Advanced Analysis I
Math 471, Winter 2019
10:00-10:50 MTThF, Samualson Math Ed. Lab 116

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Text: Elementary Analysis, 2nd edition, by Kenneth Ross.

Course Description: This course is the first in a two-course sequence introducing students to the mathematically rigorous study of functions of a real variable. While some of our time will be spent proving familiar theorems from the standard calculus sequence, the majority of our time will be spent studying unfamiliar concepts and examples that challenge and improve our mathematical intuition: topology of R, metric spaces, compactness, connectedness, Baire's Theorem, and uniform continuity, to name a few.

Course Goals: The main goal of the course is for students to learn how to read, understand, and write rigorous mathematical proofs. In addition, some less measurable goals are the following:

- Students will realize (and experience) why an intuitive understanding of calculus is insufficient as a foundation for building more complicated and powerful mathematical tools.

- Students will be rewarded for their efforts toward mathematical rigor and abstraction by being exposed to concepts and examples that show the richness inherent in the study of functions of a real variable.

Course Policies:

Class Participation: Daily classes will be a mixture of lecture and discussions. Meaningful contributions are expected each week. This can take the form of presenting a proof or participating in class discussions. There should be plenty of time to share your thoughts, understandings, and questions. Poor attendance will adversely impact your participation score.

Homework: Problems from each section will be assigned and selected problems will be turned in for grading. You are encouraged to work together on homework but each student must turn in his or her own write-up.

Exams: There will be a take-home final exam. You cannot pass the course without taking the final exam.

Course Grade: Course grades will be assigned according to the following:

Homework	60%
Participation	10%
Final Exam	30%

The following scale will be used when assigning course grades

86-100% = A	66-69.5% = C+	below 50% = F
82-85.9% = A-	62-65.9% = C	
78-81.9% = B+	59-61.9% = C-	
74-77.9% = B	56-58.9% = D+	
70-73.9% = B-	53-55.9% = D	
	50-52.9.9% = D-	

Central Washington University is committed to creating a learning environment that meets the needs of its diverse student body. If you anticipate or experience any barriers to learning, discuss your concerns with the instructor. Students with disabilities should contact Disability Services to discuss a range of options to removing barriers, including accommodations. Student Disability Services is located in Hogue 126. Call (509) 963-2214 or email ds@cwu.edu for more information.

General Comments: I have been very careful in trying to select a text that is readable yet covers topics beyond a rehashing of familiar calculus concepts. I expect you to take advantage of the thorough explanations by reading the text in detail. You may find it helpful to write comments in the text that fill in the gaps or highlight questions you would like to address during class.

Many of the problems you will work on will take several attempts over a period of several days. You may even find yourself waking-up in the middle of the night thinking about a particular problem. Be persistent, keep up, work together, and enjoy yourself. After all, this is how the material you will be studying was developed.

I assume everyone has experience writing logically and grammatically correct proofs. The text does a good job of easing you into proof writing without spending too much time reviewing the logical structure of proof techniques. As we move along in the course our expectations of each other's proof writing abilities will increase.