Stat 324/524 – Applied Regression Analysis

Instructor: Dr. Beth Chance

Class Times: Section 70: M, T, W, R 12:10-1:00, Studio Classroom (38-123)
Section 71: M, T, W, R 1:10-2:00, Studio Classroom (38-123)

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Office Hours: M 4-4:45, T 11-12 in 38-123, W 10-11, Th 2-3pm, online chatroom 8-9pm, F 10-11, and by appointment, email, and anytime my office door is open.

Course Webpages:  PolyLearn (http://my.calpoly.edu)  Section 71: See PolyLearn Access section
http://statweb.calpoly.edu/bchance/stat324/

Course Listserv: stat-324-70-2174@calpoly.edu, stat-324-71-2174@calpoly.edu

Prerequisite: Stat 252, 302, 312, 313 or 322.  See me if you have not fulfilled this prerequisite.

Course Objective: To expose students to linear statistical models and show them real-world applications. The focus will be on selecting the appropriate model, assessing the fit of the model, and effectively communicating statistical results. Computer technology will be used to facilitate data analysis and explore concepts.

Texts/Materials:

Required

- Access to JMP or R or Minitab

Recommended:

- *Statistical Learning from a Regression Perspective* (2008), R. Berk, Springer
- *An Introduction to Statistical Learning, with Applications in R*, Gareth James, Daniela Witten, Trevor Hastie, and Robert Tibshirani, Spring (http://www-bcf.usc.edu/~gareth/ISL/)

Lecture handouts will be supplied in class, you are responsible for receiving and keeping these materials. Handouts from previous lectures will be available on the course web pages.

Statistical Packages: We will be predominantly using the *R* software package for data analysis and exploration. You will be given instructions for how to use Minitab 17, JMP 12.2, R/RStudio, and Microsoft Word as needed for this course. All of these packages are freely available (see course webpage for downloading instructions) and are available in the Library Learning Commons. You are free to use other packages, I just may not be able to help you. You are also required to bring a scientific calculator with you to each class session.

Ownership of course materials: The course materials provided to you online and in class are yours for your personal use for the quarter and to keep as a reference for your career. I expressly do not give permission for you to sell or freely distribute my course materials, including exams, quizzes, homework assignments, or solutions.
Class Participation: You are expected to participate fully in class discussions. There will also be numerous “discussion questions” assigned as well as examples that you complete in class or between classes and submit your answers in the Practice Problems discussion board. These (about 20-25) will be graded, but predominantly in terms of “was seriously attempted” vs. “was not really attempted.” You need to be prepared to discuss your analysis to a particular problem to the rest of the class. If you work together, include both students’ names.

Term Project: There will be a data collection project due in several stages during the quarter in which you will be asked to work in groups of 2-3 to apply the methods we learn this quarter and to produce word processed or RMarkdown reports of your analyses. (Stat 524 students will work individually and will be more responsible for presentations.) Details will appear on the course web pages.

Homeworks: You are encouraged to work together on assignments but you must write up your solutions individually and hand in your own work. If I determine assignments are too similar, I will divide the grade among the individuals. You are also encouraged/expected to ask questions during and outside of class. You are expected to utilize the computer for much of your analysis and must include all relevant output with your assignment for full credit. Graded assignments will be returned in class or can be picked up from me. Late homeworks will NOT be accepted, but I will review previous assignments with you if you complete them after the deadline. Your lowest homework score will automatically be dropped. You are advised to not use this up too early in the quarter and to start your assignment early in the week. After the due date, homework solutions will be posted on the webpages.

The main requirement for all problems is that you EXPLAIN your answers. Often, questions may have more than one correct answer so several answers will be accepted as long as they are JUSTIFIED. You should also state any ASSUMPTIONS that you make. Soon you will be explaining your results to managers and people outside your discipline, so you need to get used to explaining and backing up the numbers in English! You’ll also be given partial credit for your work, so it is important to at least attempt each problem.

Grading: Class Participation/Practice: 5% Homeworks: 20%
Midterms: 40% (15%, 25% each)
Term Project (3 parts): 25% (7.5%, 12.5%, 15%)

Exams: There will be two in class exams (4/27 and 5/25). Graded exams will be returned in class or can be picked up from me.

Make-up Policy: Make-up oral exams will be given to students who notify me (with appropriate proof) at least two days before the exam of their unavoidable absence.

Classroom Culture: The textbook will serve as a guide but I expect to supplement the material in the textbook extensively. It will be important for you to come to class, to participate fully, to ask questions, and to be responsible for all course handouts. This will allow us to focus more on the interpretation and presentation of statistical analyses. I cannot overemphasize the importance for you to follow along with the reading assignments and to ask questions of me for any components that are not clear. I hope to create a collaborative learning environment, where you feel comfortable asking questions and working together. Still, I do ask that when I am lecturing that you give me your complete and undivided (or at least silent) attention and that you are respectful of me and your classmates. This includes turning off all cell phones during class. If you must use your cell phone, please leave the room.
FOR BETTER OR FOR WORSE

The prof is going on
my on, and she lost
me completely about
15 minutes ago.

Everyone else seems to
understand, I must be
the only one here who's
confused!

I really want her to
stay and go over
some of this stuff
again.

But if I put up my hand,
175 people will think
I'm a doofus!