

Mathematics 100
Essentials of Algebra I (4)
(Effective Fall 2018)

Prerequisite: None.

Catalog Description: Functions and their graphs (including polynomial, rational, exponential, and logarithmic), exponents, roots, radicals, rational expressions, factoring polynomials, zeroes of polynomials, solutions of linear and nonlinear equations and inequalities, systems of equations and inequalities, matrices and determinants, inverse functions.

Notes:

1. This course requires the use of a graphing calculator. The department recommends a calculator of the TI-83, TI-84 series for this course. Computer algebra systems are prohibited. A TI-Nspire may only be used with a TI-84 faceplate.
2. Some instructors may require MyMathLab, a computer supplement to the course text. Students should check with their instructor before purchasing MyMathLab access.
3. All students in this course must sign up for both a lecture class and a lab class. This class will meet for 3 hours a week in lecture and 2 hours per week in lab. The students grade will be a composite of the lecture grade and the lab grade with the lecture counting as 80% of the student's grade and the lab as 20% of the student's grade.
4. All students in this course will take the Department of Mathematics and Statistics common final exam.
5. Because of the sequencing of the labs, every instructor needs to adhere to the given schedule.

Goal: To prepare students for success in college courses, especially the sciences, by introducing algebra and requiring effective written communication and to motivate and illustrate these topics by relevant applications.

General Education: This is a prerequisite to the general education course Math 110. As such it also supports the following general education curriculum goals and student learning outcomes:

Curriculum Goals: The purpose of the Mathematics requirement is to teach students to organize, evaluate and solve problems using both abstract and quantitative approaches. Courses in this area will enable students to communicate using the language of mathematics.

Student Learning Outcomes:

- a. Students will use appropriate notation and vocabulary to communicate mathematics.
- b. Students will use symbolic and numerical methods to perform calculations.
- c. Students will solve problems with real-world applications.

Teaching Objectives: The student will:

1. Determine the domain and codomain of relations and domain and image set of functions.
2. Evaluate and graph functions including linear, quadratic and polynomial functions.

3. Read and interpret graphs of functions.
4. Determine the x - and y -intercepts on the graph of a function.
5. Apply symmetries, reflections, and translations to curve-sketching.
6. Solve equations and inequalities involving linear and quadratic functions.
7. Apply polynomial and synthetic division to finding zeroes of a polynomial.
8. Apply the Remainder, Factor, and Rational Root theorems to determine zeroes of a polynomial.
9. Approximate zeroes of polynomials.
10. Solve real world problems involving functions.
11. Solve inequalities involving functions.
12. Use technology to fit lines and parabolas to points in the xy -plane.

Text(s): Essentials of College Algebra, 12th Edition, Lial, Hornsby, Schneider, 2019, Addison Wesley, ISBN: 9780134675022

The text is required for all classes. Some instructors may also require MyMathLab.

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