COURSE SYLLABUS Math 3381-04, 3 credit hours, Fall 2017 FOUNDATIONS OF MATHEMATICS III

CLASSROOM AND SCHEDULE:

Tuesday and Thursday, 8:00 – 9:20 AM Room 403 Lee Drain Building

INSTRUCTOR: Dr. Linda Zientek

Office: Room 421B, Lee Drain Building Phone: 936-294-4874 Email: <u>lrzientek@shsu.edu</u> FAX: 936-294-1882 Office Hours: Tues/Thurs, 7:30 – 8:00 AM, 11:00 – 12:20 Other Appointments by special arrangement

COURSE DESCRIPTION:

This course is the third 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, problem solving, discrete mathematics, probability, and data analysis. Throughout the course, the four main themes recommended by the NCTM Principles and Standards (problem solving, reasoning, communication and connections) will be emphasized. Students will also participate in class discussions and group work during this course. Prerequisite: MTH 1385 with a grade of C or better. 3 semester hours.

COURSE OBJECTIVES:

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

- Demonstrate understanding of the four-step problem solving process.
- Solve mathematical problems using a variety of strategies and techniques, such as make a diagram, look for a pattern, eliminate possibilities, use logical reasoning, and guess and check.
- Solve interest and growth problems using recursion techniques.
- Use multiple representations including equations, tables, visual patterns, and graphs to describe linear functions.
- Develop understanding of rate of change as related to linear, quadratic and exponential functions.
- Solve probability problems involving simple and compound events, using a variety of mathematical manipulatives.
- Apply theoretical and experimental probability techniques while solving problems.
- Solve combinatorics problems, using a variety of counting techniques.
- Construct and interpret different types of graphs, including bar graphs, line graphs, pie charts, stem and leaf plots, box and whisker plots, and scatter plots.
- Understand the difference between correlation and causation.
- Calculate and apply measures of central tendency, such as mean, median, and mode.
- Calculate and apply measures of variation, such as range, interquartile range, and standard deviation.
- Use the normal distribution to solve problems related to education.

REQUIRED TEXTBOOK AND MATERIALS:

Reconceptualizing Mathematics for Elementary School Teachers. (Second Edition) Sowder, J., Sowder, L. and Nickerson, S. (2013). New York, NY: W.H. Freeman and Company.

Manipulative Materials:

Students enrolled in Math 3381, as learners of mathematics, should be engaged in hands-on activities that allow them to gain experience and familiarity with manipulative materials that are used in EC-8 classrooms. *Note that the textbook includes a number of manipulatives in cardstock form, including nets of 3-D shapes (and masters of recording paper) that students can cut out or make copies of and have available for work outside of class.*

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. 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, 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.

EXAMS AND ASSIGNMENTS:

Exams will include problems that are based on the mathematical concepts taught during class. If no more than two absences have been acquired at the time of the final and the final is higher than a previous exam grade, the final can replace the lowest test grade. If an exam was missed (i.e., exam grade is a zero) then the final can only be used to replace the zero (see make-up policy below). All students are required to take the final, and the final can not be replaced by a previous exam grade.

Daily grades consist of quizzes and projects, which will be administered throughout the semester. The quizzes will be unannounced and will cover the material presented on the previous class day. **The lowest daily grade will be droppe**d. Homework or mini-projects will be normally be assigned for every class day, and may be collected for a grade at the instructor's prerogative. Homework assignments should be accomplished in a thorough manner, regardless whether they are to be collected for a grade or not. To earn maximum points, all problems must be attempted and all work must be shown. Assignments are due at the beginning of class.

Make-up Policy: Unless approved by the instructor prior to the date of a test, there will be no make-up for a missed test. 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. If an exam is missed, the final can replace the lowest exam grade.

GRADING PLAN:

Grades will be assigned for the following areas: Exams 66% Daily 14% Final 20%

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.

CELL PHONE & TEXT MESSAGERS USE: SHSU Academic Policy Statement 100728

Telephones and similar devices have become increasingly a part of everyday life. In the academic classroom, however, during class these devices can be a serious distraction and during tests they can be a serious problem. The technology is constantly changing and evolving. So, the present policy does not specify particular devices or device types. Rather, the policy applies to any device that performs the function of a telephone or text messenger. Failure to comply with the instructor's policy could result in expulsion from the classroom or with multiple offenses, failure of the course.

Students are to turn off all cell phones and electronic devices or put these in a silent mode while in the classroom. Do NOT take these devices out during the class. In the case of an emergency situation for a student, the student should inform the instructor prior to class and should sit near the door to minimize classroom disruptions in the event the student needs to leave to answer the phone. 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. <u>Any student with a disability that affects his/her academic performance should contact the Office of Services for Students with Disabilities in the SHSU Lee Drain Annex (telephone 936-294-3512, TDD 936-294-3786, and e-mail disability@shsu.edu) to request accommodations. 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.</u>

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/dotAsset/7ff819c3-39f3-491d-b688-db5a330ced92.pdf

Visitors in the Classroom: Only registered students may attend class. Exceptions can be made on a caseby-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.