STAT 547C - TOPICS IN PROBABILITY
2011/12 - Term 1
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Instructor:

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have a subject starting with the exact string 'STAT547C ').
See the following webpage for the latest course information:
http://www.stat.ubc.ca/~bouchard/courses/stat547-fa2011/index.html

Outline:

A graduate level course in probability with an emphasis on how the theory is
applied in statistics. The main topics covered include:

- Measure-theoretic foundations with examples in statistics (sufficient statistic in
terms of sigma-algebras, exponential families as collections of Radon-Nikodym
derivatives, etc.).
- Convergence theorems: Kolmogorov's LLN, Glivenko-Cantelli Theorem,
Lindeberg's CLT, Poisson convergence. Normal and stable limit laws.
Applications to Monte Carlo simulation and asymptotic statistics.
- Moment generating and characteristic functions, inversion formula.
- Conditioning, Markov Chains and Martingales: asymptotic behavior and
important inequalities. Examples from Bayesian statistics and statistical
computing.

Prerequisites:

STAT 460 / 560 or equivalent. Ideally, one upper division undergraduate course
in probability, and one in analysis. If you are unsure, contact me by email with
your (unofficial) graduate and undergraduate transcripts attached.

Textbook:

G.R. Grimmett and D.R. Stirzaker, Probability and Random Processes, 3rd
edition, Oxford, (2001). There is a solutions manual to this text: G.R. Grimmett
and D.R. Stirzaker, One Thousand Exercises in Probability, Oxford, (2001).

Other References:

- R. Durrett, Probability: Theory and Examples, 4th edition, Cambridge U. Press
(2010). Available online for free:
http://www.math.duke.edu/~rtd/PTE/PTE4_Jan2010.pdf
- P. Billingsley, Probability and Measure, 3rd edition, John Wiley & Sons,
New York (1995).