W4109: PROBABILITY & STATISTICAL INFERENCE
Department of Statistics, Columbia University
Autumn 2005

Instructor: Regina Dolgoarshinnykh   **Office:** 1013 SSW (212-851-2140)

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Lecture Time: Tue and Thu 6:10 - 8:55pm, 414 Pupin

Class Webpage: http://www.stat.columbia.edu/~regina/W4109A05

Teaching Assistant: Xi Zhang (xz2012@columbia.edu)

Prerequisite: A working knowledge of calculus or consent of the instructor.

Description: This course will cover probability theory and statistical inference including the following:

- Axioms of probability

- Conditional probability

- Expectation

- Discrete probability models

- Continuous probability models

- Jointly distributed random variables

- Moment generating functions

- Introduction to statistical inference

- Sufficient statistics

- Large sample approximations

- t, χ^2, F distributions

- Hypothesis testing

- More on estimation

Textbook: *Probability & Statistics*, DeGroot & Schervish, 3rd edition, Addison Wesley

Reference text: *Mathematical Statistics and Data Analysis*, Rice, Wadsworth

Grading: Quizzes 5%; Homework 25%; Midterm 35%;   Final 35%

Homework: Problem sets will be assigned about once a fortnight and will be collected in class.

Other information

- Late homework will not be accepted under any circumstances.

- The process of getting the answer to a problem is as important as getting the answer correct. Your solutions (to the homework and examination questions) should include appropriate explanation/working so that someone else can easily understand your work. Full credit will not be given to solutions without proper working.

- You may work together, or discuss the more difficult problems of a homework assignment, but you must write-up the solutions on your own. No copying!

- No make-up midterm or final will be given. If there is a valid reason for missing an examination (with documentary proof), attendance is regular, and all homework is handed in, a 70% weighting will be given to the other examination. However, the instructor must be informed **before** the examination. No such consideration will be given if the instructor is informed only after the examination.

- Severe penalties will be given if there is any evidence of cheating.

- If you need disability services, e.g. 1.5 time, you must inform the instructor within 2 weeks of the course (paperwork such as letters can be provided later). The examinations will then be proctored by the disability services office.

- There may be quizzes given during class time. These may be surprise quizzes.

- Please send an email to regina@stat.columbia.edu so that a class email list can be set up. Indicate which course you are enrolled in.