M362K (56310)
Probability I, Spring 2011
Tentative course calendar (last revised: 03/03/2011)

--Week 01--
"Gambling: Switch or stay?"
Topics: Axioms, equally likely outcomes (1.1), interpretations (1.2), distributions (1.3)
01/18
01/20

--Week 02--
"Statistics: What's the chance that at least two people in this class share the same birthday?"
Topics: Conditional probability, independence (1.4), Bayes' rule (1.5)
01/25
01/27 HW01 due

--Week 03--
"Business: Why do airlines overbook flights? How many extra tickets should be sold?"
Topics: Sequences of events (1.6), counting/combinatorics (A.1), binomial distribution (2.1)
02/01
02/02 **Last day to drop a course for possible refund**
02/03 HW02 due

--Week 04--
Topics: Normal approximation (2.2), Poisson approximation (2.4)
02/08
02/10 HW03 due

--Week 05--
"Politics: How many people to poll to predict an election? How accurate are exit polls?"
Topics: Random sampling (2.5), random variables (3.1)
02/15
02/17 HW04 due

--Week 06--
"Finance: What's a fair price to pay for a financial contract (e.g., insurance, derivative)?"
Topics: Review for midterm
02/22
02/24 **MIDTERM 1**, HW05 due

--Week 07--
"Statistics: Why do histograms of data from entirely different contexts appear so similar?"
Topics: Expectation (3.2), Standard deviation and central limit theorem (3.3)
03/01
03/03 HW06 due

--Week 08--
"Geophysics: What's the chance that a >M6.5 earthquake will strike the Bay Area this year?"
Topics: Discrete distributions (3.4), Poisson distribution (3.5), symmetry (3.6)
03/08
03/10 HW07 due

--Spring break--

--Week 09--
"Computer science: How often should you check your spam folder for legitimate e-mails?"
Topics: Densities (4.1), exponential and gamma distributions (4.2), variable rates (4.3)
03/22
03/24 HW08 due

--Week 10--
"Computer science: How can we generate random numbers from a given probability distribution?"
Topics: Change of variable (4.4), cdf's (4.5), order statistics (4.6)
03/28 **Last day to withdraw/drop a class with Dean's approval**
03/29
03/31 HW09 due

--Week 11--
"Gambling: Why is coin-flipping considered random and is it really 50/50? How many riffle
shuffles does it take for a deck of cards to be in random order?"
Topics: Uniform distribution (5.1), review for midterm
04/05
04/07 **MIDTERM 2**, HW10 due

--Week 12--
"Thermodynamics: What's the velocity of a typical air molecule? What is temperature?"
Topics: Joint densities (5.2), independent normal r.v.'s (5.3)
04/12
04/14 HW11 due

--Week 13--
"Finance: What's a fair price given that a particular market event (e.g., default) has
occurred?"
Topics: Conditional distributions (6.1), conditional expectation (6.2)
04/19
04/21 HW12 due

--Week 14--
"Finance: What is hedging, and how does it minimize an investor's exposure to unwanted risk? How
did correlation play a role in the 2007-10 financial crisis?"
Topics: Conditioning for continuous r.v.'s (6.3), covariance and correlation (6.4)
04/26
04/28 HW13 due

--Week 15--
Topics: Bivariate normal (6.5), review for final exam
05/03
05/05 HW14 due

FINAL EXAM (Saturday, May 14, 2-5pm, location TBA)