



STAT 890

Selected Topics: 830-Statistical Theory I

Fall 2011
Day Course

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

Instructor: [Dr. Richard Lockhart](#)

Textbook:

All Of Statistics: A Concise Course in Statistical Inference by Larry Wasserman. Publisher: Springer.

Course Description:

Advanced mathematical statistics. A survey of basic concepts in point estimation, interval estimation and hypothesis testing. Principles of inference.

Course Outline:

This course covers the statistical theory that supports modern statistical methodologies. Distribution theory, methods for construction of tests, estimators, and confidence intervals with special attention to likelihood and Bayesian methods. Properties of the procedures including large sample theory will be considered. Consistency and asymptotic normality for maximum likelihood and related methods (e.g., estimating equations, quasi-likelihood) will be covered.

1. Probability: random variable, expectation, inequalities, and convergence
2. Inference: Parametric and nonparametric models, empirical distribution function, bootstrap, maximum likelihood and related methods, properties of MLEs and related methods, hypothesis testing and p-values, causal inference, simulation.

Grading Scheme:

Assignments – 50%
Midterms – 10% each of 2
Final – 30%

Grading is subject to change.

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 June 16, 2011