STAT 3800: Mathematical Statistics (Fall 2012)

Instructor Dr. Liqun Wang
Office: 332 Machray Hall; Phone: 474-6270
e-mail: liqun.wang@ad.umanitoba.ca

Lectures Monday/Wednesday/Friday: 9:30 am - 10:20 am, room 115 Armes

Lab Monday: 2:30 pm - 3:55 pm, room 115 Armes

Office hours Monday/Wednesday: 10:30 am - 11:30 am

Textbook A. Gut: *An Intermediate Course in Probability*, 2nd Edition, Springer, New York, 2009.

References Hogg, McKean and Craig: *Introduction to Mathematical Statistics*. 6th Edition. Pearson/Prentice Hall, 2005.

Bain and Engelhardt: *Introduction to Probability and Mathematical Statistics*, 2nd Edition. Duxbury/Thompson Learning, 1992.

Casella and Berger: *Statistical Inference*. Duxbury, 2002.

Marking scheme The final grade will consist of two tests and one final exam. Their weights and tentative schedules are given below. The tests will be written during the Lab time and the location will be announced in class.

Test #1	25%	October 15, 2012, 2:30-3:55 am
Test #2	25%	November 5, 2012, 2:30-3:55 pm
Final Exam	50%	Scheduled by the university

Homework There will be no formal assignments. Supplementary problems will be given in the class but they are not to be handed in for credits.

Topics: We will cover most material in chapters 1-6 of the textbook.

1. Multivariate random variables, functions and transformations
2. Conditional expectation, regression and prediction, random parameters and Bayes approach
3. Transforms, probability and moment generating functions, characteristics functions
4. Order statistics, joint distributions of order statistics
5. Multivariate normal distribution, matrix algebra and notations, characteristic and density functions, conditional distributions and independence, linear and quadratic forms
6. Convergence, different modes of convergence, transforms, law of large numbers, central limit theorem, sums of sequences of random variables
7. Additional topics as time permits

Academic Dishonesty: I wish to draw your attention to the sections in *The University of Manitoba Undergraduate Calendar* dealing with academic integrity, including plagiarism, cheating and examination impersonation.

Important note from the Faculty of Science:

It is your responsibility to insure that you are entitled to be registered in this course. This means that you have:

- the appropriate prerequisites, as noted in the calendar description, or have permission from the instructor to waive these prerequisites;
- not previously taken, or are concurrently registered in, this course and another that has been identified as "not to be held with" in the course description. For example, BIOL 1000 cannot be held for credit with BIOL 1020.

The registration system may have allowed you to register in this course, but it is your responsibility to check. If you are not entitled to be in this course, you will be withdrawn, or the course may not be used in your degree program. There will be no fee adjustment. This is not appealable. Please be sure to read the course description for this and every course in which you are registered.