COURSE SYLLABUS: MTH 185-01 and MTH 185-03, 3 credit hours, Spring 2008
FOUNDATIONS OF MATHEMATICS FOR ELEMENTARY TEACHERS (II)

CLASSROOM AND SCHEDULE: Monday and Wednesday, 9:30 – 10:50 AM, Section 03
     Room 431, Lee Drain Bldg   Monday and Wednesday, 12:30 – 1:50 PM, Section 01

INSTRUCTOR: Dr. Bill Jasper
       Office: Room 439A, Lee Drain Building
       Phone: 294-1575   Email: jasper@shsu.edu   FAX: 936-294-1882
       Office Hours: Monday & Wednesday, 8:30 – 9:30 AM, 11 – 12 noon, and 3– 4 PM
               Monday, 5 – 5:30 PM and 8:20 – 9:20 PM (University Center only)
               Appointments on Tuesday and Thursday 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 total number of points earned, as listed below:
A = 450 points or more   B = 400 - 449 pts   C = 350 - 399 pts   D = 3000 - 349 pts
F = below 300 pts

Grades will be assigned for the following areas:
Three exams, weighted 100 points each
Homework and projects - 50 points
Class participation, attendance, professionalism - 50 points*
Comprehensive final exam - 100 points

* for serious attendance or professionalism problems, overall grades may be lowered by an additional letter grade.

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. Students who miss more than two classes (three hours) during the semester will be assessed a point penalty (up to 50 points and reduction of one letter grade) for severe attendance problems) toward their course grade. Attendance will be taken every class. If you are late to class, it is your responsibility to let me know immediately after the class. Any student who is more than 30 minutes late to class will be charged a half-absence. 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 or me 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. Point penalties will be assessed for any problems in this area. Up to 50 points are designated for participation, attendance and professionalism in this course, and you must be "near perfect" to earn all of these points.

TESTS AND ASSIGNMENTS:
Tests will include problems that are based on the mathematical concepts taught during class. A portion of each test may include multiple choice or short answer problems. A second portion of each test

may include problems where students must show all of their work correctly, as well as arrive at the correct solution. Unless approved by the instructor prior to the date of a test, there will be no make-up for a missed test. If a student misses a test, then the final exam will count double. 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.

Homework assignments and short projects will sometimes be collected for a grade. Late homework and projects normally will not be accepted. Zero points will be recorded for any assignment not turned in on or before the class date when it is due (even if you are absent that day).

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 16	Introduction, standards	
Jan 21	Decimals (Jan. 21 Holiday)	7.1
Jan 28	Decimals, Ratios, proportions	7.2, 7.3
Feb 4	Ratio, proportion, percent	7.3, 7.4
Feb 11	**Exam #1 (Feb. 11)** Figures in the Plane	11.1
Feb 18	Figures in the Plane Curves and polygons	11.1 11.2
Feb 25	Curves and polygons Figures in space	11.2 11.3
Mar 3	Figures in space **Exam #2 (Mar. 5)**	11.3
Mar 7	**Last day to drop w/o an F**	
Mar 10-14	Spring Break	
Mar 17	Congruent triangles	14.1
Mar 24	Triangle congruence, similarity	14.1, 14.3
Mar 31	Similarity transformations	13.1
Apr 7	Symmetry	13.2
Apr 14	Tessellations **Exam #3 Apr. 16**	13.3
Apr 21	Measurement	12.1
Apr 28	Area/perimeter, Pythagorean Theorem	12.2, 12.3
May 5	Surface area, volume	12.4

Final Exams: Wednesday, May 14, 2 PM – 4 PM, Section 01 (12:30 PM class)
Wednesday, May 14, 8 AM – 10 AM, Section 03 (9:30 AM class)