SMTE 1350.001 Syllabus
Fundamentals of Math I
Summer I, 2013

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Course Description

This course provides the conceptual framework for understanding and applying properties, models and operations of number systems. Related topics are studied in problem solving settings. Most students in this course have learned mathematics through a rule-based, abstract instructional program. This course is designed to emphasize in-depth basic understandings of number systems and arithmetic patterns, which are core ideas in the elementary mathematics curriculum. Communicating concepts, processes or solutions effectively, in oral and written forms, will be emphasized.

Prerequisites

MATH 1314: College Algebra or equivalent, or placement beyond College Algebra on the departmental placement test.

Textbooks & Materials

- *Mathematical Reasoning for Elementary Teachers*, Long, Temple, Millman, 6th Edition. Students will need to purchase registration for MyLabsPlus (comes packaged with the textbook at the campus Barnes and Noble bookstore and the Islander Book Store). Any scientific calculator, TI-83, or elementary calculators TI –10 or TI-15 Explorer, or TI-35 ($10 at Walmart)

Instructional Methods

The syllabus will provide an outline of course topics, supported by the textbooks. Students are responsible for their own learning, using resources and technology. The course will be a combination of lectures, individual, and group work. Students are expected to participate in group and whole class discussions by contributing with knowledge and thoughtful evaluation of the contribution of others. A substantial portion of the class instructional plan will be using physical models to teach the content topics, and understanding how learning occurs
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through their use. Students will be using My Math Lab (online) to do a majority of their homework assignments.

Important Dates:
Attendance required at ME by the Sea Conference, Friday, June 14th.
1. Last day to drop a class Friday, June 21st.
2. The last day of class is Friday, July 5th.
3. Final Exam — Friday, July 5th during class.

Assessment & Evaluation

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<th>HOMEWORK-My Math Lab online assignments, Qwizdom, class participation</th>
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<td>Quizzes- Chapter tests</td>
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<td>TEST – Final Exam</td>
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Participation: Each student is expected to be fully involved in class. Absences will affect this part of your grade. Attendance will be recorded and counts 10% of your grade. The maximum number of unexcused absences allowed will be one for a class that meets only ten times during Summer 1. To be qualified to make up work, students need to email Mrs. Venzon within 24 hours of absence with reason for missing class. Some classwork cannot be made up. Please be present.

Quizzes & Chapter tests: There will be chapter tests some online some in class, and a cumulative final that shows up under Quizzes on My Math Lab. Grades can be looked at in the Gradebook section of My Math Lab.

Portfolio: Each student should keep a portfolio, in a three ring binder with dividers and labeled tabs, representing the work they have done for the class. This portfolio will be submitted to the professor at the midterm and the end of the semester. Most homework will consist of in class assignments, which will be due by the next class period.
Class Policies

Cell phones, pagers, and earpieces: Please turn cell phones off during class. Please remember to bring your calculator; no cell phones, pagers, or earpieces will be allowed in sight during quizzes and exams (please put them in your bag).

Written work: Written hardcopy assignments must be typewritten or neatly printed with pages stapled together (no folding, paper clips, or plastic covers please). The professor reserves the right to penalize sloppy, unorganized, unstapled, misspelled or poor grammatical work. The Writing Center is available for help with written assignments.

Late Work: Students are encouraged to always turn in work on time. However, if situations dictate that work will be late, please notify the instructor and turn it in as soon as possible. Late work deadlines and points awarded may be adjusted at the discretion of the instructor.

Make-up Work: In the case of an excused absence, make-up work may be allowed. Homework deadlines and points awarded may be adjusted at the discretion of the instructor. Students must email instructor within 24 hours of an absence with a reason in order to qualify to make up work. Some daily work cannot be made up because it happens in class.

Dropping the course: Should you find yourself in the situation where you are considering dropping the course, you are highly encouraged to discuss this matter with the instructor.

Registration: You are the only person responsible for your registration in this class. If for some reason you decide not to continue with the course, you will need to see your advisor or the registrar to drop the course. If you quit coming to class and do not drop, you will be assigned a grade based on the work you have completed, usually an F.

Help: The best source of help for this course is the people directly involved in this course: your peers or the professor, in class or during office hours. Don’t wait for the last minute to get HELP.

