

MTH 503 Advanced Calculus I: Policy Statement

Instructor: William O. Bray
Office Cheek Hall 8M
Office Hours 1-2 MWF & by appointment
wbray (at) missouristate (dot) edu

Fall 2017

Overview

The study of advanced calculus or sometimes called real analysis is central to an undergraduate degree in mathematics. This stems primarily from the historical importance of the development of calculus and the centrality of the ideas in calculus throughout mathematics. The course is not simply a rehash of what you learned in undergraduate calculus courses. Indeed, our course will be a rigorous study of the underpinning ideas and concepts. You will focus on careful definitions, precise formulation of theorems, and well written detailed proofs.

Text Steven G. Krantz, *Real Analysis and Foundations*, CRC Press, 4th edition (2017)

Topics We essentially cover the first seven chapters of the book. I may occasionally supplement the text with my own notes. Key topics are as follows.

1. Foundations: construction of the real numbers. A solid understanding of what a real number is and how they are constructed is central to the course.
2. Sequences and Series. Here the focus is on convergence and what can be said when they do not converge.
3. Topology of the Real Line. The ideas here are central to precise formulation of continuity of functions and provide key tools to study derivatives and integrals. In many respects this chapter is an introduction a more abstract notion: metric spaces.
4. Limits & Continuity of Functions.
5. Differentiation of Functions.
6. Integrals.

Grades All grades in the course will be based on homework and exams as follows,

- Homework 30%. This will be collected weekly starting the second week of the semester.
- Two inclass exams 50%. Rough dates; early October and mid November. Do not miss these.
- Final Exam 20%. Part of this will be during the usual final exam period and part will be takehome.

Misc Here are some standard and common sense policies.

Attendance Class attendance is central to success in this class. If you need to miss class, please contact me beforehand if at all possible.

Academic Integrity Missouri State University is a community of scholars committed to developing educated persons who accept the responsibility to practice personal and academic integrity. You are responsible for knowing and following the University's academic integrity policy plus additional more-specific policies for each class. The University policy, formally known as the "Student Academic Integrity Policies and Procedures" is available online at http://www.missouristate.edu/policy/Op3_01_AcademicIntegrityStudents.htm and also at the Reserves Desk in Meyer Library. Any student participating in any form of academic dishonesty will be subject to sanctions as described in this policy.

Non-discrimination Missouri State University is an equal opportunity/affirmative action institution, and maintains a grievance procedure available to any person who believes he or she has been discriminated against. At all times, it is your right to address inquiries or concerns about possible discrimination to the Office for Institutional Equity and Compliance, Park Central Office Building, 117 Park Central Square, Suite 111, 417-836-4252. Other types of concerns (i.e., concerns of an academic nature) should be discussed directly with your instructor and can also be brought to the attention of your instructor's Department Head. Please visit the OED website at www.missouristate.edu/equity/.

Disability Accommodation To request academic accommodations for a disability, contact the Director of the Disability Resource Center, Meyer Library, Suite 111, 417-836-4192 or 417-836-6792 (TTY), www.missouristate.edu/disability/contact.htm. Students are required to provide documentation of disability to the Disability Resource Center prior to receiving accommodations. The Disability Resource Center refers some types of accommodation requests to the Learning Diagnostic Clinic, which also provides diagnostic testing for learning and psychological disabilities. For information about testing, contact the Director of the Learning Diagnostic Clinic, 417-836-4787, <http://psychology.missouristate.edu/ldc>.

Cell Phones Lets keep it simple: turn them to silent/off and put them away. They are disruptive in class.