STAT:7101 (22S:254) Advanced Inference II (Spring 2011)

Time and Place MWF 10:30-11:20AM, 75 SH.

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Departmental executive officer Dale Zimmerman, 241 SH, Phone: 335-0712.

Prerequisites STAT:7100 (22S:253).

Office Hours Tuesdays 10:30-11:30am and Thursdays 4:30-5:30pm or by appointment.

Required Textbook Van der Vaart (1998). Asymptotic Statistics. Cambridge University Press.

References

- Cox D. R. and Hinkley, D. V. (1974). Theoretical Statistics. Chapman & Hall.

- Efron, B. and Tibsjirani, R. J. (1993). An Introduction to the Bootstrap. Chapman & Hall.

- Lehmann, E. (1983). Theory of Point Estimation. Springer, New York.

- Lehmann, E. (1983). Testing Statistical Hypotheses. Springer, New York.

- Pollard, D. (1984). Convergence of Stochastic Processes. Springer, New York.

- Van der Vaart A. W. and Wellner, J. A. (1996). Weak Convergence and Empirical Processes. Springer, New York.

Exams Exams: There are a two-hour in-class midterm exam on March 11 and a two-hour in-class final exam in the final exam week.

Homework Written assignments are an *essential* component of the course. Assignments generally consist of 5-10 problems and will be assigned weekly. Assignments must be turned in by the beginning of class on the day they are due. Unless prior arrangements are made, late homework will not be accepted.

Attendance Attendance at lectures and participation in discussions are expected. Failure to attend class regularly will affect your grade.

Grading Homework, 25%, midterm exam, 30%, final exam, 45%. Grade will be determined by the weighted total score. Scale runs like the following (and I may adjust it a little): A (90-100), B (75-89), C (55-74), D (40-54). Plus/minus grading will be used. A plus-minus grading system will be used.

Course Objectives

To equip Ph.D. students in statistics, biostatistics and related fields with a solid background in mathematical statistics that will be helpful to their future work in applied and theoretical statistics.

Topics to Be Covered

1. Projections and U-statistics

2. Rank, sign and permutation statistics

3. Likelihood ratio and chi-square tests

4. Empirical processes

5. Functional delta method

6. Bootstrap

7. Nonparametric density estimation

8. Other selected topics if time permits

Additional UI and CLAS Policy and Procedures

Administrative Home The College of Liberal Arts and Sciences is the administrative home of this course and governs matters such as the add/drop deadlines, the second-grade-only option, and other related issues. Different colleges may have different policies. Questions may be addressed to 120 Schaeffer Hall or see the CLAS Student Academic Handbook *[www.clas.uiowa.edu/students/ academic_handbook/index.shtml]*.

Electronic Communication University policy specifies that students are responsible for all official correspondences sent to their standard University of Iowa e-mail address (@uiowa.edu). Students should check this account frequently. (Operations Manual, III.15.2. Scroll down to k.11.)

Accommodations for Disabilities A student seeking academic accommodations should first register with Student Disability Services and then meet privately with the course instructor to make particular arrangements. See *www.uiowa.edu/∼sds/* for more information.

Academic Fraud Plagiarism and any other activities when students present work that is not their own are academic fraud. Academic fraud is a serious matter and is reported to the departmental DEO and to the Associate Dean for Undergraduate Programs and Curriculum. Instructors and DEOs decide on appropriate consequences at the departmental level while the Associate Dean enforces additional consequences at the collegiate level. See the CLAS Student Academic Handbook.

CLAS Final Examination Policies Final exams may be offered only during finals week. No exams of any kind are allowed during the last week of classes. Students should not ask their instructor to reschedule a final exam since the College does not permit rescheduling of a final exam once the semester has begun. Questions should be addressed to the Associate Dean for Undergraduate Programs and Curriculum.

Making a Suggestion or a Complaint Students with a suggestion or complaint should first visit the instructor, then the course supervisor, and then the departmental DEO. Complaints must be made within six months of the incident. See the CLAS Student Academic Handbook.

Understanding Sexual Harassment Sexual harassment subverts the mission of the University and threatens the well-being of students, faculty, and staff. All members of the UI community have a responsibility to uphold this mission and to contribute to a safe environment that enhances learning. Incidents of sexual harassment should be reported immediately. See the UI Comprehensive Guide

on Sexual Harassment at *www.uiowa.edu/∼eod/policies/sexual-harassment-guide/index.html* for assistance, definitions, and the full University policy.

Reacting Safely to Severe Weather In severe weather, class members should seek appropriate shelter immediately, leaving the classroom if necessary. The class will continue if possible when the event is over. For more information on Hawk Alert and the siren warning system, visit the Public Safety website *http://www.uiowa.edu/∼pubsfty/intlinks.htm.*

Student Classroom Behavior The ability to learn is lessened when students engage in inappropriate classroom behavior, distracting others; such behaviors are a violation of the Code of Student Life. When disruptive activity occurs, a University instructor has the authority to determine classroom seating patterns and to request that a student exit the classroom, laboratory, or other area used for instruction immediately for the remainder of the period. One-day suspensions are reported to appropriate departmental, collegiate, and Student Services personnel (Office of the Vice President for Student Services and Dean of Students).