

# Mathematics 137/331 Real Analysis I

Fall 2013



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Class Times: T-R 1:15 – 2:30 PM

Location: Davidson Lecture Hall-CMC

Office Hours: T-R 3:00 – 5:00 PM and by appointment

Textbooks: ***Real Analysis, Measure Theory, Integration & Hilbert Spaces*** by E. M. Stein and R. Shakarchi

## Course Description:

Measurable sets, measurable functions, Littlewood's three principles, integration, modes of convergence, Fubini's theorem, differentiation of the integral, The Hardy-Littlewood maximal function, signed measures, The Lebesgue-Radon-Nikodym theorem. Hilbert Spaces,  $L^p$  spaces, completeness, duality and the Riesz-Representation Theorem.

This course is jointly offered by CGU, CMC, HMC and PO.

## References:

G. B. Folland, *Real Analysis: Modern Techniques and Applications*.  
R. J. Wheeden and A. Zygmund, *Measure and Integral, An Introduction to Real Analysis*.  
A. C. Zaanen, *Linear Analysis: Measure and Integral, Banach and Hilbert Space, Linear Equations*.  
C.D. Aliprantis and O. Burkinshaw, *Principles of Real Analysis*.

**Course Policies:**

Homework, two midterms, and a final will add up to the final grade.

**Final Grade** is computed as follows:

30% Homework  
20% Midterm #1  
20% Midterm #2  
30% Final

**Homework:**

Homework is essential in learning real analysis. You are encouraged to talk to other students about difficult problems – after you have found them difficult. BUT you must write your own solutions.

**Midterms:**

Midterm #1: **Thursday, October 10**

Thursday, October 24 is the last day to withdraw from the class.

Midterm #2: **Thursday, November 14**

**Final Exam:**

**Wednesday December 18, 2:00 PM, Adams Hall.**

Midterms, and the final exam will only be given on the above scheduled dates. If you miss an exam with an approved excuse, your final exam will be more heavily weighed accordingly. The final exam will not be rescheduled for any reason, unless an incomplete has been granted.

**Tutoring/ HW Grading:**

Tutoring services will be held in the Math Commons Room (Adams Hall 218, down the hall from Poppa Lab) from 8:00 – 10:00pm, Sundays through Thursdays.

Tutor: Spencer Johnson, PO, e-mail: [spencerjohnson272@gmail.com](mailto:spencerjohnson272@gmail.com)

Grader: Sixian Jin, CGU, e-mail: [jsxjsx12345@hotmail.com](mailto:jsxjsx12345@hotmail.com)