

ESSEX COUNTY COLLEGE
Mathematics and Physics Division
MTH 086 – Introductory Algebra
Course Outline

Course Number & Name: MTH 086 Introductory Algebra

Credit Hours: 4.5 **Contact Hours:** 4.5 Lecture: 4.5 Lab: N/A Other: N/A

Prerequisites: None **Co-requisites:** 086T **Effective Date:** Fall 2005

Catalog Description

This beginning mathematics course is designed to take students from concrete arithmetic ideas to the more abstract algebraic forms of these ideas. Throughout, the emphasis is on showing students the practical use of concepts and developing understanding by equating English phrases and sentences from algebraic expressions. Topics include simplifying arithmetic and algebraic expressions, fractions, decimals, estimations, geometric applications, percents, and signed numbers.

General Education Goals

The aggregate of the core courses will have the following goals:

1. To enable students to become more aware of the different perspectives emanating from a culturally diverse population.
2. To emphasize critical thinking and problem solving; to the extent possible, to include quantitative reasoning and research skills, including accessing information from a variety of sources and media.
3. To enable students to increase proficiency in writing, reading, speaking, and listening skills.
4. To require students to prepare and present information with the use of computers.

Course Objectives:

This course is the first of a sequence of two courses designed to bring students to a level of proficiency in computation and algebra, which will enable them to enter a college-level math course. The objectives of this first course are:

1. review the basic skills and concepts of arithmetic
2. introduce the basic skills and concepts of elementary algebra by extending the concepts and skills in arithmetic to their generalized forms (GEG 2)
3. to help students develop problem solving strategies applicable to operations with whole numbers, signed numbers, fractions and decimals, and applications to real-life problems (GEG 2,3)
4. to help students develop critical thinking and abstract reasoning skills (GEG 2,3)
5. to help students develop a positive attitude toward mathematics and the ability to deal with situations requiring its use (GEG 1)
6. to allow students to identify and express themselves regarding their view of math and its learning (GEG 1, 3)

Textbook

Based on the textbook: Prealgebra by Aufmann, Barker, Lockwood, 4th Edition, published by Houghton Mifflin, Boston, MA, 2005

Curricula Served

MTH 086 is a pre-requisite to college level courses contained in most of ECC Degree Programs

Course Requirements

- Doing homework assignments in a timely manner.
- Taking part in class discussion and doing problems on the board when required.
- Taking tests and exams in class or making up missed tests if permitted.

A minimum of:

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Course Outline (continued)**

- 2 Tests
- 1 Departmental Midterm Exam
- 1 Departmental Final Exam

Math Journal

A Math Journal is required of all students. The Journal should be comprised of:

1. class notes dated and kept in consecutive order;
2. a summary of each set of class notes taken;
3. a summary of each reading assignment;
4. a running vocabulary list kept in the rear of the Journal. The list should not only contain definitions but specific examples to help clarify the definitions.

Methods of Instruction

The instruction will consist of a combination of:

- lectures
- class discussion
- group work
- board work
- individual study
- computer lab work.

Methods of Evaluation

Final grades will be computed by the professors from a combination of the following:

- Class participation, homework, quizzes and math journal 10% - 15%
Class discussion and the math journal will determine the extent to which students master objectives 3 – 6. Objectives 1 – 4 can be measured by a perusal of homework problems and quizzes.
- Tests 30% - 40%
Tests will show evidence of the extent to which students meet course Objectives 1 – 4 including but not limited to identifying and applying concepts, analyzing and solving problems, estimating and interpreting results, and stating appropriate conclusions using correct terminology.
- Midterm Exam 20% - 25%
The same objectives as with tests, but it is anticipated that students will provide evidence of synthesizing a combination of concepts.
- Final Exam 25% - 30%

The same objectives obtain as with tests, but it is anticipated that students will provide increased evidence of synthesizing a combination of concepts.

INSTRUCTOR WILL PROVIDE SPECIFIC WEIGHTS FOR EACH OF THE COURSE REQUIREMENT ITEMS AT THE BEGINNING OF THE SEMESTER