Math 3150 Analysis I Spring 2018 Section 001 Syllabus

1 Contact

Instructor: Linda Brown Westrick
Office: MONT 312
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Office hours: Mondays 2:30-3:30, Wednesdays 1-2pm and by appointment

2 Organization

Time: MWF 11:15-12:05
Location: MONT 420
Textbook: Elementary Analysis: The Theory of Calculus, 2nd edition. Kenneth A. Ross.
Website: `www.math.uconn.edu/~westrick/math3150s18/`

3 Topics

- Basic properties of real numbers, including how existence of sup and inf distinguishes them from the naturals, integers and rationals.
- Rigorous understanding of sequences: boundedness, monotonicity, convergence, limit, limit points, subsequences, Bolzano-Weierstrass Theorem, and Heine-Borel Theorem (for sequences in closed bounded intervals).
- Rigorous understanding of series: partial sums, convergence, absolute convergence, tests for convergence (comparison, ratio, root, alternating), geometric and p-series.
- Formal definitions of limits and continuity of functions, including one-sided limits, infinite limits and limits at infinity.
- Properties of continuous functions on closed bounded intervals: existence of maxima and minima, intermediate value theorem, image is a closed bounded interval, uniform continuity.
- Basic concepts of differential calculus: definition of derivative, Rolles Theorem, Mean Value Theorem and their consequences.
- Basic concepts of integral calculus: Riemann sums, integrable functions, Fundamental theorem of Calculus.

4 Evaluation

- Weekly homework, due Mondays
- We may have a few quizzes. These will be announced in advance.
- There will be a midterm on Friday, March 2nd.
- There will be a final exam.

Grading scheme: 40% Homework and quizzes, 30% midterm, 30% final

In general, I will not accept late homework, or do make-ups for quizzes and exams, except in extreme and well-documented circumstances. If you have a conflict with the exam date listed above, please let me know as soon as possible.

5 Academic Integrity and Resources

On the homework, you are encouraged to work with each other to come up with arguments, but you must write up your work separately.

- **Good scenario**: Maria and Vince talk through all the problems, coming up with proof strategies. Then they go home and each write up their proofs on their own.
- **Violation of academic standards**: Maria and Vince talk through all the problems, coming up with proof strategies. Also, as they go along, Maria is writing up all the proofs while Vince looks on and makes suggestions. Then Vince writes his version of their joint effort, following along her write-up but changing the phrasing here and there so that it is in his own voice.

Academic Integrity (`https://community.uconn.edu/academic-misconduct/`)
Dean of Students (`http://dos.uconn.edu`)
Center for Students with Disabilities (`http://csd.uconn.edu`)