22S:131  Introduction to Mathematical Statistics II

Instructor: Ruitao Liu

Contact Information:

- Office: 368 SH
- Phone: (319)-335-1915
- Email: ruitao-liu@uiowa.edu

Time & Location: 2:30P - 3:20P MWF  118 MLH

Department Information: Department of Statistics and Actuarial Science, 241 Schaeffer Hall, Phone: 335-2082

Departmental Executive Officer: Luke Tierney, 241 SH, Phone: 335-0712.

Course Prerequisite: 22S:130 (Introduction to Mathematical Statistics I) or equivalent.


Office Hours: Monday, Wednesday and Friday: 4:00-5:00 pm or by appointment.

Course Website
I will post announcements, homework problems, lecture notes, and other course information on ICON site.

Course Description and Objectives
This course is a continuation of 22S:130. This course gives a mathematical introduction to the foundations of statistical inference. We will discuss methods for using observed data from a sample to estimate parameters, test hypotheses about the data-generating distribution, and estimate/predict unobserved data. The methods developed will be applied in a variety of single sample, multiple sample, and regression settings. We will cover most of the topics from Chapters 5 through 8 of Hogg and Tanis (2010). Topics include sampling distribution theory, maximum likelihood estimation, confidence intervals, linear regression, hypothesis tests, and non-parametric methods. Time permitting, we will cover select topics from Chapters 9 and 10.
Grading
Your semester grade will consist of the following components:

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homework</td>
<td>20%</td>
</tr>
<tr>
<td>Two Midterm Exams</td>
<td>40%</td>
</tr>
<tr>
<td>Final Exam</td>
<td>40%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

A plus-minus grading system will be used. As a rough guide: >98%, A+; 91-98%, A; 87-91%, A-; 85-87%, B+; 80-85%, B; 76-80%, B-; 73-76%, C+; 65-73%, C; 58-65%, C-; 50-58%, D; <50%, F.

- **Homework** Homework will be assigned on Fridays and due on the following Friday at the beginning of the class. Because the grader will not have enough time to grade each problem, a subset of the assigned problems will be graded. Late homework will not be accepted under any circumstances.

- **Exams** There will be two 50-minute midterms and one two-hour final exam. Calculators may be used for exams, and any necessary statistical tables will be provided. Two 8.5”x11” formula sheets (both sides) may be used for each exam. If an exam is missed, a make-up exam will be permitted only if the circumstances of missing the exam satisfy university policies.

1. **Midterm One:** 2:30 pm, Friday, February 24  
2. **Midterm Two:** 2:30 pm, Friday, March 30  
3. **Final:** TBA

Attendance
Attendance is required.
College of Liberal Arts and Sciences: Policies and Procedures

Administrative Home of the Course  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 in 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.)

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.

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.

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. www.uiowa.edu/~sds/

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. (Operations Manual, IV.16.14. Scroll down to e. h. and i.)