Statistics 6302: Theory of Statistical Analysis - Spring 2015 - Tentative Outline

Instructor: Dr. O. Chkrebtii

Lectures: 11:30 am - 12:45 pm on Mondays, Wednesdays, Fridays in Room BE 0180.

Office Hour: 10:30 pm - 11:30 pm on Wednesdays

Email: chkrebtii.1@osu.edu, begin subject with "Stat 6302 -"

Office: 323 Cockins Hall (CH)

Grader: TBD

Course Description: Estimation, hypothesis testing, best tests, likelihood ratio tests, confidence sets, sufficiency, efficient estimators; intended primarily for students in the MAS degree program. The topics list is as follows:

1. Method of moments estimators and their properties
2. Maximum likelihood estimators and their properties
3. Efficient estimators; Cramer-Rao Lower Bound
4. Sufficient statistics; exponential families
5. Confidence sets, including approximate and bootstrap confidence intervals
6. Principles of hypothesis testing; duality of confidence intervals and tests
7. Most Powerful and Uniformly Most Powerful Tests
8. Generalized Likelihood Ratio Tests; examples in applied statistics
9. Theory of statistical inferences for comparing two samples
10. Additional discretionary topics, such as theory for contingency tables

Prerequisites: Stat 6301 or Stat 610 or Stat 6801 or Stat 620 or permission of the instructor.

Exclusions: Not open to students with credit for Stat 6802 or Stat 621 or Stat 622 or Stat 623.

Course Website: carmen.osu.edu (login with your web ID) Important announcements, course materials, homework problems and solutions, computing references, and other information about the class are posted on the course website.

Textbook: John A. Rice. *Mathematical Statistics and Data Analysis* (Third Edition). Duxbury, 2007.

Homework and Project Assignments: You may discuss the problems with each other in general terms, but you must write your own homework solutions and project reports. Late submissions will absolutely NOT be accepted. Starting and trying to get help early will be helpful. Academic misconduct of any sort will not be tolerated. Please review OSU's policies at http://studentaffairs.osu.edu/csc/.

Special Considerations: If a situation exists or arises that you think may hinder your progress in this class, you must notify me as soon as possible. Please note that I will *not* adjust grades on a case-by-case basis.

Test and Assignment Policy: Absolutely no late assignment submissions will be accepted. Electronic assignment submissions will not be accepted. Missed tests or exams require a formal document or doctor's note specifically stating that an exam was missed due to a medical condition.

Academic Misconduct: It is the responsibility of the Committee on Academic Misconduct to investigate or establish procedures for the investigation of all reported cases of student academic misconduct. The term "academic misconduct includes all forms of student academic misconduct wherever committed; illustrated by, but not limited to, cases of plagiarism and dishonest practices in connection with examinations. Instructors shall report all instances of alleged academic misconduct to the committee (Faculty Rule 3335-5-487). For additional information, see the Code of Student Conduct http://studentlife.osu.edu/csc/

Disability Services: Students with disabilities that have been certified by the Office for Disability Services will be appropriately accommodated and should inform the instructor as soon as possible of their needs. The Office for Disability Services is located in 150 Pomerene Hall, 1760 Neil Avenue; telephone 292-3307, TDD 292-0901; http://www.ods.ohio-state.edu/.

Grading:
Assignments 20 % ;
First Test 20 %, in class on TBD;
Second Test 20 %, in class on TBD.
Final Exam 40 %, see OSU official exam schedule.