

# **Common Course Outline**

## **MATH 111**

### **Ideas in Mathematics**

**3 Semester Hours**

## **The Community College of Baltimore County**

### **Description**

Students will study contemporary topics and applications of mathematics. Topics include problem solving, probability, statistics, an introduction to computers, and other selected topics. This course is for the Liberal Arts student who is not planning to major in mathematics or the physical sciences. Prerequisites: MATH 083 or MATH 101 or sufficient math placement score LVR2, and LVE2.

### **Overall Course Objectives**

Upon successfully completing the course students will be able to:

1. demonstrate a sound understanding of probability values and apply probability rules in order to solve everyday problems relying on probability theory (I, III, VI, 1, 7);
2. apply introductory set theory to solve both mathematical and non-mathematical problems (I, III, 1, 6, 7);
3. describe, numerically and graphically, various forms and presentations of statistical data (I, II, 1, 3);
4. apply appropriate statistical measures, dependent upon the nature of specific data, to make informed decisions (I, III, VI, 1);
5. analyze, critically, the validity of statistical reports that appear in newspapers, magazines, and the World Wide Web (III, VI, 3, 4, 7);
6. apply probability, set theory, and statistics to other academic disciplines (III, VI, 4, 6);
7. examine the mathematical contributions made by people from diverse cultures throughout history (V, 5);
8. apply appropriate technology to solve mathematical problems (IV, 4, 5);
9. utilize the Internet and other resources to research course-related topics (I, IV, VI, 3, 4);
10. express mathematical definitions, concepts, and operations using appropriate words, symbols and other means (I, 2);
11. express concepts of probability, set theory, and statistics using appropriate terminology (I, II, 2);
12. apply course-related mathematical theories to appropriate diversity-enriched, reality-based situations (III, V, 1, 6, 7).

## **Major Topics**

1. Sets and Their Applications
  - a. Descriptions and definitions
  - b. Set operations
  - c. Venn diagrams
  - d. Problem solving using sets
2. Technology in Mathematics
  - a. Various calculating devices
  - b. Technological tools used in problem solving
  - c. Mathematical research and the Internet
3. Nature of Probability
  - a. Definition
  - b. Counting techniques
  - c. Conditional probabilities
  - d. Odds and mathematical expectation
  - e. Problem solving using probability
4. Elementary Statistics
  - a. Frequency distributions
  - b. Descriptive statistics
  - c. Normal distribution
  - d. Important aspects of statistical design
  - e. Problem solving using statistics

## **Course Requirements (General Education Goal #VII)**

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

There will be multiple opportunities for the instructor to assess student progress through classwork and/or homework.

Grading: 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. Individual and group work
4. Oral presentation of homework solutions

## **Other Course Information**

Individual faculty members may include additional course objectives, major topics, and other course requirements to the minimum expectations stated in the Common Course Outline.

The Community College of Baltimore County is committed to providing a high-quality learning experience that results in growth in knowledge, attitudes, and skills necessary to function successfully as a transfer student, in a career and as a citizen. To accomplish this goal, we maintain high academic standards and expect students to

accept responsibility for their individual growth by attending classes, completing all homework and other assignments, participating in class activities and preparing for tests.

We take seriously our responsibility to maintain high-quality programs and will periodically ask you to participate in assessment activities to determine whether our students are attaining the knowledge, attitudes and skills appropriate to various courses and programs. The assessment activities may take many different forms such as surveys, standardized or faculty-developed tests, discussion groups or portfolio evaluations. We ask that you take these activities seriously so that we can obtain valid data to use for the continuous improvement of CCBC's courses and programs.

05/15/00

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