

MAT 161A
COLLEGE ALGEBRA LAB

COURSE DESCRIPTION:

Prerequisites: MAT 080 or MAT 090 or satisfactory score on placement test

Corequisites: MAT 161

This course is a laboratory for MAT 161. Emphasis is placed on experiences that enhance the materials presented in the class. Upon completion, students should be able to solve problems, apply critical thinking, work in teams, and communicate effectively. *This course is approved to satisfy the Comprehensive Articulation Agreement for transferability as a premajor and/or elective course requirement.* Students may not receive credit for both **MAT 161A** and **MAT 171A**. Course Hours Per Week: Lab, 2. Semester Hours Credit, 1.

LEARNING OUTCOMES:

Students will be able to apply algebraic concepts and techniques and utilize technology to interpret and solve applied problems. Students will display proficiency by demonstrating the following competencies.

- a. Model real-world situations and use those models to make predictions.
- b. Interpret problems algebraically.
- c. Employ algebraic techniques to obtain and interpret solutions to applied problems.
- d. Communicate algebraic ideas using appropriate vocabulary and symbols.
- e. Use appropriate technology to explore ideas and to aid in the solution of algebraic problems.
- f. Make connections between algebra and other disciplines.
- g. Work effectively and interactively within diverse learning groups to reinforce the above objectives.

OUTLINE OF INSTRUCTION:

- I. Equations and Inequalities
 - A. Linear Equations
 - B. Applications and Modeling with Linear Equations
 - C. Complex Numbers
 - D. Quadratic Equations
 - E. Applications and Modeling with Quadratic Equations
 - F. Other Types of Equations
 - G. Inequalities
 - H. Absolute Value Equations and Inequalities

- II. Graphs and Functions
 - A. Graphs of Equations
 - B. Functions
 - C. Linear Functions
 - D. Equations of Lines; Curve Fitting
 - E. Graphs of Basic Functions
 - F. Graphing Techniques
 - G. Function Operations and Composition

- III. Polynomial and Rational Functions
 - A. Quadratic Functions and Models
 - B. Synthetic Division
 - C. Zeros of Polynomial Functions
 - D. Polynomial Functions: Graphs, Applications, and Models
 - E. Rational Functions: Graphs, Applications, and Models
 - F. Variation

- IV. Exponential and Logarithmic Functions
 - A. Inverse Functions
 - B. Exponential Functions
 - C. Logarithmic Functions
 - D. Evaluating Logarithms and the Change-of-Base Theorem
 - E. Exponential and Logarithmic Equations
 - F. Applications and Models of Exponential Growth and Decay

REQUIRED TEXTBOOK:

Lial, Margaret L., John Hornsby, and David I. Schneider. Essentials of College Algebra. Alternate Ed. Addison Wesley, 2008.

CALCULATOR:

TI-83/84 Graphing Calculator

STATEMENT FOR STUDENTS WITH DISABILITIES:

Students who require academic accommodations due to any physical, psychological, or learning disability are encouraged to request assistance from a disability services counselor within the first two weeks of class. Likewise, students who potentially require emergency medical attention due to any chronic health condition are encouraged to disclose this information to a disability services counselor within the first two weeks of class. Counselors can be contacted by calling 536-7207, ext. 1413 or by visiting the Student Development Office in the Phail Wynn Jr. Student Services Center, room 1309.