

MATH 3308: Survey of Basic Math Theory I

Sul Ross State University Rio Grande College
Fall 2021

Professor: Michael Ortiz, Ph.D.

E-mail: mortiz4@sulross.edu

Office: Uvalde A101

Office Phone: (830) 279-3048

Cell Phone: (830) 333-0164

Course Description MTH 3308 is intended as an introduction to numeration systems, foundations of arithmetic, fractions and decimal numbers, measurement concepts, and problem solving.

TEKS Information on the Texas Essential Knowledge and Skills can be found on the TEA website: <http://www.tea.state.tx.us>

Class Meetings Tuesday, 6:00 – 8:45

Class Location Eagle Pass D111

Required Text Long, DeTemple, & Millman, *Mathematical Reasoning for Elementary Teachers*, Seventh Edition, ISBN 0321900995

Office Hours M/W/Th 12:00 – 2:00, 3:15 – 4:30 (Uvalde); T 3:15 – 4:30 (Eagle Pass); or by appointment; or basically whenever I'm not busy

Course Policies

Attendance Policy

Attendance is mandatory. Students are expected to attend class in person in their classroom of registration unless permission is given for extenuating circumstances. You will be held responsible for all material covered in class or in the reading assignments. If you have to miss a class, it is your responsibility to obtain all notes, assignments, and announcements from someone else in the class. Make-up exams will be given only in the event of an emergency, in which case written justification and/or documentation must be provided and approved.

Communication

I will post course documents, reminders, announcements, and assignments on the Blackboard system. You will also submit homework on Blackboard. I may also occasionally send announcements via e-mail. You should make sure you know how to access and use these tools. You are welcome to e-mail, telephone, or text me. However you chose to contact me, please make sure to state your name at the beginning of any message.

You are welcome to stop by my office if you wish to speak about the content or your progress in the course. Sometimes meetings come up, so it's best to contact me ahead of time if you intend to travel to Uvalde to see me in person.

I am here to help you! Ask questions in class, call me, e-mail me, text me, or come to my office. If you don't communicate with me, then I can't help you.

Homework

Homework will be assigned for each section that we cover in the text. Although the homework will not be collected and graded, you should regard it as the most essential component of the course. It is very important that you complete each homework assignment before the next class period. This will allow you to make the most of our time together. If you have a question, ask about it. If you don't understand the homework, you are not ready to take the exam.

In order to achieve success in this course, you must work all the homework assignments in a timely manner! The amount of work for any college class is generally calculated as 3 hours of outside work for each hour in class. That means you should expect to spend as much as 8 – 9 hours each week on outside work in this course.

Grading Policy

Your grades will be weighted as follows:

Participation	10%
Exam 1	25%
Exam 2	25%
Final Exam	40%

A student who averages at least 90% will receive an A; at least 80% will receive at least a B; at least 70% will receive at least a C; at least 60% will receive at least a D.

Participation

Your participation grade will be assigned depending on your class attendance and participation in class activities. Simply put, if you always come to class, seem like you're trying to pay attention and take notes, and take part in class activities, then you will get full credit.

Exams

There will be two midterm exams. The tentative dates are

Exam 1	October 5
Exam 2	November 9

This schedule is subject to change. You will be notified of a change at least one week in advance. Make-up exams will be given **only in the event of an emergency**, in which case written justification and/or documentation must be provided and approved.

The comprehensive final exam will take place at the time scheduled by the university, during the final exam period from December 3 – 8. Official time and date to be announced once the university publishes the final exam schedule.

Subject Outline

Below is a tentative outline of the subjects we will cover in this course. As time allows, we will also make excursions into the practical aspects of mathematics education among underserved

populations in a region with limited access to educational resources.

