

Course Syllabus

MATH 4320-V01: Real Analysis

Instructor: Dr. Angela Brown
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Office Hours: MW 2-4, TR 10-11, others by appointment.
Time and Place of Class Meetings: M 6-8:45 Online

Prerequisites: Math 2414-Calculus II

Required Textbooks: *Introduction to Real Analysis*, Dangelo, F and Sefried, M., 2000. ISBN 0-395-95933-0. If you did not opt out of the textbook fee, these should be arriving to you by mail. If you did opt out, you will need to purchase the book.

Other Equipment Needed: paper and pencils.

Course Content: The plan is to cover chapters 1-5 and parts of 6 if possible. This will be adjusted as necessary.

Learning Objectives The student will be able to prove mathematical statements with varying methods of proof, including direct proofs, proof by induction, proof by contradiction and proof by contrapositive. The student will be able to use the varying methods of proofs to prove their own theorems pertaining to real analysis.

Grading Scale: 90-100 A, 80-89 B, 70-79 C, 60-69 D, 59-Below F

Grading Policy: The grade weighting will be as follows:

Homework/Problem Presentations: 40%

Exams : 30%

Final Exam: 30%

Homework will be assigned periodically throughout the semester. Homework assignments must be complete and will be turned in on Tuesdays during class. Not all problems will be graded for content, but the assignment grade is contingent on completeness. If you use outside references, make sure to properly source the material.

There will be three exams in addition to the final exam. All exams will be closed notes, closed book, and no calculators allowed. No make-up exams will be given unless due to a school function. If you miss an exam with a valid excuse, the grade you make on the final exam can replace this grade. These exams will need to be scheduled outside of class with a proctor at your particular campus. If you are on the Alpine campus, you can schedule them with me. If you do not have a way to have a proctor, we can try set it up with the online proctoring, but I haven't had as good of luck with this.

The final exam is on Monday December 8 at 6:00 pm.

Attendance Policy: Students are expected to attend every class. If class must be missed, the student is expected to get the notes from a classmate, and to check with me or on Blackboard for announcements and

updated assignments.

Students are expected to arrive to class on time. If a student is perpetually late, they will be asked to not attend class unless they arrive on time. If tardiness becomes a problem for the class as a whole, people who arrive late will not be permitted to enter the class. If this stricter policy becomes necessary, there will be an announcement made in class.

It is policy of the university to drop a student with a grade of “F” if 9 hours or more of class are missed. For this course that would be 3 or more class sessions missed.

Americans With Disabilities Act: SRSU Accessibility 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. Students seeking accessibility/accommodations services must contact Mrs. Mary Schwartze Grisham, LPC, SRSU’s Accessibility Services Director or Ronnie Harris, LPC, Counselor, at 432-837-8203 or email mschwartz@sulross.edu or ronnie.harris@sulross.edu. Our office is located on the first floor of Ferguson Hall, room 112, and our mailing address is P.O. Box C122, Sul Ross State University, Alpine. Texas, 79832.

Counseling: Sul Ross has partnered with TimelyCare where all SR students will have access to nine free counseling sessions. You can learn more about this 24/7/365 support by visiting [Timelycare/SRSU](https://www.timelycare.com/sulross). The SR Counseling and Accessibility Services office will continue to offer in-person counseling in Ferguson Hall room 112 (Alpine campus), and telehealth Zoom sessions for remote students and RGC students.

Library Services: The Bryan Wildenthal Memorial Library and Archives of the Big Bend in Alpine offer 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/. Off-campus access requires logging in with 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).

No matter where you are based, public libraries and many academic and special libraries welcome the general public into their spaces for study. SRSU TexShare Cardholders can access additional services and resources at various libraries across Texas. Learn more about the TexShare program by visiting library.sulross.edu/find-and-borrow/texshare/ or ask a librarian by emailing srsulibrary@sulross.edu.

Mike Fernandez, SRSU Librarian, is based in Eagle Pass (Building D-129) to offer specialized library services to students, faculty, and staff. Utilize free services such as InterLibrary Loan (ILL), ScanIt, and Direct Mail to get materials delivered to you at home or via email.

Distance Education Statement: Students enrolled in distance education courses have equal access to the university’s academic support services, such as Smarthinking, 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 secure login information to verify students’ identities and to protect students’ information. The procedures for filing a student complaint are included in the student handbook. 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.

