

**MATHEMATICS 5319**  
**INTERMEDIATE ANALYSIS II**  
**Spring 2014**

**Professor:** Dr. Linda Allen; Office: Math 117 I; Math Office Phone: 806-742-2580

**Office Hours:** TR: 11:00 a.m.–12:00 p.m., 2:00 p.m.–3:00 p.m.  
or by appointment

**Class Meeting Time and Room:** TR: 9:30 a.m.–10:50 a.m, Math 10

**Course Website:** [www.math.ttu.edu/~linallen/Math5319Spring2014.html](http://www.math.ttu.edu/~linallen/Math5319Spring2014.html)

**Textbook:** *Methods of Real Analysis, Second Edition* by Richard R. Goldberg

**Material Covered:**

Chapter 6–Connectedness, Completeness, and Compactness

Chapter 7–Calculus

Chapter 9–Sequences and Series of Functions

Chapter 10–Three Famous Theorems

Chapter 11–The Lebesgue Integral

**Expected Learning Outcomes:** The purpose of this course is to build a bridge between senior-level analysis and the more advanced graduate studies in real analysis and functional analysis. Emphasis will be placed on theory and proofs. In the second semester, Intermediate Analysis II, the student will build on theory and concepts learned in Intermediate Analysis I: sets and functions, countable set, convergence of sequences and series of real numbers, Cauchy sequences, metric spaces, continuous functions on metric spaces, open, closed and connected sets in metric spaces. The student will acquire a thorough understanding of the concepts of completeness, compactness and uniform continuity. The student will gain a strong theoretical foundation on Riemann integration, convergence of sequences and series of functions including the difference between pointwise versus uniform convergence. The student will become familiar with three classic theorems in analysis and understand their importance in applications: Weierstrass approximation theorem, Picard existence theorem and Arzela-Ascoli theorem. Finally, the student will acquire a thorough understanding of measurable sets and functions and the definition and properties of the Lebesgue integral.

**Assessment:** Continuous assessment of the progress of the course occurs through ongoing communication between the professor and the students. Students are encouraged to ask questions during class and to seek the professor's help out of class when needed. The expected learning outcomes for the course will be assessed through scheduled exams, quizzes, homework assignments and attendance.

**Exams, Homework and Quizzes:** Two exams will be given, a midterm exam and a final exam. Homework will be assigned regularly and collected weekly or biweekly on Thursdays. Four quizzes will be given. Your course grade will be computed based on your scores on exams, homework and quizzes. Borderline grades will be determined by attendance. No make-ups will be given for exams, quizzes or homework except for sickness or participation in a university-sponsored event. In such circumstances evidence of your sickness or participation in a university-sponsored event must be presented to the professor.

**Attendance:** Class attendance is important. The lectures explain and complement the material in the text. A thorough understanding of the material is significantly improved by diligent class attendance. If you need to leave a class early, please inform the professor before the beginning of class.

**Grades:** The assessment of student progress will include: (1) two exams (60%), (2) graded homework assignments (25%), (3) four quizzes (15%), (4) attendance (borderline cases).

**Exam and Quiz Schedule:**

Exam, Quiz	Date
Quiz 1	Thursday, February 6
Quiz 2	Thursday, February 27
Exam 1	Thursday, March 13
Quiz 3	Thursday, April 10
Quiz 4	Thursday, April 24
Exam 2	Friday, May 9 (7:30 a.m.–10:00 a.m.)

## Important Dates and Facts:

1. Monday, January 20: Martin Luther King Jr. Holiday
2. Monday-Friday, March 17-21: Spring Vacation
3. Wednesday, March 26: Last day for student-initiated drop with penalty
4. Monday, April 21: Easter Holiday
5. Tuesday, May 6: Last day of classes.
6. **Civility in the Classroom:** Texas Tech University endeavors to foster a classroom climate of mutual respect among students and between students and teacher. Mutual respect means that we should be tolerant of different ideas and varying opinions about topics of discussion in class, that we address each other respectfully and without interrupting while others are speaking, and that we do not engage in disruptive behavior in class. Signs of disrespect include, but are not restricted to: ringing cell phones (students must turn them off or leave them home), reading a newspaper or other material that is not part of a class assignment while in class, talking with classmates during class, eating and drinking in class, and similar disruptive behaviors. Students who engage in disruptive behavior will be warned. Repeated disruptive behavior may result in the student being asked to leave the classroom.
7. **Academic Honesty:** The TTU Code of Student Conduct, which you should have received when you enrolled in the university, contains a lengthy list of prohibited behaviors, among which is Academic Dishonesty. Please note that cheating and plagiarism (a form of cheating) are included among the actions that are subject to disciplinary action. *Plagiarism:* The appropriation or imitation of the language, ideas, and thoughts of another author, and representation of them as ones original work. The Random House College Dictionary, revised edition. New York: Random House, 1975, p. 1014. 1. The use, by paraphrase or direct quotation, of the published or unpublished work of another person without full and clear acknowledgement; 2. the unacknowledged use of materials prepared by another person or agency engaged in the selling of term papers or other academic materials. Student Affairs Handbook, Texas Tech University, Lubbock, Texas, 1998-99, p. 22. Plagiarism and cheating are not tolerated and will result in a grade of 0 on exams or on work that contains plagiarized material. In addition, a grade of F may be awarded for the course. Any cases of plagiarism or cheating will be reported to the Honors College and the responsible academic dean (i.e., Arts & Sciences, Business Administration, Engineering, etc.) for such disciplinary action as they see fit to administer.
8. **Accommodation of Students with Disabilities:** 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, you may contact the Student Disability Services office in 335 West Hall or 806-742-2405.
9. **Student Absence for Observation of Religious Holy Days:** A student who is absent from classes for the observation 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 if, not later than the fifteenth day after the first day of the semester, the student had notified the instructor of each scheduled class that the student would be absent for a religious holy day.