Attendance: Plan to attend all sessions. Students are expected to be present and on time for all class meetings. I assume pre and in-service teachers to be professional learners, with maturity to understand the importance of being present in the classroom. If you must be absent, please communicate with the instructor before class or as soon as possible. Email is encouraged marcia.venzon@tamucc.edu or you may call my office at 825-6026 and leave a message. You are responsible for
any work missed. You can get free medical attention at the University Health Center (825-2601)

**Academic Honesty:** All students are expected to conform to college-level standards of ethics, academic integrity, and academic honesty. By enrolling in this course, you agree to adhere to the Regulations and Procedures published in the TAMU-CC Student Handbook.

**Disabilities:** The Mathematics Program complies with the Americans with Disabilities Act in making reasonable accommodations for qualified students with disabilities. If you need disability accommodations in this class, please see me as soon as possible. Please have your accommodation letter from TAMU-CC Services for Students with Disabilities Office with you when you come see me. If you suspect that you may have a disability (physical impairment, learning disability, psychiatric disability, etc.), please contact the Services for Students with Disabilities Office (located in Driftwood 101) at 825-5816. It is important that you contact them in a timely fashion as it may take several days to review requests and prepare accommodations.

**COURSE OBJECTIVES**

This course is designed to enable students to achieve mathematics content and process goals as specified below. These are the Educator Standards prescribed by the State Board for Educator Certification (SBEC) for Texas. Some of the goals are related to specific content and will be focused on during one or more classes, while other goals are overarching in nature and will be addressed throughout the course.

**Standard I: Number Concepts**

The mathematics teacher understands and uses numbers, number systems and their structure, operations and algorithms, quantitative reasoning, and technology appropriate to teach the statewide curriculum (TEKS) in order to prepare students to use mathematics.

**Standard V: Mathematical Processes**

The mathematics teacher understands and uses mathematical processes to reason mathematically, to solve mathematical problems, to make mathematical connections within and outside of mathematics, and to communicate mathematically.

**Standard VI: Mathematical Perspectives**
The mathematics teacher understands the historical development of mathematical ideas, the interrelationship between society and mathematics, the structure of mathematics, and the evolving nature of mathematics and mathematical knowledge.

**STUDENT LEARNING OUTCOMES**

**Sequences**

- Identify patterns, predict next term, find and apply formulas for arithmetic, geometric, Fibonacci, “see-and-say”, exponential ($n^x$), and power sequences ($2^n$)
- Model sequences concretely, symbolically and abstractly

**Functions**

- Illustrate concepts of relations and functions using concrete models, tables, graphs, and symbolic expressions
- Move from sequences to functions – model algebraically, geometrically and graphically

**Number systems**

- Compare and contrast number systems (additive, subtractive, character, place value)
- Identify the structure of the real number system
- Describe the roles of zero, face and place value in the base ten system
- Model whole numbers using Base 10 blocks
- Analyze, explain and model binary operations on whole numbers using Base 10 blocks
- Recognize and analyze standard and non-standard algorithms for binary operations on whole numbers
- Analyze error patterns of students working standard algorithms for binary operations on whole numbers
- Recognize and apply properties of real numbers

**Prime and composite numbers**

- Explain two or more reasons why one is not a prime number
- Develop full definitions of prime and composite numbers
- Identify prime numbers between 1-100 and how to find prime numbers greater than 100
- Determine the prime factorization of any given whole number
- Find GCF/LCM for a given set of whole numbers
- List all factors of a given number
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Integers, exponents and roots

• Model integers using 2-color chips
• Analyze, explain and model binary operations on integers using 2-color chips
• Apply operations and properties of exponents and roots for rational numbers
• Simplify roots and approximate using a calculator
• Explore historical/cultural scenarios using powers of two

Rational numbers

• Model fractions using Cuisenaire rods
• Model binary operations on fractions using Pattern blocks, Cuisenaire rods, Fraction bars and Fraction grids (area models)
• Explain and justify traditional algorithms for binary operations on fractions
• Create equivalent fractions using paper or manipulatives
• Explain why rational numbers are dense on the real numbers and give an example of a number set that is not dense and explain
• Put a set of fractions in order from smallest to greatest
• Find at least two fractions between a given pair of fractions

Communication

• Communicate mathematical ideas and concepts in age-appropriate oral, written and visual forms for a class presentation

Technology

• Use appropriate technology such as calculators and computers to explore, research, solve, and compare mathematical situations and problems