Academic Integrity: Students in this class are expected to demonstrate scholarly behavior and academic honesty in the use of intellectual property. A scholar is expected to be punctual, prepared, and focused; meaningful and pertinent participation is appreciated. Examples of academic dishonesty include but are not limited to: Turning in work as original that was used in whole or part for another course and/or professor; turning in another person's work as one's own; copying from professional works or internet sites without citation; collaborating on a course assignment, examination, or quiz when collaboration is forbidden.

Required Student Responsibilities Statement

All full-time and part-time students are responsible for familiarizing themselves with the Student Handbook and the Undergraduate & Graduate Catalog and for abiding by the University rules and regulations. Additionally, students are responsible for checking their Sul Ross email as an official form of communication from the university. Every student is expected to obey all federal, state and local laws and is expected to familiarize themselves with the requirements of such laws.

Classroom Climate of Respect: Importantly, this class will foster free expression, critical investigation, and the open discussion of ideas. This means that all of us must help create and sustain an atmosphere of tolerance, civility, and respect for the viewpoints of others. Similarly, we must all learn how to probe, oppose and disagree without resorting to tactics of intimidation, harassment, or personal attack. No one is entitled to harass, belittle, or discriminate against another on the basis of race, religion, ethnicity, age, gender, national origin, or sexual preference. Still, we will not be silenced by the difficulty of fruitfully discussing politically sensitive issues.

Supportive Statement: I am to create a learning environment for my students that supports various perspectives and experiences. I understand that the recent pandemic, economic disparity, and health concerns, or even unexpected life events may impact the conditions necessary for you to succeed. My commitment is to be there for you and help you meet the learning objectives of this course. I do this to demonstrate my commitment to you and to the mission of Sul Ross State University to create a supportive environment and care for the whole student as part of the Sul Ross Familia. If you feel like your performance in the class is being impacted by your experiences outside of class, please don't hesitate to come and talk with me. I want to be a resource for you.

Tutoring: The Lobo Den Tutoring Center offers FREE tutoring support to help you excel in your courses. Whether you need assistance in Writing, Math, Science, or other subjects, we're here to help!

Important Information:

Drop-in and Scheduled Appointments: Flexible options to fit your needs. Hours of Operation: Monday–Friday, 8:00 AM – 5:00 PM. Workshops: Attend our regularly hosted academic workshops on STEM topics and professional development, often in collaboration with specialized faculty. Location: BWML Room 128. Contact Us: For more information or to book an appointment, email tutoring@sulross.edu or call (432) 837-8726. Looking for additional support?

Tutor.com offers FREE 24/7 online tutoring in over 200 subjects, including specialized support for ESL and ELL learners with native Spanish-speaking tutors. Access Tutor.com via Blackboard: Log in to your Blackboard account to get started anytime, anywhere. Take advantage of these valuable resources to boost your confidence and performance in your classes. We look forward to helping you succeed!

Important Dates:

August 25	First day of classes
August 28	Last day for late registration and schedule changes Payment deadline for students, 4 p.m.
September 1	Labor Day Holiday
September 10	Census day
October 20	Mid-term
November 7	Last day to drop a session I course with a 'W'. Drops must be processed and in the University Reg
November 26-28	Thanksgiving
December 3	Last Class Day
Decemeber 5, 8-10	Final Examinations

Tentative Schedule-Subject to Change

Monday	Material
August 25	Introduction and Methods of Proofs, Set Theory
Sept 1	Labor Day no class
Sept 8	Algebraic and Order Properties of $\mathbb{R}$, Completeness Axiom, Denseness of Rationals
Sept 15	Cardinality, Convergence and Limit Theorems
Sept 22	Exam 1, Subsequences and Monotone Sequences
Sept 29	Bolzano-Weierstrass Theorems, Cauchy Sequences
Oct. 6	Limits at Infinity, $\limsup$ and $\liminf$, Continuous Functions
Oct. 13	Continuity and Sequences, Limits of Functions and Consequences of Continuity
Oct. 20	Uniform Continuity, Discontinuities and Monotone Functions
Oct. 27	Exam 2, Derivative and the Mean Value Theorem
Nov. 3	Derivatives
Nov10	Taylor's Theorem and L' Hopital's Rule, Ellipses
Nov17	Riemann Integrals, Riemann Sums
Nov24	Properties of Riemann Integrals, Fundamental Theorem of Calculus
December 1	Exam 3, Fundamental Theorem of Calculus