Time and Place  
T/Th: 12pm-1:30pm. Room TBA

Professor  
Prof. Zeno Huang  
Contact info: GC-4308, x8552, zeno.cuny@gmail.com  
Office Hours: T: 1:30-2:30 pm; Th: 1:30 - 3:30 pm Office; and/or by appointment.

Textbook  
REAL ANALYSIS: MEASURE THEORY, INTEGRATION, AND HILBERT SPACES  
by E. Stein and R. Shakarchi, Princeton Press.

Other Suggested Books of Reference  
REAL AND COMPLEX ANALYSIS, by W. Rudin,

Course Outline  
This is a course intending to cover some fundamental topics in real analysis which are essential to any working mathematicians. Topics include, but are not limited to, Banach spaces, convergence, implicit function theorem and applications, Lebesgue integration theory, $L^p$ spaces. Time permitting, I also intend to talk on select topics in geometric analysis which are related to some current research.

Course Grade  
The final course grade is determined according to the following scheme:  
\[
\text{Take-home exams} \quad 20\% \times 2 = 40\%
\]
\[
\text{Homework} \quad 20\%
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\[
\text{Final Exam} \quad 40\%
\]

Homework  
You are encouraged to work in groups, but only after you give some serious thoughts on how to solve these problems, and you are responsible to write up your own solution. Past experience tells me that any student who can not (and are not willing to) work independently will have a hard time for finishing thesis work, which has to be original research. This course is intended to encourage analytic thinking and familiarize classical techniques in real analysis.

Last but not least!  
Some words of advice:

- Attend all lectures. Go over proofs of classical theorems yourself before the classes. You might be responsible to help me to complete the proofs in class.
- Do not just start calculation, be sure to spend some time understanding the theorems. Think about what happens if certain theorem is not available, or if some conditions or assumptions can be relaxed.
- Don’t be discouraged if you spend hours without success on some problems. It will happen. Keep trying. Struggle right now will pay off when you start to do research.

Have a great term!