Statistics 8310
Large Sample Theory Spring 2014

CONTACT INFORMATION

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Office hours: Cockins Hall 223 – by appointment.

CLASS INFORMATION

Location: Lecture: MWF, 8:00am – 8:55am, Caldwell Lab 0135.
Website: http://carmen.osu.edu

REFERENCES: I will primarily follow my own notes. A few useful resources are listed below.

- *Asymptotic Statistics*, by Aad van der Vaart, Cambridge Press, 2007 (8th printing)

- *Approximation Theorems of Mathematical Statistics*, by Robert Serfling, Wiley,1980.

- *Elements of Large-Sample Theory*, by E. L. Lehmann, Springer, 1999

COURSE DESCRIPTION AND OBJECTIVES
This course covers the essentials of statistical large sample theory. The goal is not only to introduce standard results but, more importantly, to help you develop skills to apply the results in your research. The topics are chosen partly to reflect my taste and partly to minimize the overlap with STAT 7301-7302.

PREREQUISITES
Students are expected to have a good understanding of the material taught in STAT 6201 and STAT 7201.

EVALUATION
Evaluation will be based on, in-class participation (10%) and three reports (30% each) on (a) recent paper(s) which involve(s) asymptotic statistics.

1. For the first report, choose a recent statistical article (published since 2007) which utilizes asymptotic statistics methodology. The major statistical or probability journals should be used. Please try to find a paper that involves a topic which seems to have significant future research potential, write a 2–3 page summary of the paper (you do not have to verify any math), paying particular attention to the practical issues being addressed. The paper(s) need to be approved on or before February 7, 2014.

2. For the second report, choose a recent statistical article (published since 2007) which utilizes asymptotic statistics methodology. You may use the same paper you used for the first report. Please try to make sure

that the paper contains significant mathematical-statistical content and involves a topic which seems to have significant future research potential. Identify 1–3 key steps in the proofs of the results which require asymptotic techniques and then verify those steps (I want you to show me that you understand the steps involved). Write a 2–3 page summary of your verification of these steps along with any other insight into the workings of the technical aspects of the paper which you think are interesting. You may want to get an early start on this paper and meet with me several times to make sure you are comfortable with the main technical aspects of the selected paper (I am quite happy to check your work and give clues if needed).

3. For the third report, choose a recent statistical article (published since 2007) which utilizes asymptotic statistics methodology. You may use the same paper(s) you used for the first two reports. Make sure that the chosen paper can provide some information about potential research projects. Identify 1–3 promising problems and/or research questions which could be of interest to the statistical community and which involve asymptotic methods. Write a 2–3 page summary of your findings and include an evaluation of the potential impact if the proposed research was successful. You may want to get an early start on this report and meet with me several times to make sure you are headed in the right direction.

Suggested due dates for these reports are: February 7, 2014 (report 1), March 7, 2014 (report 2) and April 21, 2014 (report 3).

ATTENDANCE POLICY
It is strictly required to attend all the classes. It is the student's responsibility to make up for the material covered in class during any absence.

SPECIAL ACCOMMODATIONS
If you need any accommodations based on the impact of a documented disability, contact the instructor privately to discuss specific needs, within a week. You should also contact the Office of Disability Services to coordinate special accommodations.

ACADEMIC MISCONDUCT
Academic misconduct **will not be tolerated** and will be dealt with procedurally in accordance with university policy.

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 the methods of assessment. Official announcements will ALWAYS be those made in class.