Mathematics Department
University of Wisconsin Oshkosh

General Syllabus for Math 108 Pre-Calculus

Course Description:
In this course, we will cover topics including functions, graphs, data analysis and modeling of real world problems, equations and inequalities, polynomial, rational functions, exponential and logarithmic functions, basic circular functions and their inverses, trigonometric identities and equations, triangle trigonometry, law of Sines and law of Cosines. May not receive credit for both Mathematics 104 and 108.

Prerequisite:
Mathematics 103 with grade of C or better or placement.

Description of Students Who Take the Course:
Mathematics 108 satisfies the University minimum general education mathematics requirement. It is intended for students whose programs require additional mathematics and science courses including Calculus.

General Goals and Objectives for the Course:
The goal of this course is to give students appreciation of mathematical tools they need in order to be successful in other mathematics and science courses. It focuses on problem solving, critical thinking and learning basic concepts in Algebra and Trigonometry.

Textbook and Other Required Materials Recently Used:
The textbook is chosen by the committee of College Algebra. They recommended *"College Algebra: Graphs and Models"* and *"Trigonometry: Graphs and Models"* both by Barnett, Ziegler & Byleen.

Technology:
All sections are **required** to use a graphing calculator recommended by the committee of College Algebra. Students will learn to use a graphing calculator as an aid to understand mathematical concepts and computations,

Specific Course Content:
The following list is a suggested list.

Functions, Graphs, and Models
- Using Graphing Utilities
- Functions
- Functions: Graphs and Properties
- Functions: Graphs and Transformations
- Operations on Functions; Composition
- Inverse Functions

Modeling with Linear and Quadratic Functions
- Linear Functions
- Linear Equations and Models
- Quadratic Functions
- Complex Numbers
- Quadratic Equations and Models
- Additional Equation-Solving Techniques
- Solving Inequalities

Polynomial and Rational Functions
- Polynomial Functions and Models
- Real Zeros and Polynomial Inequalities
- Complex Zeros and Rational Zeros of Polynomials
- Rational Functions and Inequalities

Exponential and Logarithmic Functions
- Exponential Functions
- Exponential Models
- Logarithmic Functions
- Logarithmic Models
- Exponential and Logarithmic Equations

Trigonometry
- Angles and Their Measure
- Right Triangle Trigonometry
- Trigonometric Functions: A Unit Circle Approach
- Properties of Trigonometric Functions
- More General Trigonometric Functions
- Inverse Trigonometric Functions
- Basic Identities and Their Use
- Sum, Difference, and Cofunction Identities
- Double-Angle and Half-Angle Identities
- Product-Sum and Sum-Product Identities
- Trigonometric Equations
- Law of Sines
- Law of Cosines

Variation by instructor:
Although this course has a common content syllabus across sections and course coordination occurs, teaching methodology and evaluation policies may vary. Evaluation may include quizzes, exams, a comprehensive final, and the collection of homework. In addition, instructors of this course may make additional reading and writing assignments.

Students should consult the individual course syllabus for more information.

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