



# STAT 330

## Introduction to Mathematical Statistics

Summer 2009  
Day Course

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Students requiring accommodations as a result of disability, must contact the Centre for Students with Disabilities 778-782-3112 or csdo@sfu.ca

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Instructor: [Dr. Boxin Tang](#)

**Prerequisite:**

STAT 285 and MATH 251

**Textbook:**

*Introduction to Mathematical Statistics, 6<sup>th</sup> ed.* by Hogg, Craig, McKean, Pearson Prentice Hall publishers.

**Calendar Description:**

Review of probability and distributions. Multivariate distributions. Distributions of functions of random variables. Limiting distributions. Inference. Sufficient statistics for the exponential family. Maximum likelihood. Bayes estimation, Fisher information, limited distributions of MLEs. Likelihood ratio tests. **Quantitative.**

**Outline:**

1. Review of Probability and Univariate Distributions
2. Multivariate Distributions
3. Distributions of Functions of Random Variables
4. Limiting Distributions
5. Inference. Sufficient Statistics for the Exponential Family.
6. Maximum Likelihood, Limiting Distributions
7. Bayes Estimation
8. Fisher Information
9. Likelihood Ratio Tests

**Grading Scheme:**

Homework – 20%

Midterm – 30%

Final 50%, or 80% if you do better on the final than on the midterm

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*Students should be aware that they have certain rights to confidentiality concerning the return of course papers and the posting of marks. Please pay careful attention to the options discussed in class at the beginning of the semester. Students are reminded that Academic Honesty is a cornerstone of the acquisition of knowledge. Scholarly integrity is required of all members of the University. Please consult the General Guidelines of the calendar for more details.*

Revised February 2009