

COURSE SYLLABUS Fall 2017
Math 3387W, SECTION 01
FOUNDATIONS OF MIDDLE SCHOOL MATHEMATICS
CREDIT HOURS: 3

Location of class meeting: Lee Drain Building, Room 401

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: Tues./Thurs., 10:00 AM – 11 AM, Room 439A

Mon./Wed., 10:00 AM – 11:00 AM, Room 439A, Appointments by special arrangement

COURSE DESCRIPTION:

This course focuses on developing strong problem-solving skills for pre-service 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.
- Be efficient at solving problems using a variety of strategies.
- 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:

Johnson, K., Herr, T. and Kysh, J (2012). Crossing the River With Dogs: Problem Solving for College Students, 2nd edition. ISBN number 9780470464731.

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 texting, 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. 40 points are designated for attendance/participation/professionalism in this course, and you must be "nearly perfect" to earn 100% 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. Even if you are absent, the assignment is still due on the announced date. You may fax or scan an assignment to send to me on the due date, or have a classmate turn it in at the regular class period. If you miss a class, the assignment from that class is still due the next class period.

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 Science and Engineering Technology or a higher 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 – 50-60 points

Class participation, attendance, professionalism – 40-50 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. 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 messenger 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 messenger 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>).

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.

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

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>

MATH 3387 COURSE SCHEDULE (TENTATIVE)

<u>WEEK</u>	<u>TOPIC</u>	<u>CHAPTERS</u>
Aug 24	Introduction to problem solving	Introduction
Aug 29	Diagrams, systematic lists	1, 2
Sep 05	Counting	2
Sep 12	Eliminate possibilities, Logic	3, 4
Sep 19	Patterns EXAM #1, Sep 21	5
Sep 26	Guess and check Sub problems	6 7
Oct 03	Sub problems Unit analysis	7 8
Oct 10	Easier problems	9
Oct 17	Modeling EXAM #2, Oct 19	10
Oct 24	Work backwards Venn diagrams	11 12
Oct 31	Algebra	13
Nov 7	Algebra Curriculum project due	13
Nov 10	Last day to Q drop	
Nov 14	Algebra Recursion	13 Supplemental materials
Nov 21	EXAM #3, Nov 21	
Nov 28	Finite differences Extended problems	14 Supplemental materials
FINAL EXAM	Tuesday, December 5, 8 – 10 AM	