STAT 540: Data Analysis and Regression - Fall 2014

Instructor: Wen Zhou (Email: riczw@stat.colostate.edu), 208 Statistics Building
TA: Libo Sun (Email: libosun@lamar.colostate.edu), 304 Statistics Building

Meeting Place and Time: TR 9:00-10:15am, 006 Statistics Building (08/25-12/12)
Office Hours: 1:00-2:00pm Tue. and Thur. or by appointment

Midterm Exams: 10/9 and 11/13
Final Exam: Mon., 12/15, 11:50am-1:50pm

Objectives: This course will introduce students to simple linear regression, multiple regression, and related methods. The main emphasis will be on applications of the linear model to data from diverse areas of scientific research. Students will learn graphical and computational methods for data analysis, and the course will provide background for later study of the theory of linear models. Emphasis will also be given to effective communication of statistical results.

Prerequisites: Six credits of upper-division statistics courses or written consent of instructor. Consent of instructor is strongly recommended for all students not enrolled in the Statistics Department graduate program. This course is taught at the level of a first-year student pursuing a Master of Science in statistics with corresponding mathematical expertise needed. Students will be required to carry out mathematical proofs as well as data analysis.

Course Materials and Computing

Required textbook: Kutner, M. H., Nachtsheim, C.J., Neter, J. and Li, W. (2005) *Applied Linear Statistical Models*. Fifth Edition. McGraw-Hill/Irwin.

Class web page: All homework assignments, handouts, and other information will be available on the course web page on RamCT (www.ramct.colostate.edu).

Software: The **R** statistical software (see `www.r-project.org`) will be used as our primary computational tool for this course. **R** is freely available for the Windows, Mac OS X, Unix, and Linux platforms. There is an abundance of free documentation available at the R web site. You should download and install **R** for your personal computer. If you prefer to use **SAS** statistical packages for data analysis, please let me know.

Course Work

Homework: Homework will be assigned approximately every week. Assignments will be available on the class web page.

Exams: There will be two midterms and a comprehensive final exam.

Grading: Homework (20%), first midterm (25%), second midterm (25%), and final exam (30%).

1. All homework assignment will be worth equal weight, and your lowest homework score will be dropped.
2. The course will be graded on a curve based on my impression of the overall strength of the class and natural breaks in the distribution of scores.
3. There is no quota or limit to the number of potential A's or any other grade.
4. Your first point of contact for questions about the grading of the homework is the TA (Libo Sun, libosun@lamar.colostate.edu). If you have a question about how an exam was graded, please see me directly.

Course Policies

1. Late homework: No credit unless a prior permission is granted.

2. Exam conflicts: Requires prior permission *and* prior testing only. *Under no circumstances* (aside from University requirements) will changes to the final exam time be permitted; plan accordingly.

3. Any grading dispute must be submitted in writing to me within one week after the work is returned. No changes will be made after this deadline.

4. **Academic honesty**: It is important that your course work represents only your ideas. I encourage discussion of homework in broad, conceptual terms where one student is trying to educate another without giving away the answer. Copying solutions or computing code from other students or other sources is plagiarism. At a minimum, all students involved will receive a 0 on the assignment in question for any type of academic dishonesty.

5. Resources for Disabled Students: Support and services are offered to student with functional limitations due to visual, hearing, learning, or mobility disabilities as well as to students who have specific chronic health conditions. See the Resources for Disabled Students web page for more information (rds.colostate.edu). If you need specific accommodations due to a disability, please meet with me outside of class to discuss your needs as early in the semester as possible. In accordance with RDS procedures, accomodations must be arranged in advance–no retroactive remedies are allowed.