

STAT512: Experimental Design and Data Analysis for Researchers II

Spring 2015

Section 001 (Local)

M/W 2:00 – 3:50 Clark A 206

Instructor Information

Instructor: Dr. Ann Hess

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Phone: (970) 491-5077 (Note: email preferred)

Office Hours: M/W 3:50 – 4:30 (Clark A206) or by arrangement

Office: Statistics 218

TA/Grader: Ms. Soo-Young Kim

Email: syk@lamar.colostate.edu

Office: Statistics 301

Objectives:

This course is a continuation of STAT511. Topics this term will be multiple regression and design of experiments. Emphasis throughout will be on the principles of design and inference, rather than the mechanics of computations. Data analysis will be performed using SAS. An introduction to SAS will be provided. In some cases, R examples will be available from RamCT.

The class presentation will approximately follow the order of the chapters in the text. The three major topics are: (1) Multiple regression (including model selection and logistic regression), (2) Fixed-effect factorial designs, and (3) Random and mixed-effect factorial designs (including RCB, split-plot and repeated measures).

Prerequisites: STAT511 or consent of instructor.

Required Text: Ott and Longnecker, An Introduction to Statistical Methods and Data Analysis, Sixth Edition, Duxbury, 2008. ISBN: 9780495017585

Course Web Page at RamCT:

All course materials are available from RamCT. This will include lecture notes, examples, assignments and other material. *Students are expected to print a copy of the notes and bring them to class.* In addition, video lectures are available. Students are strongly encouraged to post questions to the RamCT discussion board. You will need your eid and password to log onto RamCT.

Computing:

Data analysis for STAT512 will use SAS. The current version is 9.4. There are a few options for accessing SAS:

1. SAS can be leased through RamTech (in the Lory Student Center) for approximately \$60 per (academic) year. This option only works for Windows.

2. SAS University Edition is a free version of SAS. This option works for Macs and Windows. http://www.sas.com/en_us/software/university-edition.html
3. SAS is available in Weber 206. Note that SAS is only installed on the two computers located closest to the white board. You will need a login name and password to use the computers in Weber 206. There is also one computer in the library with SAS installed (the room can be reserved).

Grading

	Grade Percentage	Tentative Dates
Homework	20 %	Due on Fridays by 4pm
Midterm 1	25 %	Wednesday 3/4
Midterm 2	25 %	Wednesday 4/22
Final Project	30 %	Tuesday 5/12 by 4pm
Total:	100 %	

Other Important Dates:

3/23 is the Course Withdrawal deadline.

Academic Integrity: This course will adhere to the Academic Integrity Policy of the CSU General Catalog and the Student Conduct Code. On exams, students will sign a statement of the honor pledge "I have not given, received or used any unauthorized assistance."

Exams: Exams are open book, open notes. For any exam conflicts, please email the instructor at least one week prior to the scheduled exam date. Also see the instructor for exam grading problems.

Homework: Homework will be assigned weekly, typically assigned by Friday and due on Friday (4:00 pm) of the following week. You are encouraged to work together on homework, but the work turned in should be your own. By that I mean that all the computer output should be generated by you and the answers should be written by you. No late homework will be accepted (without prior approval). Homework can be turned in to the file found in **Statistics 102 – do not slide it under my office door!**

Final Project:

Students need to provide data for their project. Ideally this data would be part of your own research (or work) or at least from your lab (or company). The analysis for this project needs to focus on a topic from the course: multiple regression, factorial ANOVA or mixed models. Note that all of these topics include at least two predictor variables.

A (brief) project proposal will be due around Spring break. There will be at least one project review day toward the end of the semester, where students will discuss and review projects with each other. The final write-up will be due during finals week. I expect that the final write-up will

be a few pages in length and include a detailed discussion of the variables, design, analysis, conclusions and some graphics as well as the code.

Homework format requirements: *Homework should be organized so that the grader can find your answers without searching through pages of computer output.*

1. Answer questions concisely.
2. Write your own sentences to answer the question instead of just copying and pasting output. Only present the output that is related to the question. If the question does not require output, then do not include it.
3. SAS code is not necessary unless specifically requested.