



# STAT 890

## Advanced Theory of Statistics

Fall 2006  
Day Course

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Students requiring accommodations as a result of disability, must contact the Centre for Students with Disabilities 604-291-3112 or csdo@sfu.ca

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Instructor: [Dr. Richard Lockhart](#)

### Prerequisite:

STAT 801 or equivalent or permission of the instructor.

### Textbook:

None. I will put some probability and mathematical statistics books on reserve.

### Outline:

The course is intended to survey rigorous mathematical techniques used in deriving precise theorems concerning statistical procedures. We will do some measure theoretic probability, some large sample theory, some weak convergence, some functional central limit theory, some martingales, some linear algebra, some functional analysis, some optimization; each will be done in whatever amounts time permits. Each student will do a presentation of some precise rigorous theory, preferably surrounding a topic germane to their current or expected PhD thesis work. The mathematical level of this course will be higher than that of most other courses in this department, I hope.

**Web Materials:** I expect to produce web materials at <http://www.stat.sfu.ca/~lockhart>. Assignment questions will be drawn from various texts. I will not be posting solutions but I will be wanting to go through students solutions with them to discuss the presentations of the proofs.

### Grading Scheme:

Assignments: 75%  
Presentation: 25%

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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 May 2006