

## Advanced Calculus I

Section 16G0 Fall 2014

### References

*Introduction to Analysis*, Maxwell Rosenlicht, Dover, 1968.  
*Principles of Mathematical Analysis*, Walter Rudin, 3rd edition.

### Course Content and Objectives

A rigorous treatment of the foundations of Calculus including the real numbers; metric spaces; continuity, differentiation; and sequences and series of functions. In addition to mastery of the course content, course objectives include reading, writing, and discovering proofs and constructing proofs and counterexamples in analysis.

### Instructor and Office Hours

Scott McCullough  
490 Little Hall  
Office hours TBD.

### Suggested Problems

Selected problems from the text will be assigned on a daily basis.

### Homework

Twelve or 13 homework problems will be assigned, collected, and graded. Late homework will not be accepted, rather the lowest two homework scores will be dropped. Homework will be worth 100 points total.

### Exams

There will be three exams each worth 100 points based upon Suggested Problems, and Homework. The final exam (Thursday 18 December, 8:30-9:30) will serve as a make-up.

Exam 1. Friday 26 September.  
Exam 2. Friday 31 October.  
Exam 3. Monday 08 December.

### Grading

A course total will be computed by adding the exam and homework scores. Grades will then be assigned according to a straight scale: 90 – 100 A; 87 – 89 A-; 84-86 B+; 80-83 B; 77-79 B-; etc.

See the current UF policy on assigning grade points.

### Attendance

Attendance is recommended.

### Academic Honesty

The course will be conducted in accordance with the University honor code and academic honesty policy, which can be found in the student guide

### Accommodation for students with disabilities

Students requesting classroom accommodation must first register with the Dean of Students Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the Instructor when requesting accommodation.

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### Tentative weekly schedule

August 25 – August 29, Review of sets, set operations and functions (2 homework problems).  
September 3 – September 10, The real numbers and the least upper bound property (2 homework problems).  
September 12 – 22, Metric spaces.  
September 29- October 6, Sequences. (2 homework problems).  
October 8 – 20, Compact and connected sets (2 homework problems).  
October 22 – October 27, Continuous functions.  
November 3 – 12, Sequences of functions (2 homework problems).  
November 14 – December 1, Differentiation (2 homework problems).  
December 3 – 5, Flex day, review.

October 8 – 20, Compact and connected sets (2 homework problems).

October 22 – October 27, Continuous functions.

November 3 – 12, Sequences of functions (2 homework problems).

November 14 – December 1, Differentiation (2 homework problems).

December 3 – 5, Flex day, review.