

Probability and Measure Theory

MAP 6473: Mon 2:00 - 3:30, Wed, 3:00-4:00, LIT 423

Instructor: Scott McKinley

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Course Website: <http://people.clas.ufl.edu/scottmckinley/courses/probability-and-measure-theory-ii/>

Office Hours (Little Hall 460)

Mon 1 - 2 pm

Wed 1 - 3 pm

Text

Probability Essentials, 2nd Edition by Jean Jacod and Phillip Protter.

Further Materials

Brownian Motion, by Peter Mrters and Yuval Peres.

Lecture notes: <http://stat-www.berkeley.edu/~peres/bmall.pdf>.

Concentration Inequalities: A Nonasymptotic Theory of Independence, by Boucheron, Lugosi and Massart.

Lecture Notes: <http://www.econ.upf.edu/~lugosi/anu.pdf>

Students considering studying Probability Theory at a research level should also consider purchasing the book, *Probability: Theory and Examples* by Richard Durrett, 4th edition.

Course Objectives

Conditional Expectation, Martingales and the Martingale Convergence Theorem. Concentration of Measure Phenomena. Brownian Motion Prerequisite: MAP 6472 or STA 7466/7467. The course is intended to prepare students for the Probability Ph.D. exam.

Course Material	
Lugosi Notes Ch 1-3	Concentration of Measure Inequalities
Jacod & Protter Ch 22-28	Conditional Expectation, Martingale Theory
Lugosi Notes Ch 4	Efron-Stein Inequality and Examples
Lugosi Notes Ch 5	The Entropy Method (Time Permitting)
Peres Notes	Brownian motion

Evaluation. The grade will be based on regular homework, two midterm exams and a take home final. The homework problems will typically be assigned (and due) on Wednesdays. The homework assignments will be worth 45% of your grade; the midterm exams will be worth 15% each and a take home final will be worth 25%.

For access to UF's grading policies, please consult this page:

<https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

More problems will be assigned or suggested than will be picked up for grading. When it comes to preparing for the Ph.D. Exam in Probability, you are responsible for the material in the homework problems (and more!), *and you will not succeed if you do not master these exercises.*

Make-up Exams. Upon providing written documentation of a serious reason to miss an exam (e.g., a doctor's note), make-up exams will be granted. Unless in the case of a medical emergency, requests to reschedule an exam must be made *in advance*.

Additional information.

Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at <https://evaluations.ufl.edu>. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at <https://evaluations.ufl.edu/results/>.

Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, <http://www.dso.ufl.edu/drc/>) by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester.