

# STATISTICS 890

## Advanced Theory of Statistics

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**Prerequisite:** STAT 801 or equivalent or permission of the instructor.

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

**Course structure:** 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:** In the frame at the left there are links to notes or slides; I do not yet know how much will be there. 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.

**Computing:** This is a theory course. Nevertheless I may have a few computational assignments and I expect all students to have (or get) and use accounts on the department network.

**Grading:** Assignments 75%, Presentation 25%

**Privacy Policy:** The Stat & Act Sci department has a policy on privacy under which students who desire so may have their homework returned in some private way; if you are such a student you should speak to me immediately.