COURSE SYLLABUS
MATH 1384, Section 01
FOUNDATIONS OF MATHEMATICS FOR ELEMENTARY TEACHERS (I)
CREDIT HOURS: 3
Spring 2018

CLASSROOM AND SCHEDULE: Lee Drain Building, Room 431
Monday & Wednesday, 8:00 a.m. – 9:20 a.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: Mon. & Wed. 1 – 2 p.m. Tue. & Thu. 8:30 – 9:30 a.m.
Other times available by appointment

COURSE DESCRIPTION: This course is the first in a series of courses designed to develop the necessary foundations in mathematics for prospective elementary teachers. Students are expected to practice communication skills and participate in hands-on activities, including the use of mathematics manipulatives and technology. Topics will include National and Texas standards for teaching mathematics, sets, numeration systems, operations with whole numbers, integers, and rational numbers, and number theory. Throughout the course, the five main themes recommended by the National Council of Teachers of Mathematics' *Principles and Standards for School Mathematics* (problem solving, reasoning, communication, connections, and representation) will be emphasized. Students will also participate in class discussions and group work during this course. Prerequisite: THEA score of 270 or its equivalent. 3 semester hours.

COURSE OBJECTIVES: Upon completion of this course, students will be able to:
- Analyze the structure of numeration systems and the roles of place value and zero in the base ten system
- Understand the relative magnitude of whole numbers, integers, rational numbers, and real numbers
- Demonstrate an understanding of a variety of models for representing numbers
- Demonstrate an understanding of equivalency among different representations of rational numbers
- Select appropriate representations of real numbers for particular situations
- Understand the characteristics and properties of the set of whole numbers, integers, rational numbers, and real numbers
- Demonstrate an understanding of how some situations that have no solution in one number system (e.g., whole numbers) have solutions in other number systems (e.g., real numbers)
- Work proficiently with real numbers and their operations
- Analyze and describe relationships between number properties, operations, and algorithms for the four basic operations involving integers, rational numbers, and real numbers
- Use a variety of concrete and visual representations to demonstrate the connections between operations and algorithms
- Justify procedures used in algorithms for the four basic operations with integers, rational numbers, and real numbers, and analyze error patterns that may occur in their application
- Relate operations and algorithms involving numbers to algebraic procedures
- Extends and generalizes the operations on rationals and integers to include exponents, their properties, and their applications to the real numbers
- Demonstrates an understanding of ideas from number theory (such as prime factorization, greatest common divisor) as they apply to whole numbers, integers, and rational numbers, and use these ideas in problem situations
- Apply properties of the real numbers to solve a variety of theoretical and applied problems

REQUIRED TEXTBOOK: *Reconceptualizing Mathematics for Elementary School Teachers, 3rd Edition*.
Sowder, J., Sowder, L. and Nickerson, S. (2017). New York, NY: W.H. Freeman and Company.
ISBN 978-1-4641-9333-0 **Be sure you get the THIRD EDITION.**
We will cover chapters 2, 3, 4, 6, 7, 10, and 11. 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. 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.

ARITHMETIC TEST: A ten-question test will be administered on the first day of class. This test will cover addition, subtraction, multiplication, and division of whole numbers, fractions, and decimals. Calculators are NOT allowed on the arithmetic test.

Scoring: The table below shows how the Arithmetic Test will be scored.

Number correct	10	9	8	7	6	5	4	3	2	1	0
Score	50	25	13	7	6	5	4	3	2	1	0

Re-takes: Students with an Arithmetic Test score below 50 may take a similar version of the test.
Students must contact the instructor to schedule a time for the re-take, which will occur outside of class time.
Students may re-take the test weekly.
All re-takes must occur on or before Friday, February 16, 2018.
After February 16, 2018, the score on the arithmetic test is final.

ASSIGNMENTS: There will be three types of assignments: In-class group assignments, in-class individual assignments, and homework assignments. Some (but not all) of these assignments will be collected for credit. Together, these assignments are worth 120 points. **Late assignments will not be accepted.**

EXAMS: There will be two exams, one quiz, and one final exam. If a student must miss a class during which an exam is scheduled, he or she should notify the instructor in advance. The instructor, at his discretion, may allow the student to take the exam early. Otherwise, the percentage score of the final exam grade will replace that of the missed exam. Any subsequent missed exams will result in a score of 0.
The exams are tentatively scheduled for **Wednesday, February 21** and **Wednesday, March 28**.
The quiz will be held on **Monday, April 24**.
The final exam is comprehensive and will be held on **Monday, May 7, 8:00 – 10:00 a.m.**

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

Arithmetic test	50 points
Assignments	120 points
Exams (100 points each, 2 exams)	200 points
Quiz	30 points
Final exam	100 points
Total possible	**500 points**

GRADING SCALE

Points earned	450-500	400-449	350-399	300-349	less than 300
Course grade	A	B	C	D	F

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.

TENTATIVE SCHEDULE

Mondays		*Wednesdays*	
		Jan. 17	**Arithmetic Test**
Jan. 22	2.1 Ways of Expressing Values as Quantities 2.2 Place Value	Jan. 24	2.3 Bases Other than Ten
Jan. 29	2.4 Operations in Different Bases	Jan. 31	3.1 Ways of Thinking about Addition and Subtraction 3.2 Children's Ways of Adding and Subtracting
Feb. 5	3.3 Ways of Thinking about Multiplication	Feb. 7	3.4 Ways of Thinking about Division
Feb. 12	3.5 Children Find Products and Quotients	Feb. 14	4.1 Operating on Whole Numbers and Decimal Numbers
Feb. 19	4.1 Operating on Whole Numbers and Decimal Numbers	Feb. 21	**EXAM 1**
Feb. 26	6.1 Understanding the Meanings of $\frac{a}{b}$	Feb. 28	6.2 Comparing Fractions
Mar. 5	6.3 Equivalent (Equal) Fractions 6.4 Relating Fractions, Decimals, and Percents	Mar. 7	7.1 Adding and Subtracting Fractions
Mar. 12	**Spring Break – No Class Meeting**	Mar. 14	**Spring Break – No Class Meeting**
Mar. 19	7.2 Multiplying by a Fraction	Mar. 21	7.3 Dividing by a Fraction
Mar. 26	7.3 Dividing by a Fraction	Mar. 28	**EXAM 2**
Apr. 2	10.1 Big Ideas About Signed Numbers 10.2 Children's Ways of Reasoning About Signed Numbers	Apr. 4	10.3 Other Models for Signed Numbers 10.4 Operations with Signed Numbers
Apr. 9	10.5 Multiplying and Dividing Signed Numbers 10.6 Number Systems	Apr. 11	11.1 Factors and Multiples, Primes and Composites
Apr. 16	11.2 Prime Factorization	Apr. 18	11.3 Divisibility Tests to Determine whether a Number is Prime
Apr. 23	**QUIZ**	Apr. 25	Determining if a Number is Prime
Apr. 30	11.4 Greatest Common Factor, Least Common Multiple	May 2	11.4 Greatest Common Factor, Least Common Multiple
May 7	**FINAL EXAM 8 – 10 A.M.**		

SYLLABUS REVISIONS: All information on this syllabus is subject to change. Any changes will be announced in class and posted on Blackboard.