COURSE SYLLABUS: MTH 1385, Fall 2017
FOUNDATIONS OF MATHEMATICS FOR ELEMENTARY TEACHERS (II)

CLASSROOM AND SCHEDULE:

Tuesday and Thursday, 2:00 – 3:20 PM, Room 431, Lee Drain Bldg

INSTRUCTOR: Dr. Bill Jasper
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Office Hours: Monday/Wednesday, 10 AM – 11 AM
(Room 439A) Tues./Thurs., 10 AM – 11 AM
Additional office hours are available by appointment.

COURSE OBJECTIVES/COURSE DESCRIPTION:

This course is the second in a series of three 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 1384 with a grade of C or better. 3 semester hours.

COURSE OBJECTIVES:

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

- Solve ratio and proportion problems
- Understand additive and multiplicative relationships
- Select and use appropriate units of measurement (e.g., temperature, money, mass, weight, area, volume, 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:

Reconceptualizing Mathematics for Elementary School Teachers by Sowder, Sowder, and Nickerson (2014 - second edition), published by W.H. Freeman and Company. Paperback ISBN-9781464103353

Supplemental materials provided by the instructor

A scientific or graphing calculator is recommended for this course.

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 leaving class frequently to answer cell phones or go to the rest room, 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.

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/professionalism problems, grades may be lowered by an additional letter grade.

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*.

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.

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 or the day it was assigned).

STUDENT SYLLABUS GUIDELINES:

You may find online a more detailed description of the following policies. These guidelines will 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. Any student found guilty of dishonesty in any phase of academic work will be subject to disciplinary action. Academic dishonesty includes, but is not limited to, cheating on examinations or other work, plagiarism, collusion, and the abuse of resource materials. *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 may tape record lectures provided they do not disturb other students in the process.

Use of Telephones and Text Messagers in Academic Classrooms and Facilities: The use by students of electronic devices that perform the function of a telephone or text messager during class-time may be prohibited if deemed disruptive by the instructor to the conduct of the class. Arrangements for handling potential emergency situations may be granted at the discretion of the instructor. Failure to comply with the instructor's policy could result in expulsion from the classroom or with multiple offenses, failure of the course. Any use of a telephone or text messager or any device that performs these functions during a test period is prohibited. These devices should not be present during a test or should be stored securely in such a way that they cannot be seen or used by the student. Even the visible presence of such a device during the test period will result in a zero for that test. Use of these devices during a test is considered de facto evidence of cheating and could result in a charge of academic dishonesty (see student code of conduct http://www.shsu.edu/students/guide/StudentGuidelines2010-2012.pdf#page=29).

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 register with the Office of Services for Students with Disabilities located in the Lee Drain Annex (telephone 936-294-3512, TDD 936-294-3786, and e-mail disability@shsu.edu). They should then make arrangements with their individual instructors so that appropriate strategies can be considered and helpful procedures can be developed to ensure that participation and achievement opportunities are not impaired.

SHSU adheres to all applicable federal, state, and local laws, regulations, and guidelines with respect to providing reasonable accommodations for students with disabilities. If you have a disability that may affect adversely your work in this class, then I encourage you to register with the SHSU Services for Students with Disabilities and to talk with me about how I can best help you. All disclosures of disabilities will be kept strictly confidential. NOTE: No accommodation can be made until you register with the Services for Students with Disabilities. For a complete listing of the university policy, see:http://www.shsu.edu/dept/academic-affairs/documents/aps/students/811006.pdf

The Sam Houston Writing Center, located in Farrington 111, is open from 8 a.m. until 7 p.m. Monday through Thursday, 8 a.m. until 3 p.m. on Friday, and 2 - 7 p.m. on Sunday. Writing tutors will work with you at any stage of the writing process (brainstorming, generating a draft, organizing a draft, or revising a draft) for any written assignment. The Writing Center operates on an appointment system, so please call (936) 294-3680 to schedule a session with a writing tutor. Skype sessions are available for distance students, and a tutor is available at the University Center. See website for more information: www.shsu.edu/wctr.

MATH 1385 COURSE SCHEDULE (TENTATIVE)

WEEK OF	TOPIC	READINGS
Aug 24	Intro, standards, describing shapes	16.1
Aug 29	Polygons	16.2, 16.3
Sept 5	Polygons	16.2, 16.3
Sept 12	Polyhedra	17.1, 17.2, 17.3
Sept 19	Angle relationships **Exam #1 (Sep 21)**	23.2
Sept 26	Symmetry, tessellations	18.1, 18.2, 19.1
Oct 3	Rigid Motions	22.1, 22.2, 22.3, 22.4
Oct 10	Multiplicative Situations Proportional Reasoning	8.1, 8.2 9.1, 9.2
Oct 17	Similarity, Congruence	20.1, 20.2
Oct 24	**Exam #2 (Oct 24)** Introduction to measurement	 23.1
Oct 31	Area and perimeter	23.2, 24.1
Nov 7	Area and surface area	24.1, 25.1
Nov 10	**Last day to Q drop**	
Nov 14	Volume	24.2, 25.2
Nov 21	**Exam #3 (Nov 21),** **Thanksgiving Holiday Nov 22-24**	
Dec 1	Pythagorean Theorem, review	26.1

Final Exam: Tuesday, Dec. 5, 3:30 – 5:30 PM (TR class)