# Mathematics 416 — Linear Regression Models

## Syllabus and Course Procedures — Spring 2013

**Instructor:** Brian D. Jones
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**Office Hrs:**   Monday 1:10 - 2:00
Tuesday 9:10 - 11:00
Wednesday 1:10 - 2:00
Friday 8:10 - 9:00

**Required Text**   Applied Linear Regression Models, 4th ed., by Kutner, Nachtsheim, and Neter (2004).

**Course Material**   The tentative plan is to cover all chapters except 12. Some sections may be omitted or abbreviated to accommodate our time schedule.

**Your Course Grade**   Your course grade will be determined as a weighted average as follows:

| | | |
|---|---|---|
| Homework* | 24% | |
| Problem Presentations | 5% | |
| Consulting Project 1 | 9% | |
| Consulting Project 2 | 9% | |
| Midterm Exam 1 | 14% | Wednesday February 27 |
| Midterm Exam 2 | 14% | Wednesday April 24 |
| Final Exam | 25% | Thursday, May 9, 6:30-9:30 pm |

Grading scale is *approximately* : A (90-100), B (80-90), C (70-80), D (60-70), F (below 60)

\*   I will delete your lowest homework score before calculating your final course average.

**Homework**   Homework problems will usually be assigned and collected weekly, sometimes twice per week. In addition to homework exercises from the text, in-class and out-of-class computer lab and R work will be assigned frequently. Homework solutions should be legible and presented in a logical fashion, with problem number clearly indicated. You do not need to type your work, but please write neatly. I may give no credit to messy homework that is difficult to read. Besides the usual symbolic language of mathematics and statistics, good homework solutions should be accompanied, where appropriate, by explanations and ideas written in complete English sentences.

Homework assignments are to be handed in at the beginning of the class period at which they are due unless I specify otherwise. No credit will be given to unexcused late papers. Do not leave your homework back at your dorm room! If you have a conflict with a due date because you are a student-athlete, tell me as far in advance as possible. If you have an excused illness, send me an e-mail as soon as possible.

One of my favorite axioms is *Homework is where most of the learning happens in a course,* and I agree whole-heartedly. The payback from hours of hard work on home assignments will be a deeper understanding of regression models, high homework scores, and ultimately the likelihood of a high grade in the course.

**Late Policy**   Homework assignments must be turned in to me at the beginning of the class period on the assigned due date, unless I specify otherwise. No credit will be given to unexcused late papers. If you have an illness or athletic schedule conflict, let me know as soon as possible.

**Consulting Projects**     There will be two regression analysis consulting projects in this course. You will be given a data set, a written description of how and why the data were collected, and a list of analysis questions the owner of the data is interested in. Based on knowledge gained from this course, students will analyze the data, draw conclusions, and write up a formal report.

Your final formal report should be of professional quality — typed, having a cover sheet, introduction, body, and results and conclusions. It should be well-written with good use of both technical and non-technical language, and displaying appropriate graphics. The grade on your report will be weighted, giving 70% weight to mathematical and statistical correctness, and 30% to presentation.

More detailed requirements will be described in a separate handout early in the semester.

**Exams**     There will be two midterm exams, and one comprehensive final exam. The dates for these exams are:

Midterm Exam 1 — Wednesday, February 25
Midterm Exam 2 — Wednesday, April 24
Final Exam — Thursday, May 9, 6:30-9:30 pm

For each midterm exam you may use one 8.5x11.0 help-sheet (both sides usable); and for the final exam you may use two such sheets.

**Software**     There will be a considerable amount of work done with the aid of the software package R. All that you need to know about R will be covered in class. Fast and powerful statistical software is a somewhat bittersweet pill. With today's powerful software, we can perform a plethora of analyses quickly and generate a ream of output, whether or not these analysis procedures are appropriate for the given data setting, and whether or not key validating assumptions are met. Knowledge and discipline must match the awesome computational power and speed of modern software!

**Academic Honesty**     Any work you submit for credit in this course must result directly from your own understanding, thoughts, and ideas. Presenting the work of others as your own is strictly prohibited.

**Disabilities**     If you have any disability and therefore may have need for some type of accommodation(s) in order to participate fully in this class, please feel free to discuss your concerns in private with Erin Salva, Coordinator of Disability Services, by calling her office at phone number 5453, or by sending her an email at salvae@kenyon.edu.