

MATH 119

Precalculus (4 units)

Course Outline

| Sections | Topics | # of weeks |
|----------------------|---|------------|
| 2.1-2.5 | Functions and Their Graphs: Functions; the graph of a function; properties of functions; library of basic functions; graph transformations. | 2.0 |
| 3.1-3.5, A.7 | Linear and Quadratic Functions: Linear functions and models; quadratic functions and models; solving inequalities; quadratic equations in the complex system. | 2.0 |
| 4.1-4.7, A.3, A.4 | Polynomial and Rational Functions: Polynomial Functions and Models; graphs of polynomial functions; zeros of polynomial functions; polynomial division; rational functions and their graphs, polynomial and rational inequalities. | 2.5 |
| 5.1-5.6 | Exponential and Logarithmic Functions: Composition; inverse functions; exponential functions; logarithmic functions; properties of logarithms; logarithmic and exponential equations. | 2.5 |
| 6.1-6.5, 8.1 | Trigonometric Functions: Angles and their measure; trigonometric functions via the unit circle; right triangle trigonometry; basic properties and graphs of trigonometric functions. | 2.0 |
| 7.1-7.4 | Analytic Trigonometry: Inverse trigonometric functions; trigonometric equations; trigonometric identities. | 1.5 |
| 9.1-9.2 | Polar: polar coordinates; polar equations and graphs. | 0.5 |
| | Tests | 1.0 |
| Textbook: | Precalculus with Graphing Utilities, 8 th edition. By Sullivan | |

Other Comments:

The interplay between algebra and geometry should be emphasized as early as possible. To this end, graphing calculators may be used at the discretion of the instructor.

It is important that instructors complete all sections of the course outline. Instructors in the subsequent courses will not reteach material from this course. Instructors must make sufficient allowances for unforeseen class cancellations (e.g., due to weather) so that the entire course outline will still be covered.

This Core Curriculum course is designed to meet the following four learning goals and the instructor should keep these goals in mind as he/she teaches the course:

- Students will construct and evaluate logical arguments.
- Students will apply and adapt a variety of appropriate strategies to solve mathematical problems.
- Students will recognize and apply mathematics in contexts outside of mathematics.
- Students will organize and consolidate mathematical thinking through written and oral communication.