STAT 430/510: Probability

Department of Statistics, The Wharton School, University of Pennsylvania, Spring 2018

Time: MW 9:30am-10:30am/10:30am-12:00pm   **Place:**   Vance Hall B10

Objectives: This course is an introduction to probability theory, for a diverse audience of undergraduate and graduate students. It assumes no prior knowledge of probability, and serves as a stepping stone to many areas that rely crucially on probabilistic ideas.

Topics include: Discrete and continuous sample spaces and probability; random variables, distributions, independence; expectation and generating functions, limit theorems (Law of Large Numbers, Central Limit Theorem). If time permits, we will discuss some basic notions from statistics.

Prerequisites: Multivariate calculus: MATH 114 or MATH 115 or equivalent.

Textbook: Dimitri Bertsekas, and John Tsitsiklis, *Introduction to Probability*, 2nd ed. Athena Scientific, 2008.

The textbook is required. Copies of the textbook are on reserve at the Lippincott Library (2 copies), and in Rosengarten (2 copies).

MIT has made available many materials asssociated with the course taught from this textbook. Lecture notes, lecture videos, homework and solutions, exams and solutions are available from the MIT class webpage: `ocw.mit.edu/courses/electrical-engineering-and-computer-science/6-041sc-probabilistic-systems-analysis-and-applied-probability-fall-2013/`.

Instructor:

- Edgar Dobriban, dobriban@wharton.upenn.edu, Office: 455 JMHH
  Office Hours: Monday 1:00pm-3:00pm, 423 JMHH

Teaching Assistants:

- Mateo Wirth, mwirth@wharton.upenn.edu,
  Review Session: Tuesdays 6:00-7:30pm,

- Sanjay Subramanian, subs@wharton.upenn.edu,
  Review Session: Thursdays 6:00-7:30pm,

- Muyang (Michael) Zhou, muzh@wharton.upenn.edu,
  Office Hours: TBA

Course Page:

- Canvas, for announcements, grades, materials: `canvas.upenn.edu/courses/1389241`

- Piazza, for class discusssion `piazza.com/class/jau8oxkszi51cm`. The instructor and TAs will usually not answer e-mail about course material of public interest (e.g., clarification about lectures, homeworks). Instead, you are encouraged to post such questions on Piazza, where everybody can benefit from the answer.

Homework: Homework will be assigned but not collected. Solutions will be available online. The purpose of the homework is to help you learn the material. Since this is a math class, it is absolutely crucial that you work through problems to test your understanding. Moreover, exam problems will be similar to homework problems.

Help: The TAs will hold weekly office hours and run weekly review sessions they will discuss the homework, and answer your course related questions. Review sessions are optional. Students are also encouraged to ask and answer questions on the discussion forum on Piazza.

Exams: There will be two midterm exams and one final exam. Exams will be closed book, i.e., no books, notes or electronic devices are allowed.

> Midterm #1 .... Wednesday, February 7th, in-class
> Midterm #2 .... Wednesday, March 21, in-class
> Final Exam .... May 8th, 6pm-8pm

Grading Policy: Midterm 1 (25%), Midterm 2 (25%), Final (50%).

The course grades will be distributed approximately as follows: A+, A, A-: 40%, B+, B, B-: 50%, C+ and lower: 10%

There is no possibility of earning extra credit or of changing the grades.

Feedback: The teaching staff is interested to hear from you about your experience in the class, and about your thoughts on improving it. Ways to provide feedback include: verbal feedback at office hours, private posts visible to intructors only on Piazza (these can be anonymous), e-mail, and the formal mid- and end-semester questionnaires.

Class Policy:

- Attendance is expected. It is your responsibility to know what is covered in class. Not everything discussed in lecture will be provided in lecture notes.

- Class structure: interactive, 5 minute break mid-class.

- The use of electronic devices, such as laptops and smartphones, is not allowed during class.

- Exams: Academic honesty is a hallmark of your Penn education. Cheating will result in a failing grade. Rescheduling is only possible due to serious medical problem.