

COURSE SYLLABUS
Math 185, Section 06
FOUNDATIONS OF MATHEMATICS FOR ELEMENTARY TEACHERS (II)
CREDIT HOURS: 3
Spring 2008

Classroom and Schedule: Lee Drain Building, Room 431,
Tuesdays and Thursdays, 8:00-9:30 a.m.

Instructor information:

Dr. Dustin L. Jones

Office: Room 421C Lee Drain Building

Phone: 936-294-4776 Fax: 936-294-1882

Email: DLJones@shsu.edu

Office hours: 1:30-2:00 Mondays and Wednesdays

9:30-11:00 Tuesdays and Thursdays

Many other times available by appointment, email, or simply dropping by

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 communication skills and participate in hands-on activities, including the use of mathematical manipulatives and technology. Topics will include National and Texas standards for teaching mathematics, including decimals, the real number system, geometry, and measurement. The five main mathematical processes recommended by the NCTM Principles and Standards (problem solving, reasoning, communication, connections, and representations) will be emphasized throughout this course. Students will also participate in class discussions and group work. 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

REQUIRED TEXTBOOK:

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

Up-to-date course information will be posted on Blackboard. **Please check Blackboard regularly.**

SUPPLIES: To be ready for action during each class, you will need to have:

- a scientific or graphing calculator
- colored pencils, pens, or crayons
- scissors
- protractor
- ruler that measures in inches and centimeters

ATTENDANCE POLICY: 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. Any student who is more than 30 minutes late to class will be counted absent. Tardies will count against your attendance record, at the rate of 3 tardies equaling one 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.

In addition to attending class faithfully, students are expected to put forth their best effort in this class. This includes, but is not limited to, actively participating in class discussions and activities. By way of contrast, unprofessional behaviors (such as sleeping, texting, laying your head on the desk, reading the newspaper, or studying for other classes) will not be tolerated.

Students who are present and actively engaged in class activities for the entire period will earn ½ point per day toward attendance and class participation, for a semester total of 15 points.

ASSIGNMENTS: One of the indicators of the understanding of a concept is the ability "to state it in your own words." Communicating your understanding will be shown through your complete solutions to assigned homework problems and through written responses. I will collect *at least* ten assignments over the course of the semester; each is **worth 10 points** each. I will count only your best eight assignment grades toward your final score. Assignments include, but are not limited to: answering homework questions from the textbook or worksheet, writing short papers, or completing online assignments. Because the lowest scores are dropped, **NO LATE WORK WILL BE ACCEPTED.** If you know that you will be absent, you may turn in your assignment early, drop it by my office or send it by email by class time of the due date.

TESTS: There will be three unit tests during this semester, as well as a comprehensive final exam. These tests will contain problems similar to those worked in class and contained in homework assignments. Test items will be in a variety of formats, such as multiple choice, short answer, or more extended items that require explanations.

No make-up tests will be given unless the student has an official University excused absence. Arrangements must be made in advance of the exam. If a student misses a test without an official excuse, the score on the final exam will be given for the first test missed. A score of zero will be given for all subsequent missed exams.

Tentative test dates: February 12, March 6, April 29

Final Exam: Thursday, May 14, 8:00-10:00 a.m.

COURSE EVALUATION: Each student’s grade will be based on the following:

Three unit tests (100 points possible for each)	300 points
Assignments (10 points possible for each, best 8 scores)	80 points
Attendance, participation, and professionalism	15 points
Comprehensive final exam	105 points
Total possible	500 points

Grading Scale

Points earned	450-500	400-449	350-399	300-349	less than 300
Course grade	A	B	C	D	F

ACADEMIC DISHONESTY: All students are expected to engage in all academic pursuits in a manner that is above reproach. Students are expected to maintain complete honesty and integrity in the academic experiences both in and out of the classroom. Any student found guilty of dishonesty in any phase of academic work will be subject to disciplinary action. The University and its official representatives may initiate disciplinary proceedings against a student accused of any form of academic dishonesty including, but not limited to, cheating on an examination or other academic work which is to be submitted, plagiarism, collusion and the abuse of resource materials.

CLASSROOM RULES OF CONDUCT: Students will refrain from behavior in the classroom that intentionally or unintentionally disrupts the learning process and, thus, impedes the mission of the university. **Cellular telephones and pagers must be turned off before class begins.** Students are prohibited from eating in class, using tobacco products, making offensive remarks, reading newspapers and magazines, sleeping, talking at inappropriate times, wearing inappropriate clothing, or engaging in any other form of distraction. Inappropriate behavior in the classroom shall result in a directive to leave class. Students who are especially disruptive also may be reported to the Dean of Students for disciplinary action in accordance with university policy.

VISITORS IN THE CLASSROOM: Unannounced visitors to class must present a current, official SHSU identification card to be permitted in the classroom. They must not present a disruption to the class by their attendance. If the visitor is not a registered student, it is at the instructor's discretion whether or not the visitor will be allowed to remain in the classroom. This policy is not intended to discourage the occasional visiting of classes by responsible persons. Obviously, however, the visiting of a particular class should be occasional and not regular, and it should in no way constitute interference with registered members of the class or the educational process.

AMERICANS WITH DISABILITIES ACT: It is the policy of Sam Houston State University that no otherwise qualified disabled individual shall, solely by reason of his/her handicap, be excluded from the participation in, be denied the benefits of, or be subjected to discrimination under any academic or Student Life program or activity. Disabled students may request assistance with academically related problems stemming from individual disabilities by contacting the Director of the Counseling Center in the Lee Drain Annex or by calling (936) 294-1720.

STUDENT ABSENCES ON RELIGIOUS HOLY DAYS: University policy states that a student who is absent from class for the observance of a religious holy day must be allowed to take the examination or complete an assignment scheduled for that day within a reasonable time after the absence. Students will be excused to travel for observance of a religious holy day. A student who wishes to be excused for a religious holy day must present the instructor with a written statement describing the holy day(s) and the travel involved. The instructor will then provide the student with a written description of the deadline for the completion of missed exams or assignments.

TENTATIVE SCHEDULE

<i>Day</i>	<i>Date</i>	<i>Sec.</i>	<i>Topics</i>	<i>Suggested Exercises & Problems</i>
1	1/17		NCTM Standards	Read inside back cover of textbook
2	1/22	7.1	Decimals	p. 421: 1-6, 15, 16, 29ab
3	1/24	7.1	Decimals	
4	1/29	7.2	Computations with decimals	p. 433: 1-4, 8-10, 21, 23-25, 33, 34
5	1/31	7.2	Computations with decimals	
6	2/5	7.3	Ratio and proportion	p. 445: 1-5, 11, 12, 13
7	2/7	7.4	Percent	p. 457: 1-5, 7, 9, 11, 13, 23, 26
8	2/12	Test 1		
9	2/14	11.1	Figures in the plane	p. 667: 1, 2, 4, 13-18
10	2/19	11.1	Figures in the plane	
11	2/21	11.2	Curves and polygons	p. 688: 1-4, 14-17, 19, 22, 41, 42
12	2/26	11.2	Curves and polygons	
13	2/28	11.3	Figures in space	p. 709: 1-4, 7
14	3/4	11.3	Figures in space	
15	3/6	Test 2		
16	3/18	12.1	The measurement process	p. 752: 1, 5, 10abc, 11-16, 20, 26, 34
17	3/20	12.2	Area and perimeter	p. 769: 1, 5-12, 17, 19
18	3/25	12.2	Area and perimeter	
19	3/27	12.3	The Pythagorean theorem	p. 783: 1, 3-5, 13, 15
20	4/1	12.4	Surface area and volume	p. 803: 1-6, 16, 27-29
21	4/3	12.4	Surface area and volume	
22	4/8	Ch. 12	Measurement capstone	
23	4/10	13.1	Transformations	p. 838: 2-5, 8, 9, 11, 15, 16ab, 43, 44
24	4/15	13.1	Transformations	
25	4/17	13.2	Symmetry	p. 853: 1-6, 10, 11, 13-15, 41
26	4/22	13.2	Symmetry	
27	4/24	13.3	Tessellations	p. 871: 1, 2, 8
28	4/29	Test 3		
29	5/1	14.1	Congruent triangles	p. 899: 1, 2, 7, 17, 35
30	5/6	14.3	Similar triangles	p. 934: 1-3, 5, 6, 23-25
31	5/8	14.3	Similar triangles	
32	5/15	Final Exam – Thursday, 8:00-10:00 a.m.		

This is a tentative schedule and is subject to change. You will be advised of changes in class and on Blackboard. If you know that you will miss a class time when an assignment is due, please turn it in early and you will not be given a zero. If you know that you will miss a test, see me in advance. I look forward to a great semester!