COURSE SYLLABUS
MATH 3381, Section 02
INTRODUCTION TO FOUNDATIONS OF MATHEMATICS III
CREDIT HOURS: 3
Fall 2017

CLASSROOM AND SCHEDULE: Lee Drain Building, Room 403
Mondays & Wednesdays, 12:30-1:50 p.m.

INSTRUCTOR INFORMATION:
Dr. Dustin L. Jones
Office: Room 421C Lee Drain Building Phone: 936-294-4776 Fax: 936-294-1882
Email: DLJones@shsu.edu
Office hours: Mondays, Wednesdays, & Fridays 9:30 – 10 a.m. Tuesdays & Thursdays, 9 – 10 a.m.
Other times available by appointment

COURSE DESCRIPTION: Topics include algebra, probability, data analysis, discrete mathematics, and problem solving. Credit in this course is applicable only toward elementary/middle school certification. Prerequisite: Math 1385 with a grade of C or better.

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.
- Select appropriate representations of decimals and percents for particular situations.
- Demonstrate an understanding of a variety of models for representing decimals and percents.
- Solve ratio and proportion problems.
- 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: *Reconceptualizing Mathematics for Elementary School Teachers, 2nd Edition*. Sowder, J., Sowder, L. and Nickerson, S. (2013). New York, NY: W.H. Freeman and Company.
ISBN 978-1-4641-0335-3 **Be sure you get the SECOND EDITION.**
This semester, we will cover portions of chapters 1, 9, 12, 13, 15, 27, 28, 29, 30, 31, and 33. A tentative schedule has been provided at the end of this syllabus.

SUPPLIES: To be ready for action during each class, you will need to have:
- a positive attitude
- the appropriate sections of the textbook
- a calculator (scientific or graphing)
- some sort of writing utensil and paper for taking notes

BLACKBOARD: Up-to-date course information will be posted on Blackboard, including deadlines, notes, and assignments. **Please check Blackboard regularly.**

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. Any student who is more than 30 minutes late to class will be counted absent. Students who are absent or tardy are still responsible for all material covered in class. Students who have two or fewer absences by the end of the semester, you may elect to drop your lowest test grade and replace it with the score earned on the final exam. Serious health or family problems that are well documented will be handled individually.

In addition to attending class faithfully, students are expected to put forth their best effort in this class. This includes, but is not limited to, actively participating in class discussions and activities. By way of contrast, *unprofessional behaviors will not be tolerated.* Unprofessional behaviors include sleeping, texting, laying your head on the desk, checking social media, or studying for other classes.

ASSIGNMENTS: I plan to assign homework on a daily basis and collect some (but not all) of those assignments. Problems and exercises from the textbook, worksheets, and in-class assignments and quizzes may be included in this category. All out-of-class assignments will be posted on Blackboard and announced in class. Assignments are due at the beginning of the following class period, and **NO LATE WORK WILL BE ACCEPTED**. If you know that you will be absent, you may turn in your assignment early, drop it by my office, or send it in an e-mail by class time of the due date.

TESTS: There will be three unit tests and one final exam. The final exam is comprehensive.
If a student must miss a class during which a quiz or exam is scheduled, she or he should notify the instructor in advance. The instructor, at his discretion, may allow the student to take a quiz or exam early. Otherwise, the score of the final exam grade will replace that of the missed test. Any subsequent missed quizzes or exams will result in a score of 0.
Tentative Test Dates: October 11, November 27
Final Exam: Monday, December 4, 1:00-3:00 p.m.

COURSE EVALUATION: Each student's grade will be based on the following:

Homework Assignments	70 points
Statistics Project	30 points
Tests (100 points possible for each, 2 tests)	200 points
Final Exam	100 points
Total possible	**400 points**

Grading Scale

Points earned	360-400	320-359	280-319	240-279	less than 240
Course grade	A	B	C	D	F

EXTRA CREDIT: There is one opportunity for extra credit. A Comprehensive Comprehension Check-Up will be offered in class on Monday, November 20. Students may earn up to 20 points of extra credit for their Final Exam by answering questions and solving problems related to course content.

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. Any student found guilty of dishonesty in any phase of academic work will be subject to disciplinary action. 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.

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. Cellular telephones and pagers must be turned off and stored out of sight before class begins. Students are prohibited from eating in class, using tobacco products, making offensive remarks, reading newspapers and magazines, sleeping, talking at inappropriate times, 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.

