

Spring 2016
Math 371
Advanced Calculus
Black 224, 9:00 - 9:50 MTWF

Instructor: Dr. Jim Bisgard

Office: Bouillon 118

Phone: 963-2823

E-mail: bisgardj@cwu.edu

Office Hours: MTWF 10:00 - 11:50, and by appointment.

Required Text: None, but class notes may be found at
www.cwu.edu/~bisgardj/teaching.html

Course Goals: The goal of Math 371 is to approach the real numbers from an axiomatic point of view. What does this mean? We will start with a list of some basic algebraic properties of the real numbers (the axioms), and then we will see what properties must follow. For example, why is $\frac{1}{(\frac{1}{x})} = x$? As it turns out, it will follow from our axioms. In addition, we will see what property distinguishes the real numbers from the rational numbers, as well as explore some of the consequences of this property. (Among them, we will prove that $\lim_{n \rightarrow \infty} \frac{1}{n} = 0$.) Next, we will examine sequences and convergence of sequences and series of real numbers

1. Number systems and their axioms (naturals, integers, rationals, reals and complexes)
(However, we won't build the real numbers up from scratch!)
2. What distinguishes reals from rationals?
3. Sequences and Series
4. Continuity
5. Open, Closed, and Compact

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.

I will use the following formula to determine your grade percentage:

$$.5 \times \frac{\text{total homework points earned}}{\text{total homework points possible}} + .25 \times \frac{\text{Mid-term Exam points earned}}{\text{Mid-term Exam points possible}} + .25 \times \frac{\text{Final Exam points earned}}{\text{Final Exam points possible}},$$

as well as the following scale:

	86 – 87.9 : B+	72 – 73.9 : C+	51 – 52.9 : D+	below 37 : F
90 – 100 : A	76 – 85.9 : B	62 – 71.9 : C	40 – 50.9 : D	
88 – 89.9 : A–	74 – 75.9 : B–	60 – 61.9 : C–	37 – 39.9 : D–	

- Homework

You'll get a homework assignment every Tuesday which will be due on the Wednesday of the following week **at noon**. (So, your first homework will be due April 6.) 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. If you want to submit your homework electronically, you must type it up! I will not accept scanned images of handwritten homework.

- Homework Revisions

Each homework problem will be graded out of 5 points. Graded homework will be returned on Monday, and you will be able to turn in a revision on the following Wednesday that will be able to 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).

- Late Policy

Homework and Exams will be due at noon on their due date. Homework or Exams handed in after that time on their due date will lose 4 points immediately (which cannot be made up by revisions), and 4 more points for every 24 hours after (which cannot be made up by revisions). That means: if you hand in homework at 12:30 pm on the due date, you can earn at most 16 out of 20 on your homework. If you hand in your homework one day after the due date at 12:30 pm, you can earn at most 12 out of 20, since over 24 hours will have passed.

- 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, **YOU MUST WORK BY YOURSELF ON THE EXAMS!** The mid-term will be handed at the beginning of May, and the Final Exam will be handed out on April 31 and due Wednesday, June 8 at noon.

- 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!) This means that grammar and punctuation will count! If you leave out punctuation or your sentences do not parse, you will not earn full credit.

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.