIVES / GOALS / OUTCOMES / LEARNING OUTCOMES:

The course is meant to provide students with a deeper understanding of the concepts and techniques necessary for a successful study of calculus. Work progresses at a pace which provides a good preparation for the pace of first-year calculus.

Successful students will:

- reinforce their basic algebraic skills, especially those most frequently required in the study of calculus,
- increase their proficiency with function notation,
- become comfortable using technology to explore mathematical concepts,
- thoroughly familiarize themselves with the graphs and properties of the basic functions used in calculus (power, rational, exponential, logarithmic, trigonometric, inverse functions), and
- be able to apply the basic functions to practical situations, translating from English to mathematics and back again.

METHODS:

Lectures are interspersed with problem sessions; evaluation includes assignments, midterms, and a three-hour comprehensive final. Graphing calculators will be used throughout.

PRIOR LEARNING ASSESSMENT RECOGNITION (PLAR):

Credit can be awarded for this course through PLAR

Yes

No

METHODS OF OBTAINING PLAR:

Course challenge.

TEXTBOOKS, REFERENCES, MATERIALS:

[Textbook selection varies by instructor. An example of texts for this course might be:]

The textbook is chosen by a departmental curriculum committee.

Recent texts include:

Connally, Hughes Hallett, Gilkeason, et al., *Functions Modeling Change*, Wiley, 2000.
 Stewart, Redlin, Watson, *Precalculus*, third edition, Brooks/Cole, 1998.

SUPPLIES / MATERIALS:

A graphing calculator (without a computer algebraic system) is required.

STUDENT EVALUATION:

[An example of student evaluation for this course might be:]

The weighting of the various components may vary from instructor to instructor and from year to year, although there must be at least two midterms, and the comprehensive final exam must be worth from 30% to 50% of the final grade.

An example of student evaluation for this course:

Quizzes/assignments	20%
Midterm exams	40%
Final exam	40%

Students must achieve at least 40% on the final exam in order to receive credit for this course.

COURSE CONTENT:

[Course content varies by instructor. An example of course content might be:]

Exact course content and ordering may vary slightly from year to year but will encompass the following:

- Review of basic algebra
- Algebraic equations and inequalities
- Functions and graphs, including mathematical notation and language, and the use of functions to relate a mathematical equation to situations encountered in life
- Polynomial and rational functions
- Inverse functions: finding them graphically and algebraically, understanding their uses
- Exponential and logarithmic functions, including applications such as population growth, radioactive decay, the spread of pollution
- Trigonometric functions and their relationship to periodic phenomena such as ocean tides, human physiology
- Analytic trigonometry
- Sequences, series, induction, as time permits
- Introduction to the instantaneous rate of change