



Mathematics for Elementary Education I

Revised 08/011/10

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COURSE NUMBER: MAT 211

PREREQUISITE(S): MAT 102 with grade of C or better.

CO-REQUISITE(S): None

COURSE DESCRIPTIONS

This college transfer course includes the following topics: logic, set theory, properties and operations on counting numbers, integers, rational numbers, and real numbers.

TEXTBOOK(S):

Billstein, Libeskind, and Lott. *A Problem Solving Approach to Mathematics for Elementary School Teachers*, 10th Edition Pearson Education, 2010.

Dolan, Williamson, and Muri. *Mathematics Activities for Elementary School Teachers, A Problem solving Approach*, 10th edition., Pearson Education, 2010.

Textbooks bundled with MML: ISBN: 0321761359
MyMathLab stand alone: ISBN: 0-32119991X

REFERENCE(S):

OTHER REQUIRED MATERIALS, TOOLS, AND EQUIPMENT:

For most recent requirements go to :
<http://info.coursecompass.com/website/support.html>

Computer with Internet access, Internet Explorer 5.0 or higher or other current browser, Java, word processing software (must be able to save Word format), and anti-virus software.

METHOD OF INSTRUCTION:

This course will be taught via the internet. The concepts will be instructor-led by reading, watching, and/or exploring using an internet-based math tutorial and a textbook.

<u>GRADING SYSTEM:</u>	90	-	100	=	A
	80	-	89	=	B
	70	-	79	=	C
	60	-	69	=	D
	Below	-	60	=	F

**GRADE
CALCULATION
METHOD:**

See instructor's handout.

CONFIDENTIALITY:

All students' e-mail addresses may be available to other students in the class. Although some assignments in an online course may encourage or require peer communication, the instructor will make every effort to protect the confidentiality of any personal communication (for example, grades). However, you should recognize that e-mail and other electronic media are not secure; there is no guarantee of the privacy of your e-mail or other personal information.

**APPROPRIATE
ONLINE BEHAVIOR:**

The use of Spartanburg Community College's website, e-mail service or course management software for creation and/or distribution of material not pertaining to course participation is prohibited and is grounds for dismissal according to College policy under "disruptive behavior." Such actions, include, but are not limited to:

- Inappropriate use of email and discussion boards for:
 - ✓ Harassment
 - ✓ Unlawful solicitation
 - ✓ "Spamming"
 - ✓ "Flaming"
- Use of online editing tools within the course management software to:
 - ✓ Create offensive material
 - ✓ Link to inappropriate materials

ATTENDANCE

Requirement: All students must register in MyMathLab

POLICY:

during the first week of scheduled classes. At the end of the first week, the instructor will drop any student from the course who has not registered in MyMathLab.

Instructors maintain attendance records. However, it is the student's responsibility to withdraw from a course. A student who stops attending the online class and fails to initiate a withdrawal will remain on the class roster. *With this in mind, for every assignment, test or exam not completed while still enrolled in the course the student will receive a grade of zero and the final course grade will be calculated accordingly.*

Withdrawal Policy: During the first 75% of the course, a student may initiate withdrawal and receive a grade of W. A student cannot initiate a withdrawal during the last 25% of the course. Extenuating circumstances require documentation and approval by the appropriate department head and academic dean.

ACADEMIC CONDUCT:

ACADEMIC DISHONESTY: Students are expected to uphold the integrity of the College's standard of conduct, specifically in regards to academic honesty. All forms of academic dishonesty including, but not limited to, cheating on assignments/tests, plagiarism, collusion, and falsification of information will call for disciplinary action. Disciplinary action imposed may include one or more of the following: written reprimand, loss of credit for assignment/test, termination from course, and probation, suspension, or expulsion from the College. For further explanation of this and other conduct codes, please refer to the Student Handbook.

TESTING:

Tests will be taken online in approved Testing Centers with proctors. The instructor may allow, at most, one test to be taken online unproctored. For SCC students, tests will be taken online and will be administered in the **Testing Center located in E-3 of the East Building on the SCC campus.** If the SCC campus is not convenient, the student may contact the instructor for an alternate testing site. For Tech Online students, the test will be administered in the testing center at your host college. Refer to the class outline for test availability. If any test is not taken during the specified time frame, a zero will be awarded for the test grade. Everyone must take a comprehensive final exam.

