MATH 1350
Student Course Document – Revised Spring 2011

1. Course Title: Foundations of Mathematics I

2. Prerequisite: College Algebra (Math 1314) or by Departmental Approval
   Engl 0305 or 0316 (developmental reading) or placement by testing
   Corequisite: Engl 0307 or 0326 (developmental writing) or placement by testing

3. Credit: Three (3) semester hours

4. Materials Needed:
   4.1 Textbook: Mathematics for Elementary Teachers, A Contemporary Approach; 8th edition; Musser, Burger, Peterson
   4.2 Calculators: The student will be expected to own and use a scientific calculator or a graphing calculator.

5. Purpose:

   The Foundations of Mathematics sequence is designed to meet the mathematics requirements for students seeking to obtain an elementary teaching certificate from state universities.

   NOTE: Mathematics requirements for elementary education majors vary greatly across the state of Texas. Students should make an effort to obtain information concerning transfer requirements directly from the institution to which the student is transferring.

6. Major Course Objectives:

   6.1 The student will explore patterns using:
       • Polya’s four step problem solving process
       • basic problem-solving strategies and techniques
       • sequences (arithmetic, geometric and others)
       • different formats (recursion, function notation etc)

   6.2 The student will learn to use basic set theory and the idea of a function to model both abstract and concrete ideas. The following ideas and concepts will be used to accomplish this objective:
       • Venn-diagrams
       • basic set terminology and vocabulary (universal and empty set, finite set, infinite set, etc)
       • set relationships, operations and properties
       • functions
       • basic logical arguments incorporating and, or, not and if-then (optional)

   6.3 The student will investigate the fundamental properties of the whole numbers and numeration using:
       • different models for each basic operation
       • concepts such as binary operation, closure etc
       • properties such as Commutative, Associative, Distributive, Identity etc.
       • ancient and present day numeration systems
6.4 The student will learn the basic ideas and concepts of number theory. The following ideas will be covered in this unit:

- prime numbers, composite numbers, the Sieve of Eratosthenes
- basic divisibility tests
- the Fundamental Theorem of Arithmetic
- the greatest common divisor (GCD) and least common multiple (LCM)
- algorithms for finding the GCD and LCM
- applications which require the use of the LCM and GCD

6.5 The student will investigate and learn to apply the fundamental properties of the integers. The following concepts, properties and techniques will be encountered in this investigation:

- absolute value
- modeling the basic operations using various methods including manipulatives
- properties of the integers such as additive inverse, closure, the commutative, associative
- and distributive properties, identity and properties of zero
- integer exponents

6.6 The student will gain insight into the fundamental properties of and relationships between the real number system, the rational numbers and the irrational numbers. The following ideas and properties will be used during this unit:

- modeling rational numbers using various methods, including manipulatives
- the Equivalent Fractions Property
- proper fractions, improper fractions, and mixed numbers
- terminating decimals, repeating decimals and decimals that do neither
- order as it relates to fractions and decimals
- properties of the real and rational numbers, including multiplicative and additive
- inverse properties, closure, commutative, associative and distributive
- properties, identity properties, and properties involving zero
- square roots and higher order roots
- properties of exponents
- the Pythagorean Theorem
- applications, including percents, and ratio and proportion

6.7 The student will explore ways in which elementary school math students can be “turned on” to mathematics

7. **General Course Outline:**

   Textbook Chapters 1 through 9.2
8. **MyLoneStar:**

MyLoneStar gives students, faculty, and staff access to important academic information. It allows a student to register, search for courses, obtain financial aid information, pay tuition and fees, and view course grades. From www.lonestar.edu, click on MyLoneStar at the top right corner. Follow the instructions for securing your user name and password under the Self-Service Tools. Please contact the helpdesk at 1-866-614-5014 or send an email to ots@lonestar.edu for further assistance.

9. **Withdrawal Policy/Student Drop Limit:**

Students who enrolled in Texas public institutions of higher education as first-time college students during the Fall 2007 term or later are subject to section 51.907 of the Texas Education Code, which states that an institution of higher education may not permit a student to drop (withdraw with a grade of “W”) from more than six courses. This six-course limit includes courses that a transfer student has previously dropped at other Texas public institutions of higher education if they fall under the law.

Students should be sure they fully understand this drop limit before they drop a course. Please visit the admissions office or counseling/advising center for additional information and assistance.

10. **Academic Integrity:**

The Lone Star College System upholds the core values of learning: honesty, respect, fairness, and accountability. The system promotes the importance of personal and academic honesty. The system embraces the belief that all learners-students, faculty, staff and administrators-will act with integrity and honesty and must produce their own work and give appropriate credit to the work of others. Fabrication of sources, cheating, or unauthorized collaboration is not permitted on any work submitted within the system.

The consequences for academic dishonesty are determined by the professor and academic dean, or the professor and chief student services officer and can include but are not limited to:

1. Having additional class requirements imposed,
2. Receiving a grade of zero or “F” for an exam or assignment,
3. Receiving a grade of “F” for the course,
4. Being withdrawn from the course or program,
5. Being expelled from the college system.

11. **Division Counselor:**

Rhonda Cannon, Counselor for Math and Natural Sciences, is available in Winship 115G to assist you in meeting your academic, career, and personal goals. Confidential counseling services are available by appointment to help you overcome academic challenges, make a career choice, plan your transfer, and to gain self-understanding. To schedule an appointment call 281-618-5480 or email rhonda.cannon@lonestar.edu or stop by Winship 115G.

* It is the responsibility of the student to drop a class by “W” day if he/she desires.

* Students with disabilities, who wish to request accommodations in this class, must notify the Disability Services Office as soon as possible so that the appropriate arrangements may be made. Students requesting accommodations must provide documentation of his/her disability to a Disability Services counselor. For more information, call or visit the Disability Services Office at A 104, (281) 618-5481.