Southern Connecticut State University
School of Arts and Sciences
Department of Mathematics

OUTLINE FOR MAT 102
Intermediate Algebra A and B (Extended)

CATALOG DESCRIPTION
This is an Intermediate Algebra course. Topics include multiple perspectives of functions (verbal, numerical, algebraic, and graphical) and the various notations used to represent functions. Linear, absolute value, quadratic, rational, square root, cube root and radical families of functions will be covered.

COURSE OBJECTIVES
1. Set up and use simple mathematical models. In particular, students should be able to translate "word problems' into corresponding mathematical problems solve and then interpret the results in terms of the conditions of the word problem.

2. Examine the formal definition of a function and the various notations used to represent functions. Examine linear equations in one and two variables as well as linear inequalities in one and two variables.

3. Recognize and work with linear, absolute value and quadratic functions.

4. Recognize and work with rational functions, square root functions, cube root functions and rational exponents. Students should be able to simplify and perform operations on rational and radical expressions.

5. Use graphing calculators to aid in the computations and concepts of the course. Students should know the advantages and disadvantages of using the calculator to produce solutions and should be able to interpret those solutions.

6. Solve algebraic equations. Students should be able to solve quadratic equations, equations containing rational expressions and equations containing radical expressions.

Course Purpose
The purpose of this course is to provide students with the algebraic skills and concepts needed for the mathematics general education courses MAT 103, MAT 105, MAT 107, MAT 108 and the mathematics courses MAT 120 AND MAT 122.

Credit
MAT 102 carries 3 semester hour of university credit. This course does not satisfy the University requirement in Mathematics.

Prerequisites
A grade of D- or better in Math 095

Format
MAT 102 is offered in the lecture-discussion format. This class will meet for 3 and 1/3 contact hours (or 4 days) and carry a faculty teaching load of four credits.

Textbook
Hall & Mercer, *Beginning and Intermediate Algebra, the Language and Symbolism of Mathematics*, 3rd Ed., McGraw-Hill, 2011.

Calculator
A TI-83 Plus or TI-84 Graphing Calculator

Course Syllabus
Percentages are based on a 56 class semester, with 5 classes reserved for testing and review.

Chapter 6   - **Cover sections 6.1 - 6.6**   **(2.5 weeks - 20%)**
- Factoring Trinomials
- Factoring Special Forms
- Solving Equations by Factoring

Chapter 7   - **Cover sections 7.1 – 7.5**   **(2 weeks - 16%)**
- Solving Quadratic Equations
- Applications of Quadratic Equations
- Complex Numbers

Chapter 8   - **Cover sections 8.1 – 8.6**   **(2.5 weeks - 20%)**
- Functions and Representations of Functions
- Linear, Absolute Value and Quadratic Functions
- Analyzing Graphs of Functions
- Curve Fitting from a set of Data

Chapter 9   - **Cover sections 9.1 - 9.6**   **(3 weeks - 24%)**
- Rational Functions
- Adding, Subtracting, Multiplying and Dividing Rational Expressions
- Solving Equations Containing Rational Expressions
- Inverse and Joint Variation

Chapter 10   - **Cover sections 10.1 - 10.5**   **(2.5 weeks - 20%)**
- Radical Expressions
- Solving Equations Containing Radical Expressions
- Radical Exponents and Radicals

Waiver Policy
There is no waiver for MAT 102.