MATH 409—Advanced Calculus I
SPRING 2012, SECTIONS 200 AND 501

Instructor: David Kerr
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Office: Milner Hall 121
Office hours: MW 10:30–12:00, or by appointment

Lectures: MWF 9:10–10:00, Blocker 148


Course description: Axioms of the real number system; point set theory of the real number line; compactness, completeness and connectedness; continuity and uniform continuity; sequences, series; theory of Riemann integration.

Schedule:

1. Ordered fields, completeness, induction, inverse functions, countable and uncountable sets (3 weeks)
2. Limits of sequences, limit theorems, Bolzano-Weierstrass theorem, Cauchy sequences (2.5 weeks)
3. Limits of functions, continuity, uniform continuity (2.5 weeks)
4. Derivatives, differentiability theorems, Mean value theorem, Taylor’s theorem, l’Hôpital’s rule, inverse function theorems (3 weeks)
5. The Riemann integral, Riemann sums, Fundamental theorem of calculus, improper integration (3 weeks)

Grading: Grades will be based on two in-class exams (worth 25% each), a cumulative final exam (30%), and weekly assignments (20%), and will be determined in the standard way: A: 90–100, B: 80–89, C: 70–79, D: 60–69, F: 0–59. The final exam will be held from 10:00 a.m. to noon on Friday May 4. The in-class exams will be held on Wednesday February 15 and Wednesday March 28.

Make-up policy: In accordance with university regulations, make-ups for missed exams and assignments will only be allowed for a university-approved excuse in writing. Whenever possible, students should inform the instructor before an exam or assignment is missed. Students are required to notify the instructor by the end of the next working day after missing an exam or assignment. Otherwise, they forfeit their rights to a make-up.

Support services: The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among
other things, this legislation requires that all students with disabilities be guaranteed a learning
environment that provides for reasonable accommodation of their disabilities. If you believe you
have a disability requiring an accommodation, please contact the Department of Student Life,
Services for Students with Disabilities, in Room 126 of the Koldus Building or call 845-1637.

**Academic integrity:** The Aggie Code of Honor states “An Aggie does not lie, cheat, or steal or
tolerate those who do.” See http://www.tamu.edu/aggiehonor for university policy concerning
academic dishonesty and the rules and procedures of the Honor Council.

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