Departmental Syllabus  
Math 2450 -- Precalculus


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

Calculators:  A scientific calculator (such as one of the TI-30 models) or a graphing calculator (such as the TI-83, 84, 85, 86 or the TI-Nspire with TI-84 keypad) is required. Calculators with Computer Algebra Systems (CAS), (e.g. the TI-89, TI-92 and TI-Nspire with CAS keypad, or their equivalent), are not allowed in any math classes. 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.)

Student Learning Outcomes:  Students should be able to:
• apply basic algebra and graphing skills to functions such as rational, logarithmic, trigonometric, and absolute value;
• analyze graphs of these functions;
• solve equations and inequalities involving these functions; and
• solve applied problems using algebra and trigonometry.

General Education Learning Outcomes:  UW-Platteville students shall:
1-1 Recognize mathematical patterns to solve problems
1-2 Demonstrate ability to work with numbers, space and data
1-7 Demonstrate skills in problem-solving
1-9 Assess the plausibility of proposed solutions

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 and Applications
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 Parent Functions
2.5 Transformations of Functions
2.6 Combinations of Functions: Composite Functions
2.7 Inverse Functions

3.1 Quadratic Functions and Models
3.2 Polynomial Functions of Higher Degree
3.3 Polynomial and Synthetic Division
3.4 Zeros of Polynomial Functions
3.5 Mathematical Modeling and Variation (optional)

4.1 Rational Functions and Asymptotes
4.2 Graphs of Rational Functions
9.4 Partial Fractions
4.3 Conics
4.4 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 Linear and Nonlinear Systems of Equations
9.2 Two-Variable Linear Systems
9.3 Multivariable Linear Systems
9.5 Systems of Inequalities (optional)

If you require an accommodation due to a disability, please make an appointment to see me as soon as possible to discuss arrangements for the accommodations. You will need a Verified Individualized Services and Accommodations (VISA) form from Services for Students with Disabilities.