

ROWAN UNIVERSITY
Department of Mathematics

Syllabus
1701.122 Pre-Calculus Mathematics

CATALOG DESCRIPTION

1701.122 Pre-Calculus Mathematics 4 s.h.

Pre-requisite: 1701.121 Intermediate Algebra or equivalent preparation: e.g. High School Algebra II

This course helps prepare students weak in Algebra for Calculus I or Calculus Techniques and Applications. The contents include: a brief review of intermediate Algebra, The Structure of the Real Number System, Elementary Analytic Geometry and Algebraic, Exponential, Logarithmic and Trigonometric functions (including their inverses and related functions). Graphs of functions and conic sections also are studied. Use of a graphing calculator is required. Students are expected to have completed and equivalent of Intermediate Algebra.

OBJECTIVES

At the conclusion of the course the students will be able to:

1. Manipulate and evaluate algebraic, exponential, logarithmic and trigonometric functions.
2. Graph linear and quadratic functions, including those describing the conic sections, in both rectangular and polar coordinates.
3. Graph algebraic, exponential, logarithmic and trigonometric function.

DELIVERY, EVALUATION AND GRADING PROCEDURES

Standard lectures, demonstrations (especially with a graphing calculator) and examination

Chapter 1 Basics

Review the essential facts about real numbers, equations, the coordinate plane and

Chapter 2 Graphs and Technology

Graphing technology is introduced and explored. A variety of techniques are presented that will enable you to solve complicated problems.

Chapter 3 Functions and Graphs

Introduction to functions and operations on functions, function notation, constructing and interpreting graphs of functions.

Chapter 4 Polynomial and Rational Functions

Quadratic functions, polynomial functions of higher degree, real zeros of Polynomial functions, the fundamental theorem of algebra, rational functions and asymptotes, graphs of rational functions.

Chapter 5 Exponential and Logarithmic Functions

Exponential functions and their graphs, logarithmic functions and their graphs, properties of logarithms, solving exponential and logarithmic equations, exponential and logarithmic equations, exponential and logarithmic models.

Chapter 6 Trigonometric Functions

Angles and their measure, right triangle trigonometry, trigonometric functions of any angle, graphs of sine and cosine functions, graphs of other trigonometric functions, inverse trigonometric functions, applications and models.

Chapter 7 Additional Topics in Trigonometry

Law of sines, law of cosines

Chapter 8 Analytic Trigonometry

Using fundamental identities, verifying trigonometric identities, solving Trigonometric equations, sum and difference formulas, and multiple-angle and product-sum formulas.

Chapter 10 Topics in Analytic Geometry

Conics, translations of conics, parametric equations.

TEXT

Contemporary Pre-Calculus: A Graphing Approach, 4th edition, Thomas W. Hungerford, Thomson-Brooks/Cole Publishing.