Syllabus for Stat515 (Spring 2015)
Stochastic Processes and Monte Carlo Methods

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Office Hours: Monday: 3:30-4:30, Tuesday: 2:30-3:30

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Office Hours: Tuesdays 9:30-10:30am, Thursdays: 10:00am-11:00am.

Class Times: MWF 2:30-3:20 in 009 Life Sciences


Targeted Coverage:

- Review of conditional probability and expectations (Chapter 3)
- Markov chains (Chapter 4)
- Poisson processes (Chapter 5)
- Continuous time Markov chains (Chapter 6)
- Brownian motion, martingale basics (Chapter 10/other)
- Classical Monte Carlo: rejection, importance sampling
- Markov chain Monte Carlo: Gibbs, Metropolis-Hastings algorithms

Course Requirements:

- Weekly homework (30%). You may discuss them but they must be written up independently.
- Midterm exam in early March (25%).

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• Final exam: in class (30%) + take home (15%) (total: 45%)

Course Website: http://www.stat.psu.edu/~mharan/515/515.html

Academic Integrity: All Penn State and Eberly College of Science policies regarding academic integrity apply to this course. Please see http://www.science.psu.edu/academic/Integrity/index.html.

Policy on Late Homework:
Unless you inform me ahead of time (at least 1 day in advance), you will lose 50% of the grade for late homework turned in within 24 hours of the due date. You will receive no credit for homework turned in after that.

Important: Check the website for all announcements regularly.

Computing:
All graduate students in statistics are required to use the statistical computing language R through most of the latter half of the course. If you are not a statistics graduate student, you are still encouraged to write programs in R since it is widely used. You are free to use any other language you like but please note that I may not be able to help you with your computing if the language is unfamiliar to me.

LaTeX:
All graduate students in statistics are required to use LaTeX to write up their computing assignments in the latter half of the course. All other students are expected to hand in typed computing assignments even if they choose not to use LaTeX.