

22S:255 (STAT:7200) Linear Models

Russell V. Lenth

Fall Semester, 2012

Time and Place	Tuesday and Thursday 9:30 am–11:20 am, 3 Schaeffer Hall
Prerequisites	22S:164 (STAT:5200), 22S:165 (STAT:5201), and 22S:194 (STAT:5101)
Textbook	Monahan, John F. (2008), <i>A Primer on Linear Models</i> . Chapman and Hall/CRC Press, ISBN 1-4200-6201-8 [PB].
Class Web page	http://www.stat.uiowa.edu/~rlenth/s7200/ Grades will be posted on ICON: http://icon.uiowa.edu/
Instructor	Russell V. Lenth, 271 Schaeffer Hall, 335-0814, russell-lenth@stat.uiowa.edu
Office Hours	Tuesday and Thursday 11:30–noon and 2:00–3:00pm; and by appointment
Statistics office	DEO: Professor Luke Tierney, 241 Schaeffer Hall, 335-0712

Course Goals

This is a course on the theory underlying linear models. This theory is the basis of standard results in regression and analysis of variance (including random effects and mixed models), and many other areas of statistics (e.g. generalized linear models, nonlinear regression, etc.) depend quite strongly on it. We will do little or no data analysis or computing in this course.

Topics

Most of the book, but we will do the appendices on matrix theory and Lagrange multipliers first. If time permits, I'd like to add a little supplementary material on error rates in multiple comparisons and multilevel modeling.

Course work

Class meetings will emphasize problem-solving rather than lecturing. I think we should organize study groups; we'll discuss this in the first class meeting. My basic plan is that you work continuously on keeping a journal of solutions to assigned homework. I will assign reading and problems each time and you should be prepared to present your solutions in the next class. We will not have a grader, and I will not collect papers. Instead, I expect half to 2/3 of each class to be devoted to discussing assigned problems—with you as leaders. Whatever you get right, terrific. Whatever you miss, make corrections where the errors are minor, and re-write the solutions where errors were major. Keep

your journal organized by chapter and problem number. I suggest that you use a loose-leaf binder and good paper; write on one side only so that you may organize, correct, and replace sheets as needed. At any given time, your journal should be in essence a comprehensive solutions manual to all problems assigned to date.

I will ask to see your journal now and then so that I can evaluate your success in learning the material and learning from your mistakes. Journal evaluations will comprise 25% of your grade. The remaining 75% will come from three in-class exams, each worth 25%. See the schedule below.

Grading

Grading elements are weighted as follows:

Exam 1	Tue, Sep 25	25%
Exam 2	Tue, Oct 30	25%
Exam 3	Finals week	25%
Homework/Journal	Daily	25%

The basic cutoffs between whole-letter grades are at 90, 80, 70, etc., and the determination of minus, unmodified, or plus is based on the ones digit being in the sets (0,1,2), (3,4,5,6), and (7,8,9). For example, the A-minus range is 90.00–92.99, and the B range is 83.00–86.99.

The date and time of the final exam is not yet known. We are required to hold the final exam on the date that will be decided by the UI administration around March 1. **Therefore, do not commit to any travel plans**

during finals week! If you fly home early, you will get a zero on the Final.

Integrity of course materials

I request that you work to preserve the integrity of the textbook and course materials. This means that under no circumstance should you make public (either in print or via web postings, social networks, etc.) the contents of your homework journal or any other solutions of textbook or exam problems. You must also strive to avoid making use of any solutions provided by anyone outside of this class, or any printed or posted solutions to textbook problems or to the same problems in other

texts. Compliance with this request will be considered part of the academic honesty requirements discussed further below under Administrative Policies.

Late work and absences

If you must miss class due to an illness or family emergency, please inform me and your study-group members, and work with your group members to get caught up as quickly as possible. Don't ever get more than a week behind, as it becomes very hard to catch up. If there is a pattern of excessive absences from the lecture, I will warn you; if the pattern continues, I will drop you from the course.

Administrative policies

The following policy and procedural statements are extracted from the College of Liberal Arts and Sciences policies site, <http://www.clas.uiowa.edu/faculty/teaching/policies.shtml>.

Administrative Home

Department of Statistics and Actuarial Science is the administrative home of this course. This is a department of the College of Liberal Arts and Sciences, which governs matters such as the add/drop deadlines, the second-grade-only option, and other related issues. Questions may be addressed to 120 Schaeffer Hall, or see the CLAS [Academic Policies 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](#). 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 <http://www.uiowa.edu/~sds/> for more information.

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](#)).

(Last updated August 13, 2012)

CLAS Final Examination Policies

The date and time of every final examination is announced during the fifth week of the semester; each CLAS student will receive an email from the Registrar stating the dates and times of the student's final exams. 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.

Making a Suggestion or a Complaint

Students with a suggestion or complaint should first visit with the instructor (and the course supervisor), and then with the departmental DEO. Complaints must be made within six months of the incident ([CLAS Academic Policies 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](#) 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 web site](#).