
MthSc 454: Advanced Calculus II (Real Analysis II)

SUMMER SESSION II, 2013

Martin Hall M-301, MTWR 2:15-4:05pm

Instructors	Jim Brown (jimlb@clermson.edu) OFFICE: Martin Hall O-324 PHONE: (864) 656-2331 OFFICE HOURS: TBD.	Matthew Macauley (macaule@clermson.edu) OFFICE: Martin Hall O-325 PHONE: (864) 656-1838 (no voicemail!) OFFICE HOURS: TBD.
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Website http://www.math.clemson.edu/~macaule/classes/m13_mthsc454/

Textbook *Real Analysis*, by Manfred Stoll.

Prerequisites MthSc 453 (Advanced Calculus I).

Policies

- Attendance: We will take attendance. If you miss a class for some reason, it is your responsibility to get notes, etc. from someone in class. I will not repeat lectures during my office hours. I prefer to know in advance if you cannot make a lecture, and may give you an excused absense if you inform me at least 12 hours before class. Attendance may be used as the deciding factor in borderline cases of final grades.
- If you get an A or B on the final exam, then your final grade in the course will be AT LEAST the grade you earned on the final exam, as long as you (i) attend class very regularly, AND (ii) maintain a passing grade on the homework.
- If you want to know your grade at any point during the semester, consult the grading rubric below.
- All drop/add procedures are your responsibility.
- Absent Professor Policy: If the instructor has not arrived within 15 minutes of the scheduled class time, you may assume that class has been canceled.
- All use of cell phones, laptops, and PDAs is prohibited during lecture. Calculators, cell phones, laptops, and PDAs will not allowed during exams.
- Cell phone policy: http://www.youtube.com/watch?v=FYwpxU_G4Z0

Learning By the end of the semester, students will to be able to:

Outcomes

- Prove mathematical statements involving sequences and series involving real-valued functions, and integration of real-valued functions.
- Distinguish formal expression and mathematically meaningful expression in applications.
- Check if the physical quantities are continuous or differentiable.
- Demonstrate some weird cases that violate common physical assumptions and will be able to figure out what additional conditions are needed.
- Express problems in mathematically rigorously ways.
- See deeper mathematical structure of physical systems.
- See in applications what can be accepted and what must be verified further.

Topics	1. The Riemann integral 2. Properties of the Riemann integral 3. Fundamental theorem of calculus 4. Improper Riemann integrals 5. The Riemann-Stieltjes integral 6. Numerical methods 7. Lebesgues theorem 8. Convergence tests 9. The Dirichlet test 10. Absolute and conditional convergence 11. Square summable sequence 12. Pointwise convergence and interchange of limits 13. Uniform convergence 14. Uniform convergence and continuity 15. Uniform convergence and integration 16. The Weierstass approximation theorem 17. Power series expansions 18. The Gamma function																
Grading	The final grade will be calculated as follows: <table> <tr> <td>HOMEWORK:</td><td>25%</td></tr> <tr> <td>MIDTERM 1:</td><td>25%</td></tr> <tr> <td>MIDTERM 2:</td><td>25%</td></tr> <tr> <td>FINAL EXAM:</td><td>50%</td></tr> </table> Your lowest midterm grade OR half the weight of your final exam will be dropped. Make-up exams will be given ONLY with an official written excuse in advance, and will not necessarily be the same as the regular exam.	HOMEWORK:	25%	MIDTERM 1:	25%	MIDTERM 2:	25%	FINAL EXAM:	50%								
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Homework	Homework assignments will accumulate from lecture to lecture and will be due roughly twice a week. Assignments will be posted on the course website, as I like to make all materials freely available to everybody (Warning: Websites such as <i>Course Hero</i> are a SCAM!). Students can collaborate on their homework problems, but they <i>must</i> write up and submit their homeworks separately. Late homeworks will not be accepted. You should keep all the graded homeworks in case of missing grades due to missing name or typo errors.																
Key Dates	<table> <tr> <td>June 26 (Wed)</td><td>Classes begin; late enrollment fee applies</td></tr> <tr> <td>June 27 (Thu)</td><td>Last day to register or add a class</td></tr> <tr> <td>July 1 (Mon)</td><td>Last day to drop a class or withdraw from the University without a W grade</td></tr> <tr> <td>July 4 (Thu)</td><td>Holiday</td></tr> <tr> <td>July 19 (Fri)</td><td>Last day to drop a class or withdraw from the University without final grades</td></tr> <tr> <td>August 1 (Thu)</td><td>Study Day</td></tr> <tr> <td>August 2 or 5 (M/F)</td><td>Final Exam, day/time TBD.</td></tr> <tr> <td>August 9 (Fri)</td><td>Graduation</td></tr> </table>	June 26 (Wed)	Classes begin; late enrollment fee applies	June 27 (Thu)	Last day to register or add a class	July 1 (Mon)	Last day to drop a class or withdraw from the University without a W grade	July 4 (Thu)	Holiday	July 19 (Fri)	Last day to drop a class or withdraw from the University without final grades	August 1 (Thu)	Study Day	August 2 or 5 (M/F)	Final Exam, day/time TBD.	August 9 (Fri)	Graduation
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The official statement on Academic Integrity

As members of the Clemson University community, we have inherited Thomas Green Clemson's vision of this institution as a *high seminary of learning*. Fundamental to this vision is a mutual commitment to truthfulness, honor, and responsibility, without which we cannot earn the trust and respect of others. Furthermore, we recognize that academic dishonesty detracts from the value of a Clemson degree. Therefore, we shall not tolerate lying, cheating, or stealing in any form.

When in the opinion of a faculty member, there is evidence that a student has committed an act of academic dishonesty, the faculty member shall make a formal written charge of academic dishonesty including a description of the misconduct, to the Dean of the Graduate School. At the same time, the faculty member may, but is not required to, inform each involved student privately of the nature of the alleged charge.