East Building Room 3 Testing Center: PHOTO ID REQUIRED!

Go to <http://www.sccsc.edu/resources/testing> for hours of operation.

ACCOMMODATIONS: Students who need special accommodations in this class because of a documented disability should notify Student Disability Services. You may contact Student Disability Services by calling, (864) 592-4811, toll-free 1-800-922-3679; via email through the Spartanburg Community College web site at <http://www.sccsc.edu/resources/disabilities> ; or by visiting the office located in the Dan Lee Terhune Student Services Building, room 112 of the Spartanburg Community College campus. By contacting Student Disability Services early in the semester, students with disabilities give the College an opportunity to provide necessary support services and appropriate accommodations.

**COURSE OUTCOMES
& OBJECTIVES:**

Upon satisfactory completion of this course, the students should be able to demonstrate competency in the General Education Outcome listed as “their ability to express themselves effectively in quantitative and qualitative terms” in the following competencies and objectives:

- I. Use appropriate strategies for problem-solving (6 hrs.)
 1. Solve problems by discovering patterns and using inductive reasoning.
 2. Use Polya’s four-step process for solving problems
 3. Use the calculator as a problem-solving tool.

- II. Use sets, whole numbers and functions to develop operations (7 hrs.)
 1. Use correct terminology in describing sets.
 2. Perform operations on sets.
 3. Draw and analyze Venn diagrams.
 4. Distinguish between relations and functions and perform operations.

- III. Solve applications of logic problems (2 hrs.)
 1. Determine the validity of arguments.
 2. Solve a logic problem through reasoning and elimination.

- IV. Develop models and algorithms to complete operations with whole numbers (8 hrs.)
 1. Write numbers in other numeration systems.
 2. Use models to demonstrate addition, subtraction, multiplication, and division of whole numbers.
 3. Add, subtract, multiply, and divide whole numbers using various algorithms.
 4. Write numbers in different bases and convert between these bases and base ten.

- V. Develop models and algorithms to complete operation with integers. (6 hrs.)
 1. State the properties of integers and recognize their use in solving problems.
 2. Use models and rules to add, subtract, multiply, and divide integers.
 3. Perform calculations on integers using the order of operations.

- VI. Explore topics in number theory (6 hrs.)
 1. Use the common tests for divisibility.
 2. Write composite numbers as a product of their prime factors.
 3. Find the greatest common divisor and least common multiple of numbers.

- VII. Perform operations on real numbers, with emphasis on rational

numbers. (10 hrs.)

1. Build a set of equivalent fractions and write fractions in simplest form.
2. Add, subtract, multiply, and divide rational numbers.
3. Use the order and denseness properties to build a set of rational numbers.
4. Solve problems involving exponents.

SYLLABUS ADDENDUM
for Mat 211
Revised 01/2010

Chapter 1 An Introduction to Problem Solving **10 hours**

- 1.1 Explorations with Patterns
- 1.2 Mathematics and Problem Solving
- 1.3 Reasoning and Logic: An Introduction

Chapter 2 Numeration Systems and Sets **8 hours**

- 2.1 Numeration Systems
- 2.2 Describing Sets
- 2.3 Other Set Operations and Their Properties

Chapter 3 Whole Numbers and Their Operations **6 hours**

- 3.1 Addition and Subtraction of Whole Numbers
- 3.2 Algorithms for Whole Number Addition and Subtraction
- 3.3 Multiplication and Division of Whole Numbers
- 3.4 Algorithms for Whole Number Multiplication and Division
- 3.5 Mental Mathematics and Estimation for Whole Number Operations

Chapter 4 Algebraic Thinking **3 hours**

- 4.1 Variables
- 4.2 Equations
- 4.3 Functions

Chapter 5 Integers and Number Theory **6 hours**

- 5.1 Integers and the Operations of Addition and Subtraction
- 5.2 Multiplication and Division of Integers
- 5.3 Divisibility
- 5.4 Prime and Composite Numbers
- 5.5 Greatest Common Divisor and Least Common Multiple
- 5.6 Clock and Modular Arithmetic (optional, if time permits)

Chapter 6 Rational Numbers and Fractions **9 hours**

- 6.1 The Set of Rational Numbers
- 6.2 Addition and Subtraction of Rational Numbers
- 6.3 Multiplication and Division of rational Numbers