Instructor: Dr. Jim Bisgard
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Office Hours: TTh 9:00 - 10:50, MW 11:00 - 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 $\frac{1}{\left(\frac{1}{x}\right)} = x$? 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 $\lim\limits_{n \to \infty} \frac{1}{n} = 0$.) 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 Thursday of the following week **at 2 pm**. (So, your first homework will be due October 2.) 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 2 pm 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 2:30 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 2:30 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 November, and the Final Exam will be handed out on December 4 and due Thursday, December 11 at 2:00.

- 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!)

2 Legalese/Fine Print

Students with disabilities who wish to set up academic adjustments in this class should give me a copy of their "Confirmation of Eligibility for Academic Adjustments" from the Disability Support Services Office as soon as possible so we can discuss how the approved adjustments will be implemented in this class. Students without this form should contact the Disability Support Services Office, Bouillon 140 or DS@cwu.edu or 963-1202.