

Fall 2015
Math 471 Advanced Analysis 1
Bouillon 110, 8:00 - 8:50 MTWTh

Instructor: Dr. Jim Bisgard
Office: Bouillon 118
Phone: 963-2823
E-mail: bisgardj@cwu.edu
Office Hours: M-F 10:00 - 11:00, and by appointment.
Web page: www.cwu.edu/~bisgardj/teaching.html

Required Text: Ross, Kenneth A.; Elementary Analysis: The Theory of Calculus, 2nd edition, published by Springer-Verlag

Course Goals: The goal of Math 471 is to approach calculus rigorously. For example, we want to give a proof of the Intermediate Value Theorem that doesn't rely on a picture. (The picture may inform our thinking, but we don't want to appeal to it.) A major part of that goal is learning how to read proofs **AND** learning to write your own proofs. In terms of sections of the book, we will start with Section 1.7, and get to Chapter 7. This means our list of topics will include:

1. Number systems (naturals, integers, rationals, reals and complexes) (However, we won't build the real numbers up from scratch!)
2. Sequences
3. A little point-set topology
4. Continuity

1 Grades/Exams/Homework

- Grades

Grades will be calculated using the following weighting system:

Homework: 50%;

Exams: 50% total, broken up as follows: 25% for the mid-term and 25% for the final.

- Homework

You'll get a homework assignment every Tuesday (except the first week!) which will be due on the Thursday of the following week. (So, your first homework will be due October 1.)

You may use/ask/talk to whatever/whoever you'd like, as long as you say what resources you used. However, you must write your solutions up in **your own words** to hand in. **DO NOT** wait until the day before homework is due to start working on it. There won't be a large number of problems, but you will need spend a fair bit of time thinking about the problems!

- Homework Revisions

Each homework problem will be graded out of 5 points. Graded homework will be returned on Monday, and revisions will be due on Wednesday. Revisions can earn you up to one point per problem. Revisions must be on a new sheet of paper, and you must turn in your original graded work together with your revision. To help with your revisions, I will use two colors to grade: green comments refer to stylistic and/or minor problems, while red comments refer to more major problems, including logical errors (for example, using "all" when "some" is needed, or incorrectly negating a quantifier).

- Exams

There will be two exams: a mid-term and a final. They will be take-home exams, and you'll have a week to work on them. In contrast to the homework, I want you to work by yourself on the exams. The mid-term will be handed towards the end of October, and the Final Exam will be handed out on December 2 and due on December 10.

- Expectation for Homework and Exams

Your homework and exams should be written up neatly and legibly, using complete sentences where appropriate. (For example, I don't expect you to write $(a + b)^2 = a^2 + 2ab + b^2$ using complete sentences!) You are encouraged to type your solutions using L^AT_EX. If you want to submit your solutions electronically, you must typeset your solutions - I will not accept scans or pictures of handwritten work to grade! Part of writing proofs is to use correct and proper grammar, spelling, and punctuation. As a result, you will be graded on mechanics, as well as the correctness of your proofs! Comments on these aspects of your homework will be in green, and will be worth at most one point per problem.

2 Disability Support

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.