STAT 7302: Advanced Statistical Theory II

Spring 2016

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Lecture Hours: MWF 10:20-11:15am, Cockins Hall 228

Prerequisites: Statistics 7201 and 7301

Course Description:

STAT 7302 is the second course of a two semester sequence on Advanced Statistical Theory. The sequence is intended primarily for PhD students in Statistics or Biostatistics. The first half of the course will be follow Chapters 3 and 4 of the text book "*Testing Statistical Hypotheses*", and the second half will consist of introductions to various recent developments of hypothesis testing. Core topics covered in this course include: the Neyman-Pearson lemma, uniformly most powerful tests, monotone likelihood ratio models, confidence bounds, unbiased tests, asymptotic theory of the tests, an introduction to the bootstrap and Bayesian hypothesis testing.

Text: *Testing Statistical Hypotheses*, 3rd Edition, by E.L. Lehmann and J.P. Romano

Additional References:

1) *Mathematical Statistics*, Second Edition, Peter J. Bickel and Kjell A. Doksum
2) *An Introduction to the Bootstraps*, by B. Efron and R. Tibshirani
3) *Elements of Large-Sample Theory*, by E.L. Lehmann

Website: https://carmen.osu.edu/

Important announcements and homework assignments will be posted here.

Grading:

Homework	40%
Midterm	30%
Final project and presentation	30%

Homework:

Homework will be collected approximately weekly in the first half of the semester. Students are encouraged to work together on the problems, but each student must hand in his or her own work.

Midterm:

There will be an in class, closed-book, closed-notes midterm exam, which focuses on the materials from Chapters 3 and 4 in "*Testing Statistical Hypotheses*". The date of the midterm is to be announced.

Final project and presentation:

In the second half of the semester, each student is expected to choose a topic related with hypothesis testing, to read research papers and to even perform some simple analysis. At the end of the course, each student is expected to submit a written project report and make an oral presentation. Further details on the project will be given in class.

Academic Misconduct: Academic misconduct **will not be tolerated** and will be dealt with procedurally in accordance with University Rule 3335-31-02.

Disclaimer: This syllabus should be taken as a fairly reliable guide for the course content. However, you cannot claim any rights from it and in particular I reserve the right to change due dates or the methods of assessment. Official announcements will ALWAYS be those made in class.