TELEPHONES AND MESSAGING DEVICES: The use by students of electronic devices that perform the function of a telephone or text messager during class-time is **prohibited**. Arrangements for handling potential emergency situations may be granted at the discretion of the instructor. *Failure to comply with this 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.

VISITORS IN THE CLASSROOM: Unannounced visitors to class must present a current, official SHSU identification card to be permitted in the classroom. They must not present a disruption to the class by their attendance. If the visitor is not a registered student, it is at the instructor's discretion whether or not the visitor will be allowed to remain in the classroom. This policy is not intended to discourage the occasional visiting of classes by responsible persons. Obviously, however, the visiting of a particular class should be occasional and not regular, and it should in no way constitute interference with registered members of the class or the educational process.

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/aps/aps-students.html

STUDENT ABSENCES ON RELIGIOUS HOLY DAYS: University policy states that a student who is absent from class for the observance of a religious holy day must be allowed to take the examination or complete an assignment scheduled for that day within a reasonable time after the absence. Students will be excused to travel for observance of a religious holy day. A student who wishes to be excused for a religious holy day must present the instructor with a written statement describing the holy day(s) and the travel involved. The instructor will then provide the student with a written description of the deadline for the completion of missed exams or assignments.

SYLLABUS REVISIONS: The instructor reserves the right to revise any part of this syllabus as deemed necessary throughout the semester. Revision, if necessary, will be announced during class.

TENTATIVE SCHEDULE

Mondays		*Wednesdays*	
		Aug. 23	Introductions & Syllabus
Aug. 28	**NO CLASS MEETING** (Harvey)	Aug. 30	**NO CLASS MEETING** (Harvey)
Sep. 4	**NO CLASS MEETING** (Labor Day)	Sep. 6	1.1 Ways of Thinking About Solving Story Problems 1.2 Quantitative Analysis
Sep. 11	9.3 Percents in Comparisons and Changes	Sep. 13	33.2 Permutations and Combinations
Sep. 18	12.1 Algebra as a Symbolic Language 12.2 Algebra as Generalized Arithmetic	Sep. 20	12.3 Numerical Patterns and Algebra 12.4 Functions and Algebra
Sep. 25	12.5 Algebraic Reasoning About Quantities	Sep. 27	13.1 Using Graphs and Algebra to Show Quantitative Relationships
Oct. 2	13.2 Understanding Slope	Oct. 4	13.3 Linear Functions and Proportional Relationships
Oct. 9	15.5 More about Functions	Oct. 11	**TEST 1**
Oct. 16	27.1 Understanding Chance Events 27.2 Methods of Assigning Probability	Oct. 18	27.3 Simulating Probabilistic Situations
Oct. 23	28.1 Tree Diagrams and Lists for Multistep Experiments	Oct. 25	29.1 What are Statistics? 29.4 Types of Data
Oct. 30	30.1 Representing Categorical Data 30.2 Representing and Interpreting Measurement Data	Nov. 1	30.3 Examining the Spread of Data
Nov. 6	30.4 Measures of Center	Nov. 8	30.5 Deviations from the Mean as Measures of Spread
Nov. 13	30.6 Examining Distributions	Nov. 15	31.1 Comparing Data Sets 31.2 Lines of Best Fit and Correlation
Nov. 20	**Statistics Project Due** Comprehensive Comprehension Check-Up	Nov. 22	**NO CLASS MEETING** (Thanksgiving)
Nov. 27	**TEST 2**	Nov. 29	Review for Final Exam
Dec. 4	**FINAL EXAM, 1-3 p.m.**		

STATISTICS PROJECT

Each student will complete a statistics project, which will follow the statistical problem-solving process: Formulate Questions, Collect Data, Analyze Data, and Interpret Results. The project will be based on a survey of the class, and is worth up to 30 points.

The final product (with graphical representations, written summary, and responses to prompts) is **due on Monday, November 20**.

Statistics Project Rubric

Contribute 2 Questions by October 30 (one numerical, one categorical). 2 points
Complete survey by November 6. 2 points
Choose two questions for your project. 1 point

For each question:

- Create one graphical representation for each question (using a computer or drawn by hand). 4 points
- Provide a written summary (using sentences) of the distribution of responses. 8 points
- Include summary statistics (measures of center and spread) where appropriate. 4 points

Respond to the following two prompts: 9 points

1. How applicable are your results to these populations (choose three)? Explain your reasoning.
   -- another section of MATH 3381 at SHSU -- the SHSU football team
   -- the entire student body at SHSU -- all of the fourth grade students in Conroe, Texas
   -- a class of future teachers in another country
2. Based on your findings, what is one statistical question you would like to investigate further?