STAT:5201 Applied Statistics II

Time & Place: MWF 12:30-1:20pm 3 Schaeffer Hall

Prerequisites: STAT:5200

Required Text

Other Texts (no-cost)

NOTE: The above book is out of print, but is available online as a free download:
http://users.stat.umn.edu/~gary/Book.html
(c) 2010 under Creative Commons license.


NOTE: Available on the class ICON website in ‘Files’ tab.

Class website: http://homepage.stat.uiowa.edu/~rdecook/stat5201.html

Instructor: Rhonda DeCook, 211 Schaeffer Hall, 335-3249, rhonda-decook@uiowa.edu
Office Hours: Monday & Wednesday 9:30 - 11am, or by appointment.

Department: Statistics and Actuarial Science
DEO - Joseph B. Lang, Chair, 241 SH joseph-lang@uiowa.edu 335-0712

Course Goals and Objectives:

This is the second course in the graduate applied statistics sequence, emphasizing design and analysis. In this course we will learn the basics of experimental design and statistical analysis of data obtained from a number of experimental designs using primarily SAS, but some R as well.

How the data were collected affects how the data should be analyzed.

When designing an experiment, one considers the sources of variation involved. Some sources of variation are of interest (e.g. treatment), while others can be considered a nuisance (e.g. subject-to-subject variation in some cases).

In designed experiments, we try to minimize the error in estimating the parameters (or effects) of greatest interest.
Topics: The earlier part of the course emphasizes intuitive ideas in experimental design. The later part of the course goes into more detail in modeling and analysis. Topics from Dean, Voss, Draguljic (2017), will tentatively include all or parts of chapters 1-7, 9, 10, 17, 18, and 19

Computer Software: We will use SAS as the primary tool for data analysis. We may also use some web-based Java applets provided by Professor Emeritus Russell Lenth that are used for simulations and sample-size determination, and some R code may also be given (but SAS is the primary program in this course).

Coursework: There will be weekly assignments (so about 14 altogether), three midterm exams, and a comprehensive final. Tentative dates for the midterm exams are in the next section. No late homework will be accepted (unless you have an excused university absence).

Some of the homework may be mini-projects, like maybe you will have to design an experiment and collect the data using software (presently depends on the availability of such software). Most homework questions will be from the Oehlert book, but some will come from other sources.

Grading Policy: Assessment in this course will be based on the following components:

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<th>Component</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Homework</td>
<td>20%</td>
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<tr>
<td>Exam 1</td>
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<td>Exam 2</td>
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<td>Exam 3</td>
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<td>Final Exam</td>
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*Exams dates are tentative.

Formulas deemed necessary for exams will either be provided to you (and given to you beforehand for prior knowledge), or you will make handwritten notes for exams. But, keep in mind that you will not have a formula sheet when taking the MS comprehensive exam.

As an approximate guide, grades will be given as:

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<tr>
<th>Grade</th>
<th>Score</th>
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<tr>
<td>A</td>
<td>90-100</td>
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<tr>
<td>B</td>
<td>80-90</td>
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<td>C</td>
<td>70-80</td>
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<td>D</td>
<td>60-70</td>
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<td>F</td>
<td>Below 60</td>
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Plus and minus grades will be given as deemed appropriate.

*No make-up exams will be given unless there is an absence due to unavoidable circumstances as stated by University policy (documentation will be required in such a case). Missed exams will receive a score of 0.

See course website for 3rd page of syllabus stating Teaching Policies & Resources

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: http://clas.uiowa.edu/students/handbook

Electronic Communication:
University policy specifies that students are responsible for all official correspondences sent to their University of Iowa e-mail address (@uiowa.edu). Faculty and students should use this account for correspondences (Operations Manual, III.15.2, k.11).

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 Department of Public Safety website.

Academic Honesty:
All CLAS students have, in essence, agreed to the College’s Code of Academic Honesty: “I pledge to do my own academic work and to excel to the best of my abilities, upholding the IOWA Challenge. I promise not to lie about my academic work, to cheat, or to steal the words or ideas of others; nor will I help fellow students to violate the Code of Academic Honesty.” Any student committing academic misconduct is reported to the College and placed on disciplinary probation or may be suspended or expelled (CLAS Academic Policies Handbook).

Accommodations for Disabilities:
The University of Iowa is committed to providing an educational experience that is accessible to all students. A student may request academic accommodations for a disability (which include but are not limited to mental health, attention, learning, vision, and physical or health-related conditions). A student seeking academic accommodations should first register with Student Disability Services and then meet with the course instructor privately in the instructor’s office to make particular arrangements. Reasonable accommodations are established through an interactive process between the student, instructor, and SDS. See http://sds.studentlife.uiowa.edu/ for information.

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 for assistance, definitions, and the full University policy.

CLAS Final Examination Policies:
The final examination schedule for each class is announced by the Registrar generally by the fifth week of classes. Final exams are offered only during the official final examination period. No exams of any kind are allowed during the last week of classes. All students should plan on being at the UI through the final examination period. Once the Registrar has announced the date, time, and location of each final exam, the complete schedule will be published on the Registrar’s web site and will be shared with instructors and students. It is the student’s responsibility to know the date, time, and place of a final exam.

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