Math 280A, Probability Theory, Fall 2015

Lectures: 4:00-4:50 PM, Mondays, Wednesdays, and Fridays in APM 5402
Instructor: Jason Schweinsberg (jschwein@math.ucsd.edu)
Office Hours: Mondays 1:30-2:30 PM and Tuesdays 3:30-5:00 PM in APM 6157
other times by appointment
TA: Yuchao Liu (yul085@ucsd.edu)
TA Office Hours: Tuesdays 1:00-2:00 PM and Thursdays 2:00-3:00 PM in APM 6432

Overview of the course: Math 280A provides an introduction to probability theory at the graduate level. The primary goals are to develop the foundations of probability theory and to prove the Strong Law of Large Numbers. We will cover approximately chapters 1 and 2 in Durrett’s book. Measure theory provides the mathematical framework for modern probability theory. Because we will develop measure theory as we go along, measure theory is not a prerequisite for the course. However, students are expected to be proficient with undergraduate real analysis and experienced with writing proofs.

Other probability courses: Students planning to do research related to probability theory are encouraged to continue on to take Math 280BC as well as Math 286 (Stochastic Differential Equations). Math 285 (Stochastic Processes), which is offered in the spring, is an introductory graduate level course in stochastic processes which does not use measure theory. It is recommended for students who only have time to take one quarter of graduate level probability and is popular with Masters students in Mathematics and Ph.D. students from other departments.

Other textbooks: Durrett’s book has the advantage that it contains enough material to last for most of the Math 280ABC sequence. It is highly recommended for students who plan to continue to Math 280BC. However, students who have not seen measure theory before may find the first chapter to be a bit terse. The book *A Probability Path* by S. Resnick gives a more careful treatment of the material covered in the first half of Math 280A. Links to electronic versions of these books, which work from the UCSD campus, are available on the course web page.

Homework: Homework will be due in class each week, usually on Wednesdays. Late homework will not be accepted. Homework will count for 60% of your course grade.

Final Exam: The final exam will be a take-home exam. It will be handed out in class on Friday, December 4, and due on Friday, December 11. The exam will count for 40% of your course grade.

Academic integrity: It is essential that all students adhere to the university’s policy on integrity of scholarship. For this course, you should work mostly independently on the homework. You may consult the instructor or other students while working on the homework, but you must acknowledge this help by making a note on your homework. Also, you must write your final solutions independently and may not copy or paraphrase homework solutions from other students or from any other source. You must work completely independently on the take-home final exam.