COURSE SYLLABUS: Math 185-02, 3 credit hours, Spring 2007
FOUNDATIONS OF MATHEMATICS FOR ELEMENTARY TEACHERS (II)

CLASSROOM AND SCHEDULE: Tuesday and Thursday, 12:30 – 1:50 PM
Room 431 Lee Drain Building

INSTRUCTOR: Dr. Linda Zientek
Office: Room 421B, Lee Drain Building
Phone: 936-294-4874 Email: lrzientek@shsu.edu
FAX: 936-294-1882
Office Hours: Tues/Thurs, 10:00-noon, Mon./Wed., 2:00-3:00
Appointments by special arrangement

COURSE OBJECTIVES/COURSE DESCRIPTION:
This course is the second in a series of courses designed to develop the necessary foundations in mathematics for prospective elementary teachers. Students are expected to practice communications skills and participate in hands-on activities, including the use of math manipulatives and technology. Topics will include National and Texas standards for teaching mathematics, decimals, the real number system, geometry, and measurement. The four main themes recommended by the NCTM Principles and Standards (problem solving, reasoning, communication, and connections) will be emphasized throughout this course. Students will also participate in class discussions and group work during this course. Prerequisite: Math 184 with a grade of C or better. 3 semester hours.

COURSE OBJECTIVES:
Upon completion of this course, students will be able to:

- Select appropriate representations of decimals and percents for particular situations
- Demonstrate an understanding of a variety of models for representing decimals and percents
- Work proficiently with decimals and their operations
- Use a variety of concrete and visual representations to demonstrate the connections between decimal operations and algorithms
- Solve ratio and proportion problems
- Select and use appropriate units of measurement (e.g., temperature, money, mass, weight, area, capacity, density, percents, speed, acceleration) to quantify, compare, and communicate information
- Develop, justify, and use conversions within measurement systems
- Describe the precision of measurement and the effects of error on measurement
- Apply the Pythagorean theorem and proportional reasoning, to solve measurement problems
- Understand concepts and properties of points, lines, planes, angles, lengths, and distances
- Analyze and apply the properties of parallel and perpendicular lines
- Use the properties of congruent triangles to explore geometric relationships
- Use and understand the development of formulas to find lengths, perimeters, areas, and volumes of basic geometric figures
- Apply relationships among similar figures, scale, and proportion and analyze how changes in scale affect area and volume measurements
- Use a variety of representations (e.g., numeric, verbal, graphic, symbolic) to analyze and solve problems involving two- and three-dimensional figures such as circles, triangles, polygons, cylinders, and prisms
- Use translations, reflections, glide-reflections, and rotations to demonstrate congruence and to explore the symmetries of figures
- Use dilations (expansions and contractions) to illustrate similar figures and proportionality
- Use symmetry to describe tessellations and shows how they can be used to illustrate geometric concepts, properties, and relationships

TEXT AND MATERIALS:

Long, Calvin and DeTemple, Duane W. (2006). Mathematical Reasoning for Elementary Teachers (Fourth Edition). Boston, MA: Pearson Education, Inc.

Supplemental materials provided by the instructor

A scientific or graphing calculator is recommended for this course.

GRADING:

Grades for this course will be based on the following:

Exams 60%
Daily 20%
Final 20%

A = 90 or higher, B = 80 – 89, C = 70 – 79, D = 60-69, F = below 60

ATTENDANCE:

Regular and punctual attendance is expected of every student. As a prospective teacher, you must demonstrate your reliability and conscientious attitude by your faithful attendance. Attendance will be taken every class. Tardies will count against your attendance record (3 tardies = 1 absence). Unless approved by the instructor, leaving class early will count as an absence. If absent or tardy, you are still responsible for all material covered in class, and you will need to check with a classmate about what was discussed. Serious health or family problems that are well documented will be handled individually. However, if you are unable to attend class regularly, you should drop the course.

In addition to attending class faithfully, students are expected to put forth their best effort in this class. If you do not participate in class discussions, are sleeping in class, are reading magazines, are working on materials for other courses, or are talking when I am talking or when a classmate is talking, you are not demonstrating the professional attitude required to be a teacher.

