

# Introduction to Analysis, Math 554-703I, Section 1

**Instructor:** Dr George Androulakis, 576-5821, giorgis@math.sc.edu

**Lectures:** MWF 9:05-9:55 @ LC 310

**Office Hours:** MW 11:15-12:15, F 12:15-1:15, or by appointment @ LC 400J

**Overview:** *Analysis* is a very broad branch of mathematics and it means studying of the whole by breaking it and examining its smaller parts. This first course of Analysis is the link between calculus and advanced courses of analysis, such as advanced real analysis, complex variables, differential equations, approximation theory, as well as general topology. We will redo calculus from the beginning axiomatically. This means that we will only assume the axioms of the real numbers and we shall prove all theorems of calculus.

**Instructional Objectives:** We will cover as much as possible of the following topics:

- (1) Real and complex number systems.
- (2) Basic topology.
- (3) Numerical sequences and series.
- (4) Continuity.
- (5) Differentiation.
- (6) The Riemann-Stieltjes integral.
- (7) Sequences and series of functions.
- (8) Some special functions.

**Text:** Walter Rudin, *Principles of mathematical analysis*, Third Edition.

**Prerequisite:** Completion of Math 241 with a grade of C or better.

**Grading:** Your grade in this course will be based on your performance on homeworks, three midterms exams and a final exam. The weights assigned to each of these components will be:

Homework	20%
Three midterm exams	20% each
Final exam	20%

Course grades will be determined according to the scale: A 90-100, B+ 85-89, B 80-84, C+ 75-79, C 70-74, D+ 65-69, D 60-64, F 0-59.

**Exams:** *Tentative* dates and topics for these exams are:

Exam 1	Friday, February 12	Chapters 1 – 3
Exam 2	Friday, March 26	Chapters 4 – 6
Exam 3	Friday, April 16	Chapters 7 – 8
Final exam	Thursday, April 29 , 2 PM	Comprehensive.

Monday February 22 is the last day to drop a course or withdraw without a grade of “WF” being recorded. There will be no make-up exams. In case that you miss an exam because of documented reasons of illness, family emergency, or participation in a University sponsored event, if you have contact me immediately and provide me with the documentation, then the grade of the missed exam will be substituted by the grade of the final exam.

**Homeworks:** A homework assignment (of approximately 10 problems) will be assigned approximately each week and it will be collected one week later. Depending on our grading resources, we may not be able to grade all of your homework but selected problems. Late homeworks will not be accepted, and there will be no make up homeworks. In case that you are unable to attend class during the day that you turn in homework because of a documented reason of illness, family emergency, or participation in a University sponsored event, if you contact me immediately and provide me with the documentation, then the grade of the missed homework will be dropped.

**703I:** The students who take graduate credit from the class will need to work on extra homework assignments.

**Academic honesty:** Cheating and plagiarism will not be tolerated in this course. You may discuss homework problems with others, but do not copy solutions from another student or from a book. Violations of this policy will be dealt with a matter consistent with University regulations.

**Cell phones:** Turn off cell phones during class.