



## **Math 1111 – College Algebra**

### **Master Syllabus and Course Content**

#### **Course Description:**

Credit Hours: 3-0-3.

This course provides an in-depth study of the properties of algebraic, exponential and logarithmic functions as needed for calculus. Emphasis is on using algebraic and graphical techniques for solving problems involving linear, quadratic, piece-wise defined, rational, polynomial, exponential, and logarithmic functions. Students receive credit toward graduation for only one of the following courses: MATH 1001, MATH 1111, MATH 1101.

Prerequisite: None.

Corequisite: Registration for MATH 0999 is required each semester unless waived by satisfactory placement scores or successful completion of learning support mathematics requirements.

#### **Course Learning Objectives:**

- Express and/or analyze relationships using functions in multiple ways (such as graphical, numerical, symbolic, and verbal).
- Model situations using appropriate functions (such as linear, quadratic, higher-degree polynomial, exponential, and logarithmic).
- Apply problem-solving strategies to solve multiple-step problems (such as ones involving polynomial, exponential, and logarithmic equations and systems of linear equations).
- Manipulate mathematical information and concepts to solve problems using multiple representations of functions (such as polynomial, rational, exponential, and logarithmic functions).

#### **Topics Covered**

- Functions and Functional Notation
  - Domain and Range
  - Rates of Change
- Graphing Functions
  - Transformations
- Linear Functions
- Systems of Linear Functions
- Absolute Value Functions
- Quadratic Functions
- Combinations of Functions



- Inverse Functions
- Complex Numbers
- Polynomial Functions
  - Zeros
  - Rational Zero Test
- Rational Functions
- Radical Functions
- Exponential Functions
- Logarithmic Functions
- Exponential and Logarithmic Equations

## Course Materials

### Textbook:

Blitzer, R. (2018). *Precalculus* (6<sup>th</sup> ed.). United States, NJ: Pearson.

### Technology:

- MyMathLab: <https://www.mymathlab.com>
- TI-83, TI-84, or equivalent graphing calculator is required.

## Textbook Sections<sup>1</sup>

### Precalculus – Blitzer

*Chapter P – Prerequisites: Fundamental Concepts of Algebra*

P.7 Equations

*Chapter 1 – Functions and Graphs*

1.2 Basics of Functions and Their Graphs

1.3 More on Functions and Their Graphs

1.4 Linear Functions and Slope

1.5 More on Slope

1.6 Transformations of Functions

1.7 Combinations of Functions; Composite Functions

1.8 Inverse Functions

*Chapter 2 – Polynomial and Rational Functions*

2.1 Complex Numbers

2.2 Quadratic Functions

2.3 Polynomial Functions and Their Graphs

2.4 Dividing Polynomials; Remainder and Factor Theorems

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<sup>1</sup> A suggested schedule is provided at the end of this syllabus.



- 2.5 Zeros of Polynomial Functions
- 2.6 Rational Functions and Their Graphs

*Chapter 3 – Exponential and Logarithmic Functions*

- 3.1 Exponential Functions
- 3.2 Logarithmic Functions
- 3.3 Properties of Logarithms
- 3.4 Exponential and Logarithmic Equations

*Chapter 7 – Systems of Equations and Inequalities*

- 7.1 Systems of Linear Functions in Two Variables

## Required Syllabus Content

### Important College Dates

Please see the appropriate academic [calendar](#) on the Georgia Highlands Website.

### Required College Policies

Please see the Center for Excellence in Teaching and Learning’s faculty resources for the [required syllabus statements and policies](#).

## Suggested Pearson/MyMathLab Pacing Guide

Week 1	Day 1	Cover the Syllabus	Day 2	Cover 1.2 Basics of Functions and Their Graphs
Week 2	Day 3	Cover 1.3 More on Functions and Their Graphs	Day 4	Cover 1.4 Linear Functions and Slope
Week 3	Day 5	Cover 1.5 More on Slope	Day 6	Cover 7.1 Systems of Linear Equations in Two Variables
Week 4	Day 7	Catch Up or Review Day	Day 8	<b>Exam 1</b>
Week 5	Day 9	Cover 1.6 Transformations of Functions	Day 10	Cover 1.7 Combinations of Functions; Composite Functions
Week 6	Day 11	Cover 1.8 Inverse Functions	Day 12	Cover 2.1 Complex Numbers
Week 7	Day 13	Cover P.7 Equations (Quadratic Formula and Completing the Square)	Day 14	Catch Up or Review Day
Week 8	Day 15	<b>Exam 2</b>	Day 16	Cover 2.2 Quadratic Functions
Week 9	Day 17	Cover 2.3 Polynomial Functions and Their Graphs	Day 18	2.4 Dividing Polynomials; Remainder and Factor Theorems
Week 10	Day 19	Cover 2.5 Zeros of Polynomial Functions	Day 20	Cover 2.5 Zeros of Polynomial Functions



Week 11	Day 21	Catch Up or Review Day	Day 22	<b>Exam 3</b>
Week 12	Day 23	Cover 2.6 Rational Functions and Their Graphs	Day 24	Cover 3.1 Exponential Functions
Week 13	Day 25	Cover 3.2 Logarithmic Functions	Day 26	Cover 3.3 Properties of Logarithms
Week 14	Day 27	Cover 3.4 Exponential and Logarithmic Equations	Day 28	Catch Up or Review Day
Week 15	Day 29	<b>Exam 4</b>	Day 30	Review for Final Exam

This guide is only a suggestion. No matter the order, please be sure to cover all of the required material.