**MATHEMATICS** **1100-< section #>**

**FOUNDATIONS OF THE REAL NUMBER SYSTEM FOR ELEMENTARY AND MIDDLE SCHOOL TEACHERS**

**< Semester, Year>**

**<Days, Time, Location>**

**Instructor:**

**Office:**

**Phone/Text**:

**Email:**

**Office hours:** < office hours and location>

**Final Exam:** < date, time, location>

**Co-requisite: Math 1101 if support instruction is required (Math Placement Category III or IV)**

**Textbook:** P*roblem Solving Approach to Mathematics for Elementary School Teachers*12rd Edition by Rick Billstein, Shlomo Libeskind, Johnny W. Lott (ISBN-13: 978-0321990594; ISBN-10: 0321990595)  
Option 1: Paper Book ISBN-13:9780321756664

Option 2: Mymathlab access code (which includes the e-text) at the bookstore, the Bookmark, or at www.mymathlab.com.

**Topical outline:**Integers and elementary number theory, rational numbers, decimals and percent, ratio and proportion, alternate bases, and word problems, algorithms for arithmetic operations.

**Student learning outcomes (SLO):**Students who successfully complete this course will be able to:  
1. Compare numeration systems, including their historical development, with attention to base numeration systems, exponents, scientific notation, and place values,   
  
2. Evaluate the equivalence of numeric algorithms and explain the advantages and disadvantages of equivalent algorithms in different circumstances,

3. Analyze algorithms from number theory to determine divisibility in a variety of settings, such as different base systems and modular arithmetic,  
  
4. Analyze the structure and properties of whole, rational, and real number systems; define the concept of rational and irrational numbers, including their decimal representation; and illustrate the use of a number line representation,  
5. Analyze multiple approaches to solving problems from elementary and advanced levels of mathematics, using concepts and tools from sets, functions, and logic, and

6. Explain the concept of rational numbers, using both ratio and decimal representations; analyze the arithmetic algorithms for these two representations; and justify their equivalence; and (b) Analyze the structure and properties of whole, rational, and real number systems; define the concept of rational and irrational numbers, including their decimal representation; and illustrate the use of a number line representation.**This course is graded ABC/NC for undergraduate students and AB/NC for graduate students.**

**Requirements:**

**Grading system:**

**ADA statement:** Reasonable accommodation will be provided to any student who is registered with the Office of Students with Disabilities and requests needed accommodation.

**Academic honesty statement:** Students are expected to do their own work. Copying the work of others, cheating on exams, and similar violations will be reported to the University Discipline Officer, who has the authority to take disciplinary actions against students who violate the standards of academic honesty.

**Student responsibilities:** Students are responsible for being aware of all announcements that are made in class, such as changes in exam dates, due dates of homework and papers, and cancellation of class due to instructor's absence. Students are responsible for announcements made on days that they are absent **Students must check their CSULA email account regularly** for information from the instructor and the Department Failure to do so may result in missed deadlines or other consequences that might adversely affect students. Note that you can forward this email account to any other account of your choosing.

**Important dates:**