

Advanced Calculus 4350, TTH 11:00-12:30

Instructor: Răzvan Gelca

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Office Hours: TTH 9:30-10:45, Wednesday 2-5 and by appointment.

Text: Introduction to Real Analysis, Bartle and Sherbert, 4th ed. Wiley.

Description of the course: Students learn how to think and reason in the context of analysis on the real axis, and learn how to write correct and clear mathematical arguments in this context. This is a proof based course, and we emphasize epsilon-delta proofs. Concepts and skills to be mastered by the students include: limits of sequences, limits of functions, continuous functions, derivatives of functions on the line.

Course Outline:

Chapter 2.

08.25, 08.30. Real Numbers.

Chapter 3.

09.01-09.20. Limits of sequences.

09.22. In class midterm exam.

Chapter 4.

09.27-10.06. Limits of functions.

Chapter 5

10.11-10.20. Continuous functions.

10.25. In class midterm exam.

Chapter 6.

10.27-11.15. Derivatives.

11.17. In class midterm exam.

All other classes are a review for the final exam, which is comprehensive.

Learning outcomes: Students will learn the mathematical approach to differential calculus.

Assessment of learning outcomes: There will be 3 midterm exams, each worth 11% of the final grade, a final comprehensive worth 33% of the final grade, and several workshop quizzes worth 33% of the grade (lowest 2 are dropped). Homework is not collected but is good training for the workshop quizzes and midterms. Attendance is mandatory, and will be taken into account when evaluating student's performance.

How to study? First, you should read the classroom notes. Second, you should read the textbook, trying to solve by yourself the detailed examples from the book, then look at how they are solved there. Do the homework regularly. If you have any questions, past or

present, ask them in class. Listen to teacher's explanation carefully. If this all fails, come and ask for help and advice during the office hours.

Other matters:

ADA accommodations (TTU Operating Policy 34.22). Any student who, because of a disability, may require special arrangements in order to meet the course requirements should contact the instructor as soon as possible to make any necessary arrangements. Students should present appropriate verification from Student Disability Services during the instructors office hours. Please note: instructors are not allowed to provide classroom accommodations to a student until appropriate verification from Student Disability Services has been provided. For additional information, please contact Student Disability Services in West Hall or call 806-742-2405.

Absence for observance of a religious holy day (TTU Operating Policy 34.19). 1. "Religious holy day" means a holy day observed by a religion whose places of worship are exempt from property taxation under Texas Tax Code 11.20. A student who intends to observe a religious holy day should make that intention known in writing to the instructor prior to the absence. A student who is absent from classes for the observance of a religious holy day shall be allowed to take an examination or complete an assignment scheduled for that day within a reasonable time after the absence. A student who is excused may not be penalized for the absence; however, the instructor may respond appropriately if the student fails to complete the assignment satisfactorily.

Academic Honesty (TTU Operating Policy 34.12). It is the aim of the faculty of Texas Tech University to foster a spirit of complete honesty and high standard of integrity. The attempt of students to present as their own any work not honestly performed is regarded by the faculty and administration as a most serious offense and renders the offenders liable to serious consequences, possibly suspension. Scholastic dishonesty includes, but it not limited to, cheating, plagiarism, collusion, falsifying academic records, misrepresenting facts, and any act designed to give unfair academic advantage to the student (such as, but not limited to, submission of essentially the same written assignment for two courses without the prior permission of the instructor) or the attempt to commit such an a

TTU Resources for Discrimination, Harassment, and Sexual Violence: Texas Tech University is committed to providing and strengthening an educational, working, and living environment where students, faculty, staff, and visitors are free from gender and/or sex discrimination of any kind. Sexual assault, discrimination, harassment, and other Title IX violations are not tolerated by the University. Report any incidents to the Office for Student Rights and Resolution, (806)-742-SAFE (7233) or file a report online at titleix.ttu.edu/students. Faculty and staff members at TTU are committed to connecting you to resources on campus. Some of these available resources are: TTU Student Counseling Center, 806-742-3674, <https://www.depts.ttu.edu/scc/> (Provides confidential support on campus.) TTU Student Counseling Center 24-hour Helpline, 806-742-5555, (Assists students who are experiencing a mental health or interpersonal violence crisis. If you call the helpline, you will speak with a mental health counselor.) Voice of Hope Lubbock Rape Crisis Center, 806-763-7273, voiceofhopelubbock.org (24-hour hotline that provides support for survivors of sexual violence.)

The Risk, Intervention, Safety and Education (RISE) Office, 806-742-2110, rise.ttu.edu (Provides a range of resources and support options focused on prevention education and student wellness.) Texas Tech Police Department, 806-742-3931, <http://www.depts.ttu.edu/ttpd/> (To report criminal activity that occurs on or near Texas Tech campus.)

If you cannot take a certain test, please announce the instructor at least three days in advance. After the test, only medical excuses will be accepted.

What to do in case of emergency

If a student encounters a personal problem that affects their ability to attend class or complete their work on time, they should immediately contact the Dean of Students office via phone (806-742-2984) or email (deanofstudents@ttu.edu). The Dean of Students can help with emergencies including COVID, car accidents, death of a family member, inability to afford food, health issues, and more.

In exceptional circumstances, the Dean of Students can authorize exceptions to class policies. That's why it is critically important to immediately inform both your teacher and the Dean of Students office of any emergency. In addition, Title IX reporting and support resources are available at <https://www.depts.ttu.edu/titleix/>.

What to do in case of an issue with your teacher

Should a student encounter an issue in this course, they must follow these steps, in order.

1. First discuss the issue with the teacher. Explaining your concern calmly and clearly will usually resolve the problem.

2. If the issue is not resolved, or the issue is of a matter that the student is not comfortable discussing with the instructor, the student should contact the course coordinator NAME AND EMAIL HERE.

3. If you need further assistance, contact Dr. Brock Williams (brock.williams@ttu.edu), the Associate Chair for Undergraduate Studies.

Do not contact the Dean, Provost, Chancellor, etc, without first following these steps.

COVID Pandemic Information

The University will continue to monitor CDC, State, and TTU System guidelines concerning COVID-19. Any changes affecting class policies or temporary changes to delivery modality will be in accordance with those guidelines and announced as soon as possible. Students will not be required to purchase specialized technology to support a temporary modality change, though students are expected to have access to a computer to access course content and course-specific messaging.

This is where students can find information about COVID testing, vaccinations, isolation, and quarantine. <https://www.depts.ttu.edu/communications/emergency/coronavirus/>.

If you test positive for COVID-19, report your positive test through TTU's reporting system: <https://www.depts.ttu.edu/communications/emergency/coronavirus/>. Once you report a positive test, the portal will automatically generate a letter that you can distribute to your professors and instructors.