I. Sets and whole numbers

1. Sets (§2.1): *basic concepts – notation – set operations and relations*
2. The whole numbers (§2.2): *the history and psychology of counting – one-to-one correspondence – counting and cardinality – the less-than relation*
3. Addition and subtraction of whole numbers (§2.3): *addition of whole numbers – models for addition – properties of addition – subtraction of whole numbers – models for subtraction*
4. Multiplication and division of whole numbers (§2.4): *multiplication of whole numbers – models for multiplication – properties of multiplication – division of whole numbers – models for division – division with remainders*

II. Divisibility of whole numbers

1. Divisibility (§4.1): *divisors and multiples – odd and even – prime numbers – factor trees – prime power representations – applications – two questions about primes – the Sieve of Eratosthenes*
2. Greatest common divisors (§4.3): *the greatest common divisor – the listing method – the prime factorization method – the Euclidean algorithm – the least common multiple – methods*

III. Numeration and computation

1. Numeration systems (§3.1,5): *primitive systems – the Egyptian system – the Roman system – the Babylonian system – the Indo-Arabic system – nondecimal positional systems*
2. Algorithms for adding and subtracting whole numbers (§3.2): *addition with representations and manipulatives – subtraction with representations and manipulatives*
3. Algorithms for multiplying and dividing whole numbers (§3.3): *multiplication with representations and manipulatives – the lattice method – multiplication in nondecimal systems – division with representations and manipulatives*

IV. Integers

1. Representations of integers (§5.1): *the integers – what we want in a representation – colored counters – mail-time (money) stories – number-line representations*
2. Addition and subtraction of integers (§5.2): *addition with representations and manipulatives – properties of addition – subtraction with representations and manipulatives – ordering the integers*
3. Multiplication and division of integers (§5.3): *multiplication with representations and manipulatives – properties of multiplication – division of integers*

V. Fractions and rational numbers

1. Fractions (§6.1): *basic concepts – representations and manipulatives – equivalent fractions – fractions in simplest form – common denominators – ordering*
2. Addition and subtraction of fractions (§6.2): *addition of fractions – addition with manipulatives – proper fractions and mixed numbers – subtraction of fractions – subtraction with manipulatives*
3. Multiplication and division of fractions (§6.3): *multiplication of fractions – multiplication as an operator – the area model – division of fractions – division with pictures – the invert-and-multiply rule*
4. Rational numbers (§§6.1,4): *the rational number system – properties of arithmetic – the density property – applications*

Schedule

This schedule is tentative only. The section numbers refer to the above outline.

Unit I	August 24 – September 14
Unit II	September 14 – 28
Exam 1	October 5
Unit III	October 5 – 19
Unit IV	October 19 – November 2
Exam 2	November 9
Unit V	November 9 – 23
Semester Review	November 30
Final Exam	December X

University Statements

SRSU Disabilities Services: *Sul Ross State University (SRSU) is committed to equal access in compliance with Americans with Disabilities Act of 1973. It is SRSU policy to provide reasonable accommodations to students with documented disabilities. It is the student's responsibility to initiate a request each semester for each class. RGC students seeking accessibility services should contact Paulette Harris, Executive Assistant to the Vice President and Dean, at 830-279-3023 or email pharris@sulross.edu. Ms. Harris's office is at 2623 Garner Field Road, Uvalde, TX 78801 (this is the mailing address, too).*

University Libraries: *The Sul Ross Library offers FREE resources and services to the entire SRSU community. Access and borrow books, articles, and more by visiting the library's website, library.sulross.edu. SRSU RGC students may request InterLibrary Loans (ILLs) and book check outs from the Sul Ross Library to be picked up at the SWTJC library that is most convenient. Access requires your LoboID and password. Librarians are a tremendous resource for your coursework*

and can be reached in person, by email (srsulibrary@sulross.edu), or phone (432-837-8123).

The Southwest Texas Junior College (SWTJC) Library is also available on each campus for your physical use of the space or checking out books. Del Rio, Eagle Pass, and Uvalde students may use online resources available through SWTJC website, library.swtjc.edu. These libraries serve as pickup locations for your ILL or Document Delivery or book requests; to do so, choose the appropriate pick-up location when requesting materials from the Alpine campus.