UNIVERSITY OF NORTH ALABAMA
Departmental Syllabus
MA 112 PRECALCULUS ALGEBRA

Course Description. This course emphasizes the algebra of functions – including polynomial, rational, exponential, and logarithmic functions. The course also covers systems of equations and inequalities, quadratic inequalities, and the binomial theorem. Additional topics may include matrices, Cramer's rule, and mathematical induction.

Credit Hours. 3

Course Objective: The student shall demonstrate knowledge of

1. The basic concepts of arithmetic.
2. The basic concepts of algebra.
3. Elementary functions.
4. The sequential nature of mathematics and the interrelated nature of the various branches of mathematics
5. Problem-solving strategies which shall include reading and interpreting the problem, devising a plan to solve the problem, carrying out that plan, and reflecting on the reasonableness of the answer. Working problems backwards.
6. Estimation, prediction, and an ability to check answers.
7. Spatial relationships.
8. Standard mathematics vocabulary and symbols, and demonstrate the ability to use the language and symbols of mathematics accurately in communication.
9. Use fundamental mathematical operations, algorithms and measurements.
10. Present and interpret data in graphical form.
11. Select or create appropriate mathematical models to solve problems in mathematics and in other disciplines and integrate problem solving strategies learned in mathematics into the solution of problems encountered in daily living.

Course Content:

Algebra review including factoring, rational expressions, the binomial theorem, rational exponents, and radicals.

1. Linear and quadratic equations and inequalities, applications
2. Relations and their graphs including linear relations, the parabola, the circle, and inequalities.
3. Functions, algebra of functions, graphing basic functions and their variations, inverse functions, exponential and logarithmic functions.

4. Polynomial and rational functions including graphing, polynomial division, zeros of polynomial functions, rational zeros and real zeros of polynomial functions.
5. Systems of equations and inequalities including solution of two and three variable linear systems of equations, solution of linear system by matrices, nonlinear systems of equations, and systems of inequalities.
6. Matrices.

Standard: Mathematics, at least to the pre-calculus level, including probability, statistics, statistical concepts and skills, and the use of differential equations and calculus. 290-3-3-.16(1)(c)7., 290-3-3-.15(1)(a)2.(iv), 290-3-3-.15(1)(b)2.(iv), 290-3-3-.15(1)(c)2.(iv), 290-3-3-.15(1)(d)2.(iv)

Assessment: Assessed by Exams.

Course Requirements: Regular attendance. Scientific calculator.

Course Evaluation: There will be 3 or 4 tests and a final exam.

ACCOMMODATION STATEMENT:

In accordance with the Americans with Disabilities Act (ADA) and Section 504 of the Rehabilitation Act of 1973, the University offers reasonable accommodations to students with eligible documented learning, physical and/or psychological disabilities. Under Title II of the Americans with Disabilities Act (ADA) of 1990 and Section 504 of the Rehabilitation Act of 1973, a disability is defined as a physical or mental impairment that substantially limits one or more major life activities as compared to an average person in the population. It is the responsibility of the student to contact ***Developmental Services*** prior to the beginning of the semester to initiate the accommodation process and to notify instructors within the first three class meetings to develop an accommodation plan. Appropriate, reasonable accommodations will be made to allow each student to meet course requirements, but no fundamental or substantial alteration of academic standards will be made. Students needing assistance should contact ***Developmental Services.***