# MATH 3381 FOUNDATIONS OF MATHEMATICS FOR ELEMENTARY TEACHERS (III)

3 credit hours, Spring 2018

INSTRUCTOR: Dr. Mark Klespis Office: Room 421A, Lee Drain Building Phone: 936-294-1577 FAX: 936-294-1882 Email: klespis@shsu.edu Office Hours: MW: 11:30AM – 12:30PM TTh: 10:00AM – 11:00AM, 1:00PM – 2PM & by appointment

**CLASSROOM & SCHEDULE:** Section 02: MW 12:30 – 1:50, LDB 403

# **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 manipulatives and technology. Topics will include National and Texas standards for teaching mathematics, problem solving, algebra, 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 185 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.
- Demonstrate algebra's use as a language and as generalized arithmetic.
- Use graphs to demonstrate relationships between two variables.
- Use algebra to show functional and proportional relationships.
- 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.
- 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 TEXT:**

The following texts are acceptable for this course:

Sowder, J., Sowder, L., & Nickerson, S (2014). *Reconceptualizing Mathematics for Elementary School Teachers*. 2<sup>nd</sup> Ed. New York, NY: W. H. Freeman & Co. (this book has a predominantly green cover)

Sowder, J., Sowder, L., & Nickerson, S (2017). *Reconceptualizing Mathematics for Elementary School Teachers.* 3<sup>rd</sup> Ed. Ed.New York, NY: W. H. Freeman & Co. (this book has a green border with a colorful tile design made out of pattern blocks)

Additional materials will be supplied by the instructor.

**SUPPLIES:** You will need to have:

- A graphing calculator is *required* for this course. It must be able to graph functions and do calculations involved in statistics and probability. The TI-84+ recommended.
- Colored pens, pencils, or crayons

Up-to-date course information will be posted on Blackboard. You are expected to check Blackboard regularly. Notifications are sent via Blackboard via your SHSU e-mail.

## **GRADING:**

Each student's grade will be based on the following

- Three exams: 100 points each, 300 points total
- Homework/in-class assignments/quizzes: approximately 200-300 points
- Cumulative final exam: 100 points

A letter grade will be assigned on the following scheme:

Percent grade based	90 to 100	80 to 89	70 to 79	60 to 69	Less than 60
on total points					
Course grade	А	В	С	D	F

NOTE: Extra credit assignments are not given. Your grade is based solely on the grading scheme above. Do not ask to do extra work to bring up your grade.

# **TESTS and IN-CLASS WORK:**

- Tests may include problems that are similar to problems assigned and worked in class. A portion of each test may include multiple choice or short answer problems. A second portion of each test will include problems where students must show all of their work correctly, as well as arrive at the correct solution to the problem.
- Homework must be turned in when due. Late homework does not exist.
- There is no make up for missed in-class assignments.
- Students *must* take all four exams. In the event your grade on the final exam is higher than your lowest test grade, the final exam grade will replace score on the exam with the lowest grade. If the final exam is replacing a missed exam, the final exam grade will only be used in place of the missed exam. For this reason, there will be no make up exams.
- **No early finals are given**. A missed final examination can be made up only by approval of the Dean of the College of Sciences or a higher administrative official.

#### page 3

# **ATTENDANCE/PROFESSIONALISM:**

- 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 during the semester *may* be assessed a point penalty toward their course grade. I do not differentiate between excused and unexcused absences.
- Attendance will be taken every class. 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.
- Studying for other classes/texting on cell phones are not acceptable. Not only are you missing instruction but you are also preventing the learning of those students sitting near you. Please also see the Classroom Rules of Conduct below.

#### THE FINE PRINT:

#### **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. **Use of cellular telephones and pagers is not permitted unless it is for instructional purposes. Use of cell phones or texting (or use of any device that performs such functions) during a test is prohibited (Academic Policy Statement 100728.3.0).** Students are prohibited from using tobacco products, making offensive remarks, reading newspapers and magazines, sleeping, talking at inappropriate times, text messaging on cell phones, 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.

#### 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. 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. Any student found guilty of dishonesty in any phase of academic work will be subject to disciplinary action – including expulsion from the university.

#### **COMPLIANCE WITH THE 1990 AMERICANS WITH DISABILITIES ACT**

Sam Houston State University does not discriminate on the basis of disability in admission to, access to, or operations of its programs, services, or activities. I would like to help students with disabilities to achieve their highest potential. In order to receive accommodations on exams and/or assignments, students must alert me to their situation as soon as possible and also must go to the Counseling Center and Services for Students with Disabilities (SSD) on campus for proper documentation of their needs. All disclosures of disabilities will be kept strictly confidential. NOTE: no accommodation can be made until you register with the Counseling Center and are tested and certified to receive accommodations.

#### STUDENT ABSENCES ON RELIGIOUS HOLY DAYS POLICY

Section 51.911(b) of the Texas Education Code requires that an institution of higher education excuse a student from attending classes or other required activities, including examinations, for the observance of a religious holy day, including travel for that purpose. A student whose absence is excused under this subsection may not be penalized for that absence and shall be allowed to take an examination or complete an assignment from which the student is excused within a reasonable time after the absence.

University policy 861001 provides the procedures to be followed by the student and instructor. A student desiring to absent himself/herself from a scheduled class in order to observe (a) religious holy day(s) shall present to each instructor involved a written statement concerning the religious holy day(s). This request must be made in the first fifteen days of the semester or the first seven days of a summer session in which the absence(s) will occur. The instructor will complete a form notifying the student of a reasonable timeframe in which the missed assignments and/or examinations are to be completed.