COURSE SYLLABUS FALL 2007
Math 387W, SECTION 01
FOUNDATIONS OF MIDDLE SCHOOL MATHEMATICS
CREDIT HOURS: 3

Location of class meeting: Lee Drain Building, Room 201
Class meeting times; Tuesday/Thursday, 8:00 – 9:20 AM
Instructor: Dr. Bill Jasper
Office location: Lee Drain Building, Room 439A
Instructor contact information: Phone 294-1575, FAX: 936-294-1882, Email: jasper@shsu.edu

Office Hours: Mon/Wed, 10 AM – 12 noon
     Tues./Thurs., 10 – 11 AM and 2 – 3:30 PM.
     Appointments by special arrangement.

COURSE DESCRIPTION:

This course focuses on developing strong problem-solving skills for preservice mathematics teachers at grades 4 - 8. Students are expected to practice communications skills and participate in hands-on activities and projects, including the use of math manipulatives and technology. Topics will include National and Texas standards for teaching mathematics, the problem solving process in general, and applications of problem-solving strategies. 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 285 with a grade of C or better. 3 semester hours.

COURSE OBJECTIVES:

Upon completion of this course, students will be able to:
- Recognize that a mathematical problem can be solved in a variety of ways and select the appropriate strategy for a given problem.
- Evaluate the reasonableness of a solution to a problem.
- Apply content knowledge to develop a mathematical model of a real-world situation and analyze and evaluate how well the model represents the situation.
- Demonstrate an understanding of estimation and evaluate its appropriate uses.
- Use mathematics to model and solve problems in other disciplines, such as art, music, science, social science, and business.
- Communicate mathematical ideas using a variety of representations (e.g., numeric, verbal, graphic, pictorial, symbolic, concrete).
- Recognize and use multiple representations of a mathematical concept (e.g., a point and its coordinates, probability as a ratio of two areas).

REQUIRED TEXTBOOK:

Herr, T. and Johnson, K. (2001). Problem Solving Strategies: Crossing the River With Dogs, 2nd edition.

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. Students who miss more than two classes (three hours) during the semester will be assessed a point penalty (up to 50 points for severe attendance problems) toward their course grade.   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, then 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 frequently tardy 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 problems in this area. 20 points are designated for participation/professionalism in this course, and you must be "nearly perfect" to earn all of these points.

ASSIGNMENTS:

There will be a written curriculum project required in this course, and specific guidelines will be provided later in the course. This project will involve designing lesson plans to teach problem solving strategies in a middle school classroom. In addition, students will be required to fully justify all answers and solutions in writing on tests, quizzes, and homework. Homework assignments should be accomplished in a thorough manner, regardless whether they are to be collected for a grade or not.

EXAMS:

There will be three exams during this semester, as well as a comprehensive final exam. No exams will be dropped or replaced. 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. Projects submitted late will suffer a point penalty. 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.

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 = 300 - 349 pts   F = below 300 pts

Grades will be assigned for the following areas:
- Three exams, weighted 100 points each
- Homework and projects - 60 points
- Class participation, attendance, professionalism - 40 points
- Comprehensive final exam - 100 points

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. *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 AM. to 7 PM Monday through Thursday, 8 AM to 3 PM Friday, and 2-7 PM on Sunday. Currently, we are located in Wilson 114. Look for signs on campus about 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 387 COURSE SCHEDULE (TENTATIVE)

WEEK	TOPIC	CHAPTERS

Aug 20	Introduction to problem solving	0
Aug 287	Diagrams, systematic lists,	1, 2
Sep 3	Labor Day holiday, Sep 3 Counting	2
Sep 10	Eliminate possibilities Logic	3, 4,
Sep 17	Patterns, practice problems	5
Sep 24	**EXAM #1, Sep 25,** Guess and check	6
Oct 1	Sub problems	7
Oct 8	Unit analysis, easier problems	8, 9
Oct 10	**Last day to drop w/o an F**	
Oct 15	Easier problems, modeling	9, 10
Oct 22	Work backwards, **EXAM #2, Oct 25**	11
Oct 29	Venn diagrams, algebra	12, 13
Nov 5	Algebra, recursion	13, Supplemental materials
Nov 12	Finite differences, mixed problems	14
Nov 19	**EXAM #3, Nov 20**, graph theory	Supplemental materials
Nov 26	Graph theory, mathematics of elections	Supplemental materials
Dec 3	Mixed problem solving	

FINAL EXAM   Thursday, December 13, 8 – 10 AM