

## CUMBERLAND COUNTY COLLEGE

### **Course: MA 115 Mathematical Structures & Algorithms**

**Credits:** 3

### **Prerequisites**

MA091 or placement by Accuplacer scores or placement by SAT score.

### **Description**

A problem-solving approach will be used to explore fundamental concepts of various numeration systems; operations on natural numbers, whole numbers, and integers; number theory; fraction models and operations; the real number system; patterns and functions. This course is appropriate for early childhood and elementary education majors.

### **Learning Outcomes**

At the completion of this course, students should be able to:

- Communicate accurate mathematical terminology and notation to explain strategies to solve problems and interpret solutions.
- Use technology correctly to solve mathematical problems.
- Utilize various reasoning, problem-solving, and critical thinking techniques to solve applications, such as financial management, consumer math, and exponential growth.

### **Related General Education Outcomes**

- Students will translate quantifiable problems into mathematical terms and solve these problems using mathematical or statistical operations.
- Students will construct graphs and charts, interpret them, and draw appropriate conclusions.

### **Topical Outline**

- Thinking Critically
- Sets and Whole Numbers
- Numeration and Computation
- Number Theory
- Integers
- Fraction and Rational Numbers
- Decimals, Real Numbers, and Proportional Reasoning
- Algebraic Reasoning

### **Required Texts and Other Materials**

Mathematical Reasoning for Elementary Teachers plus MyMathLab Student Access 7<sup>th</sup> Edition, by Long, DeTemple & Millman: Pearson.

Calculator  
TI-30XS MultiView

### **Student Assessment**

Assessment may be accomplished through projects, portfolios, online assignments, exams, presentations and/or papers.

### **Academic Integrity**

Plagiarism is cheating. Plagiarism is presenting in written work, in public speaking, and in oral reports the ideas or exact words of someone else without proper documentation. Whether the act of plagiarism is deliberate or accidental [ignorance of the proper rules for handling material is no excuse], plagiarism is, indeed, a “criminal” offense. As such, a plagiarized paper or report automatically receives a grade of **ZERO** and the student may receive a grade of **F** for the semester at the discretion of the instructor.

### **Available Resources**

If you are having difficulty with work in this class, tutoring is available through the Success Center. If you think that you might have a learning disability, contact Project Assist at 856.691.8600, x1282 for information on assistance that can be provided to eligible students.

**(List availability of open labs and/or writing center)**

### **Before Withdrawing From This Course**

If a student experiences adverse circumstances while enrolled in this course and considers withdrawing, s/he should see an advisor (division or advisement center) BEFORE withdrawing from the class. A withdrawal may cause harmful repercussions to completion rate standards and overall GPA which can limit or eliminate future financial aid in addition to causing academic suspension.