

# MATH 425a

## Fall 2016

**Professor** Ken Alexander

**Phone:** 213-740-3797

**Office:** KAP 424E. It is inside suite 424, in the corner of the building that's behind you and to your right as you exit the elevator.

**Email:** alexandr@usc.edu      **Web Page:** <http://www-bcf.usc.edu/~alexandr/> . Links on this page will take you to course information and homework assignments.

**Office hours:** Monday 1-3; Wednesday 1-2; or by appointment. Best to call or email at least 1-2 hours ahead, for an appointment outside office hours. (No appointment necessary for office hours, of course.)

**Teaching Assistant:** TBA

**Text:** *Principles of Mathematical Analysis* (3rd Edition) by W. Rudin

**Homework** will be given approximately weekly. On each assignment a few selected problems will be graded. It is OK to help each other solve homework problems, but it's not OK to turn in essentially identical solutions--once you have discussed homework problems so that you understand better what to do, you should write the solutions on your own. Homework will be accepted up to 2 lectures late, with a 20% penalty. Not accepted more than 2 lectures late. The deadline for both on-time and late homework is the end of the lecture hour (not the end of the day.) Homework should be turned in either (i) in lecture, or (ii) by taking it to the Mathematics Department office where it can be time-stamped. *Do not place homework directly in my mailbox!*

**Exams:** Two midterms plus final. Tentative midterm dates are Wednesday September 28 and Friday November 4. Final is Monday December 12, 8 - 10 am. The final is cumulative but with greater emphasis on material after the second midterm. Locations to be announced.

**Missed exams:** There will be no makeup exams. In exceptional cases, with a written excuse, if you miss an exam I will base your grade on the exams you did take.

**Grading:** Homework 30%, midterms 20% each, final 30%. No fixed quotas of A's, B's etc. The number of points needed for a particular grade is not fixed in advance--if the exam turns out to be difficult and scores are low, then fewer points are needed for an A, for a B, etc.

**Auditing:** If you want to just sit in on the class, you must register for an audit.

**Material to be covered:** Most of Chapters 1-5; parts of Chapters 6 and 7; occasional additional material not from the text. See the approximate schedule on the next page.

**Additional help:** There are TA's in the Math Center Mon. - Fri., generally 8 am - 6 pm. Most of them can help you with Math 425a.

### Approximate schedule:

Lecture 1: Quantifiers, logic

Lectures 2-4: Parts of Ch. 1--ordered fields, least upper bound property, the complex numbers, Euclidean space.

Lectures 5-6: Ch. 2--countable and uncountable sets.

Lectures 7-13: Ch. 2--metric spaces, open sets, closed sets, compact sets, connected sets.

Lectures 14-15 and 17-24: Ch. 3--sequences and series. Estimation.

Lecture 16: Exam #1

Lectures 25-30: Ch. 4--continuity, uniform continuity.

Lectures 31, 33-36: Ch. 5--derivatives, Taylor's theorem

Lecture 32: Exam #2

Lectures 37-39: Part of Ch. 6--the Riemann integral, the Riemann-Stieltjes integral

Lectures 40-42: Part of Ch. 7--uniform convergence of functions, interchange of limits, integration of series of functions.

Everything in this syllabus is in principle tentative; if necessary it will be adjusted during the semester.

**Statement for Students with Disabilities:** Any student requesting academic accommodations based on a disability is required to register with Disability Services and Programs (DSP) each semester. A letter of verification for approved accommodations can be obtained from DSP. Please be sure the letter is delivered to me (or to TA) as early in the semester as possible. DSP is located in STU 301 and is open 8:30 a.m.–5:00 p.m., Monday through Friday. The phone number for DSP is (213) 740-0776.

### **Statement on Academic Conduct and Support Systems**

**Academic Conduct:** Plagiarism – presenting someone else’s ideas as your own, either verbatim or recast in your own words – is a serious academic offense with serious consequences. Please familiarize yourself with the discussion of plagiarism in *SCampus* in Section 11, *Behavior Violating University Standards*<https://scampus.usc.edu/1100-behavior-violating-university-standards-and-appropriate-sanctions/>. Other forms of academic dishonesty are equally unacceptable. See additional information in *SCampus* and university policies on scientific misconduct, <http://policy.usc.edu/scientific-misconduct/>.

Discrimination, sexual assault, and harassment are not tolerated by the university. You are encouraged to report any incidents to the Office of Equity and Diversity <http://equity.usc.edu/> or to the Department of Public Safety <http://capsnet.usc.edu/department/department-public-safety/online-forms/contact-us>. This is important for the safety whole USC community. Another member of the university community – such as a friend, classmate, advisor, or faculty member – can help initiate the report, or can initiate the report on behalf of another person. The Center for Women and Men <http://www.usc.edu/student-affairs/cwm/> provides 24/7 confidential support, and the sexual assault resource center webpage [sarc@usc.edu](mailto:sarc@usc.edu) describes reporting options and other resources.