TESTS AND ASSIGNMENTS:

Tests will include problems that are based on the mathematical concepts taught during class. If no more than two absences have been acquired at the time of the final and the final is higher than a previous exam grade, the final can replace the lowest test grade. If an exam was missed (i.e., exam grade is a zero) then the final can only be used to replace the zero (see make-up policy below). Homework will be assigned daily. It should be kept in a folder with dividers for each chapter. Late homework and projects will normally not be accepted. Quizzes and projects will be administered throughout the semester. The quizzes will be unannounced and will cover the material presented on the previous class day. The lowest two daily grades will be dropped.

Make-up Policy: Unless approved by the instructor prior to the date of a test, there will be no make-up for a missed test. A missed final examination can be made up only by approval of the Dean of the College of Arts and Sciences or a higher administrative official. If an exam is missed, the final can replace the lowest exam grade.

STUDENT SYLLABUS GUIDELINES:

You may find online a more detailed description of the following policies. These guidelines also provide you with a link to the specific university policy or procedure:

http://www.shsu.edu/syllabus/

Academic Dishonesty: Students are expected to maintain honesty and integrity in the academic experiences both in and out of the classroom. *See Student Syllabus Guidelines*.

Classroom Rules of Conduct: Students are expected to assist in maintaining a classroom environment that is conducive to learning. Students are to treat faculty and students with respect. Students are to turn off all cell phones while in the classroom. Under no circumstances are cell phones or any electronic devices to be used or seen during times of examination. Students may tape record lectures provided they do not disturb other students in the process.

Student Absences on Religious Holy Days: Students are allowed to miss class and other required activities, including examinations, for the observance of a religious holy day, including travel for that purpose. Students remain responsible for all work. *See Student Syllabus Guidelines*.

Students with Disabilities Policy: It is the policy of Sam Houston State University that individuals otherwise qualified shall not be excluded, solely by reason of their disability, from participation in any academic program of the university. Further, they shall not be denied the benefits of these programs nor shall they be subjected to discrimination. Students with disabilities that might affect their academic performance should visit with the Office of Services for Students with Disabilities located in the Counseling Center. *See Student Syllabus Guidelines*.

Visitors in the Classroom: Only registered students may attend class. Exceptions can be made on a case-by-case basis by the professor. In all cases, visitors must not present a disruption to the class by their attendance. Students wishing to audit a class must apply to do so through the Registrar's Office.

The Sam Houston Writing Center: The Sam Houston Writing Center provides one-on-one help with your writing assignments. The Center is open from 8 a.m. to 7 p.m. Monday through Thursday, 8 a.m. to 3 p.m. Friday, and 2-7 p.m. on Sunday. Currently, we are located in Wilson 114. Look for signs on campus announcing our new location in Farrington 111, when we are open in that location. It is not necessary to schedule an appointment; however, you may call 936-294-3680, twenty-four hours in advance to schedule one.

MATH 185 COURSE SCHEDULE (TENTATIVE)

WEEK OF	TOPIC	READINGS
Jan 17	Introduction and Decimals	7.1, 7.2
Jan 22	Standards	
Jan 24	Decimals, Ratios, proportions	7.2, 7.3
Jan 29	Ratio, proportion, percent	7.3, 7.4
Jan 31	Figures in the Plane	11.1
Feb 5	**Exam #1 (Feb. 5)**	
Feb 7	Project	
Feb 12	Figures in the Plane, Curves and polygons	11.1, 11.2
Feb 14	Curves and polygons	11.2
Feb 19	Project – 3-dimensional Figures	
Feb 21	Figures in Space	11.3
Feb 26	Triangle congruence	14.1
Feb 28	**Exam #2 (Feb. 28)**	
Mar 4	Similarity	14.3
Mar 6	Similarity transformations	13.1
Mar 10-14	Spring Break	
Mar 18	Similarity transformations	13.1
Mar 20	Symmetry, Tessellations	13.2, 13.3
Mar 25	Project	
Mar 27	**Exam #3 (March 27)**	
Apr 1	Measurement	12.1
Apr 3	Measurement	12.1
Apr 8	Perimeter/Area	12.2
Apr 10	Area	12.2
Apr 15	Pythagorean Theorem	12.3
Apr 17	**Exam #3 Apr. 17**	
Apr 22	Surface Area	12.4
Apr 24	Surface Area/Project Presentations	12.4
Apr 29	Project Presentations	
May 1	**Exam #4 April 29**	
May 6	Volume	12.4
May 8	Volume	12.4
Final Exam:	**Thursday, May 13, 11 – 1 PM**	