



# STAT 330

## Introduction to Mathematical Statistics

Fall 2012  
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](mailto:csdo@sfu.ca)

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Instructor: [Dr. Steven Thompson](#)

**Prerequisite:**

STAT 285 and MATH 251

**Textbook:**

*Probability and Statistics: The Science of Uncertainty*, 2<sup>nd</sup> ed. by M. Evans, J. Rosenthal. Publisher: WH Freeman.

**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:**

Assignments 20%

Midterm - 30%

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

**The grading is subject to change.**

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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. Students are encouraged to review policies pertaining to academic integrity available on Student Services webpage at <http://students.sfu.ca/academicintegrity.html>*

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Students looking for a Tutor should send an email to [stat@sfu.ca](mailto:stat@sfu.ca) with "Tutor Request" in the subject line.  
Please only include information that you would like forwarded to our tutors mailing list.

Revised July 4, 2012