

Departmental Syllabus **Math 2450 -- Precalculus**

Textbook: Algebra and Trigonometry, 6th Edition, by Larson and Hostetler

Prerequisites: MATH 15 with a grade of “B” or better or mathematics proficiency level of 20 or above.

Calculators: Graphing calculator required; TI-83, 85, or 86 recommended. (NOTE: On occasion, individual instructors may restrict the use of any type of calculator.)

Course Description: Solving equations and inequalities, functions and their graphs, polynomial and rational functions, exponential and logarithmic functions, trigonometric and inverse trigonometric functions, trigonometric identities and formulas, complex numbers, systems of equations, and conic sections. (This course is equivalent to taking both MATH 1530 and MATH 2530. Students who have credit for MATH 1530 or MATH 2530 should not take MATH 2450.)

TOPICS AND SECTIONS TO BE COVERED:

(Some instructors find Chapter P, Prerequisites, helpful as a supplement at the beginning of the semester.)

- 1.1 Graphs of Equations
- 1.2 Linear Equations in One Variable
- 1.3 Modeling with Linear Equations
- 1.4 Quadratic Equations
- 1.5 Complex Numbers
- 1.6 Other Types of Equations
- 1.7 Linear Inequalities in One Variable
- 1.8 Other Types of Inequalities

- 2.1 Linear Equations in Two Variables
- 2.2 Functions
- 2.3 Analyzing Graphs of Functions
- 2.4 A Library of Functions
- 2.5 Shifting, Reflecting, and Stretching Graphs
- 2.6 Combinations of Functions
- 2.7 Inverse Functions

- 3.1 Quadratic Functions
- 3.2 Polynomial Functions of Higher Degree
- 3.3 Polynomial and Synthetic Division
- 3.4 Zeros of Polynomial Functions

- 4.1 Rational Functions and Asymptotes
- 4.2 Graphs of Rational Functions
- 4.3 Partial Fractions (optional)
- 4.4 Conics
- 4.5 Translations of Conics

- 5.1 Exponential Functions and Their Graphs
- 5.2 Logarithmic Functions and Their Graphs
- 5.3 Properties of Logarithms
- 5.4 Exponential and Logarithmic Equations
- 5.5 Exponential and Logarithmic Models

- 6.1 Angles and Their Measure
- 6.2 Right Triangle Trigonometry
- 6.3 Trigonometric Functions of Any Angle
- 6.4 Graphs of Sine and Cosine Functions
- 6.5 Graphs of Other Trigonometric Functions
- 6.6 Inverse Trigonometric Functions
- 6.7 Applications and Models

- 7.1 Using Fundamental Identities
- 7.2 Verifying Trigonometric Identities
- 7.3 Solving Trigonometric Equations
- 7.4 Sum and Difference Formulas
- 7.5 Multiple-Angle Formulas
Product-to-Sum Formulas (optional)

- 8.1 Law of Sines
- 8.2 Law of Cosines

- 9.1 Solving Systems of Equations
- 9.2 Two-Variable Linear Systems
- 9.3 Multivariable Linear Systems
- 9.4 Systems of Inequalities (optional)