MATH 3309: Foundations of Elementary Mathematics II

Sul Ross State University
Spring 2026

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Course Description MTH 3309 covers geometric concepts, probability, statistics, estimation, problem-solving, and other related topics.

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: 11:00 AM-12:15 PM (**Online**),
Thursday: 11:00 AM-12:15 PM (**Face to Face**, RGC | Room: 0B113),

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

Office Hours Monday, Wednesday, and Friday: 8:30 AM - 12:00 PM; or by appointment.

Course Policies

Attendance Policy

Attendance is mandatory. Students are expected to attend class in person in their registration classroom unless permission is given for extenuating circumstances. You will be held responsible for all material covered in class or the reading assignments. If you miss a class, you must 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 email, telephone, or text me. However, if you choose to contact me, please make sure to state your name at the beginning of any message. I am here to help you! Ask class questions, call, email, text, or come to my office. If you don't communicate with me, then I can't help you.

Grading Policy

Your grades will be weighted as follows:

Attendance	10%
Online Quizzes	40%
Midterm Exam	20%
Final Exam	30%

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.

Attendance / Participation

Attendance and participation grades will be based on your presence in class and your involvement in class activities. In simple terms, if you consistently attend class, actively pay attention, take notes, and participate in activities, you will receive full credit. Additionally, there will be online quizzes in every class. Please do not miss any class and remain fully attentive at all times.

Homework

Homework will be assigned for each section covered in the textbook. While it will not be collected or graded, it is a vital component of the course. Completing each assignment before the next class is essential for meaningful participation and overall success. If you encounter difficulties, be sure to ask questions; mastery of the homework material is necessary for exam readiness. As a guideline, you should expect to spend approximately 9 hours per week on coursework outside of class. Homework will be discussed regularly in class. Please come prepared with your textbook and appropriate writing materials.

Online Quizzes

There will be online quizzes each week. These quizzes are very similar to the TExES exam. By attending classes regularly and completing the quizzes, you will get valuable practice for the TExES exam. The quiz times will vary. We will conduct the quizzes right after completing selected topics, and we will discuss and decide together when to conduct each quiz. So, be prepared to take the quizzes and remain attentive during the classes. You will receive automatic feedback after each quiz for both correct and incorrect responses.

Exams

There will be one midterm exam. Its tentative date is **March 17**. Make-up exams will be given only in an emergency, in which case written justification and/or documentation must be provided and approved. The comprehensive final exam time and date to be announced once the university publishes the final exam schedule. The exams may be online, written, or a combination of both.

Subject Outline

Below is a tentative subject outline and schedule for this course. Next to each topic section is the corresponding section from the textbook

I. Rational numbers and real 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, invert-and-multiply rule
4. Rational numbers (§§6.1,4): the rational number system, arithmetic properties, density property, and applications.
5. Decimals and real numbers (§§7.1 – 2): the decimal system, powers of ten, terminating decimals and fractions, repeating decimals and fractions, irrational numbers and real numbers, the number line, arithmetic with decimals.
6. Ratios, proportions, and percents (§§7.3 – 4): ratios, proportions, proportional reasoning, percents.

II. Measurement: Length, Area, and Volume

1. The Measurement Process (§10.1): U.S. Customary (English) system of measures, metric units (International System), length, area, volume and capacity, weight and mass, temperature, unit analysis.
2. Area and Perimeter (§10.2): measurements in nonstandard units, congruence and addition properties of area, areas of polygons (conceptual understanding), length of a curve, area of a circle.
3. The Pythagorean Theorem (§10.3): proofs of the Pythagorean Theorem, applications of the Pythagorean Theorem, the converse of the Pythagorean Theorem.
4. Volume (§10.4): volumes of right prisms and right cylinders, volumes of oblique prisms and cylinders, volumes of pyramids and cones, volume of a sphere.
5. Surface Area (§10.5): surface area of right prisms and cylinders, surface area of pyramids, surface area of right circular cones, surface area of a sphere, comparing measurements of similar figures.

III. Statistics

1. Organizing and representing data (§13.1): dot plots, stem-and-leaf plots, histograms, line graphs, bar graphs, pie charts, pictographs, and cautions.
2. Measuring the center and variation of data (§13.2): the mean, the median, the mode, upper and lower quartiles, outliers, box plots, and the standard deviation.
3. Statistical inference (§13.3): the role of statistical inference, biased studies, and random samples, estimating the mean and standard deviation of a population, probability distributions, z-scores, and percentiles.

IV. Probability

1. The basics of probability (§14.1): basic terminology, experimental probability, theoretical probability, the addition principle, and complementary events.
2. Odds and expected value (§14.4): odds, expected value.

Q E P Mapped Course

Course Design: Communication Infused

To be successful in college and beyond, many sources (e.g., Morrealle & Pearson, 2008) indicate that communication competencies are essential. Sul Ross recognizes that the current generation of undergraduate university students should receive training to navigate a global world as competent communicators in various contexts and channels of communication.

Through our Quality Enhancement Plan (QEP) called Compass, Sul Ross aims to equip you to navigate excellence in the 21st century by developing your communication skills across multiple courses. This mathematics course is designed to enhance your communication skills. Therefore, this course has the following QEP Student Learning Outcome:

QEP Student Learning Outcome

The student will create works that exhibit skill in prepared and purposeful communication (written, oral, or visual).

University Statements

Distance Education Statement: *Students enrolled in distance education courses have equal access to the university's academic support services, such as library resources, online databases, and instructional technology support. For more information about accessing these resources, visit*

the SRSU website. Students should correspond using Sul Ross email accounts and submit online assignments through Blackboard, which requires a secure login. Students enrolled in distance education courses at Sul Ross are expected to adhere to all policies pertaining to academic honesty and appropriate student conduct, as described in the student handbook. Students in web-based courses must maintain appropriate equipment and software, according to the needs and requirements of the course, as outlined on the SRSU website. Directions for filing a student complaint are located in the student handbook.

SRSU Disabilities Services: *Sul Ross State University (SRSU) is committed to equal access in compliance with the 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 checkouts 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 by 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 the 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.*