

Common Course Outline

MATH 111

Ideas in Mathematics

3 Credits

The Community College of Baltimore County

Description

MATH 111 – 3 credits – Ideas in Mathematics explores contemporary topics and applications of mathematics. Topics include problem solving, probability, statistics, financial mathematics, and other selected topics. Students will be exposed to various calculating devices and technological tools used in problem solving. This course is for the Liberal Arts student who is not planning to major in mathematics or the physical sciences.

3 Credits

Prerequisite: (RDNG 052 and ENGL 052) or ACLT 052; and MATH 083 or MATH 073

Overall Course Objectives

Upon completion of this course students will be able to:

1. identify/calculate probability values and apply probability rules in order to solve everyday problems relying on probability theory;
2. apply introductory set theory to solve theoretical and application-based problems;
3. describe, numerically and graphically, various forms and presentations of statistical data;
4. apply appropriate statistical measures, dependent upon the nature of specific data, to make informed decisions;
5. analyze the validity of statistical reports that appear in newspapers, magazines, and the internet;
6. apply probability, set theory, and statistics to other academic disciplines;
7. examine the mathematical contributions made by people from diverse cultures throughout history;
8. apply appropriate technology to solve mathematical problems;
9. utilize the internet and other resources to research course-related topics;
10. express mathematical definitions, concepts, and operations using appropriate words, symbols and examples;
11. express concepts of probability, set theory, and statistics using appropriate terminology;
12. apply course-related mathematical theories to appropriate diversity-enriched, reality-based situations;
13. demonstrate the ability to make informed decisions based on consumer financial models;
14. compare the future value of investments based on different compounding rates; and
15. evaluate different payment options to maximize future returns.

Major Topics

- I. Sets and Their Applications

- A. Descriptions and definitions
 - B. Set operations
 - C. Venn diagrams
 - D. Problem solving using sets
- II. Financial Mathematics
- A. Simple interest
 - B. Compound interest
 - C. Annuities
- III. Nature of Probability
- A. Definition
 - B. Counting techniques
 - C. Conditional probabilities
 - D. Odds and mathematical expectations
 - E. Problem solving using probability
- IV. Elementary Statistics
- A. Frequency distributions
 - B. Descriptive statistics
 - C. Normal distribution
 - D. Important aspects of statistical design
 - E. Problem solving using statistics

Course Requirements

Students will be given opportunities to collaborate via group work and/or presentation of problem solutions

There will be multiple opportunities for the instructor to assess student progress through classwork and or/homework. Students are required to utilize appropriate academic resources.

Grading/exams: Grading procedures will be determined by the individual faculty member but will include the following:

1. Two (2) written examinations (80% applications based)
2. One (1) project (examples include: a journal, service learning, video presentation, computer-generated presentation, etc.)
3. Final written examination (80% applications based) is worth 20% – 30% of the total course grade.

Other Course Information

This course is an approved 3-credit General Education Mathematics course.