COURSE SYLLABUS: Math 185-04, 3 credit hours, Fall 2007
FOUNDATIONS OF MATHEMATICS FOR ELEMENTARY TEACHERS (II)

CLASSROOM AND SCHEDULE: Tuesday and Thursday, 2:00 – 3:20 PM
Room 402, Lee Drain Building

INSTRUCTOR: Dr. Linda R. Zientek
Office: Room 421B, Lee Drain Building
Phone: 936-294-4874 Email: lrzientek@shsu.edu
FAX: 936-294-1882
Office Hours: Tues./Thurs. 11:00 – 2:00 Mon/Wed . 10:30 – 11:00 and 12:20 – 1:00
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. Topics include basic notions of Euclidean Geometry in 2 and 3 dimensions, ratio, proportions, percents, decimals, concepts of congruence and similarity, transformational geometry and measurement. Credit in this course is applicable only toward elementary/middle school certification. Prerequisites: MTH 184 with a grade of C or better. Credit 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.

Grading Policy:

Homework & Projects	20%
Major Exams(3 exams)	60%
Final Exam	20%

Final grades will be assigned as follows:

A:	90 - 100
B:	80 - 89
C:	70 - 79
D:	60 - 69
F:	Less than 60

There will be three **Major exams** given in this course. Exams are free response and work must be shown. The instructor reserves the right to limit the type and/or use of specific calculators and programs on quizzes and exams. A tentative test schedule is included in this document. There will be comprehensive final exam.

Daily Average: Homework will be assigned daily. It should be kept in a folder with dividers for each chapter. 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: If a student misses a major exam, it is the student's responsibility to see the instructor before the next class period. Exams, quizzes, and homework can only be made up if there is documentation of an illness or death in the family.

Attendance Policy: Students are expected to attend all classes. If a student is tardy, it is the student's responsibility to notify the teacher he/she is present, otherwise the absence will remain in the record book.

STUDENT SYLLABUS GUIDELINES: Student syllabus guideline are located at:

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*.

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*.

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. 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)

DATE	TOPIC	READINGS
Aug 21	Introduction, standards	
Aug 23	Decimals	7.1
Aug 28	Decimals	7.1
Aug 30	Computations with Decimals	7.2
Sept 4	Ratios and Proportions	7.3
Sept 6	Percent	7.4
Sept. 11	Figures in the Plane	11.1
Sept 13	**Exam I (Chapter 7)**	
Sept 18	Figures in the Plane	11.1
Sept 20	Curves and Polygons	11.2
Sept 25	Figures in Space	11.3
Sept 27	Figures in Space	11.3
Oct 2	Congruent Triangles	14.1
Oct 4	Constructing Geometric Figures	14.2
Oct 9	Similar Triangles	14.3
Oct 11	Project	
Oct 16	**Exam II (Chapter 11 & 14)**	
Oct 18	Similarity Transformations	13.1
Oct 23	Similarity Transformations	13.1
Oct 25	Patterns and Symmetries	13.2
Oct 30	Tilings and Escher-Like Design	13.3
Nov 1	Project	
Nov 6	Measurement	12.1
Nov 8	Area/perimeter	12.2
Nov 13	Area/perimeter	12.2
Nov 15	**Test 3 (Chapter 13 and 12.1, 12.2)**	
Nov 20	Pythagorean Theorem	12.3
Nov 27	Pythagorean Theorem & Surface Area	12.3 & 12.4
Nov 29	Volume	12.4
Dec 4	Volume	12.4
Dec 6	Project	

Final Exam: Thursday, December 13
2:00 – 4:00