Econometrics: Multiple Equation Estimation **ARE212**: Section Syllabus

Professor	Max Auffhammer	**Office hours**	Thursdays, 5:00PM-6:00PM
GSI	Dan Hammer	**OH location**	234 GIANNINI
Section time	Fridays, 11:00AM-12:00PM	**e-mail**	danhammer@berkeley.edu
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The objective of section is to introduce `R` for econometrics, illustrating the lecture notes with applied examples. Actual data work. Each section, I will present a coded example. I hope, however, that the sections will be interactive. Bring your laptop, if possible! We will work through the example and extensions together. Interrupt me with questions.

The following outline of section topics is based on the progression from previous years. The outline might change, but the final section notes will always be posted on bSpace at least one week in advance of section. The development version of the notes and `R` code will be posted to my Github repository:

github.com/danhammer/ARE212

You do not need to know anything about Github to productively and successfully engage in section. But you will be able to see the evolution of the notes on Github, as well as the structure and protocol associated with production code. If you want to collaborate on the notes, join Github and send me an e-mail. I will help get you started, if needed.[1]

February 1	Preliminaries and setup
February 8	Matrix operations in `R`
February 15	OLS regression from first principles
February 22	Goodness of fit
March 1	Hypothesis testing
March 8	Returns to education, empirical example
March 15	Efficiency of GLS
March 22	Large sample properties of OLS
April 5	Testing for heteroskedasticity
April 12	Feasible generalized least squares
April 19	Serial correlation
April 26	Instrumental variables
May 3	Spatial analysis in `R`

The `R` code for each section will be posted on both bSpace and Github, and should run on any machine and any operating system. Please feel free to e-mail me with any questions.

Office hours: I do not use my office on campus. In fact, I'm not sure where it is. Instead, I'll be in 234 Giannini from 5:00pm - 6:00pm on Thursdays.

E-mail policy: If you cannot attend regular office hours, please e-mail me with questions! I'll respond promptly over e-mail or in person within 48 hours. If I can't answer in less than a paragraph, then I'll ask you to come to office hours. If you cannot attend those office hours, please e-mail me with questions! If I

[1] A side note: I have reserved the handle **auffhammer**, just in case Max ever wants to join. I will try dearly to extract the rents associated with absolute scarcity. He claims he'll just get another handle; but this is not a credible threat, since **auffhammer** is an awesome Github handle.

can't answer in less than a paragraph, I'll ask you to come to office hours. It's turtles all the way down. I will not hold office hours on Thursday, March 21 as I will be at an out-of-town conference.

Laptops: Please bring your laptop, if possible. You will be able to follow along in the notes without a laptop, but it will be helpful to write code in real time. Note, however, that AirBears is an unsecured network, and I can easily spy on your network usage. I will *never* outwardly embarrass someone for being on Facebook. But you should be embarrassed if you are on Facebook during section. Twitter is totally fine.

Homework: Problem sets will be collected at the end of class on the specified date. Ultimately, Max will decide the deductions for late homework. I will not stray from his stated policies.

Grading: The problem sets will be graded on a 100 point scale. A face-plant fail or no-show will be assigned a 0; a tried-and-came-close will be assigned a 70; and a good-showing will be assigned a 100.

Attendance: You are not required to come. I hope the sections are helpful, but I carry no conception that the sections will be uniformly helpful. Only come if the sections are helpful to you.

Quizzes: There are no quizzes. But I scared you, didn't I?

Additional resources: There are many online, free resources to learn `R` and basic econometrics; and there even exist resources that do both at once. I have listed a few helpful resources for both writing code and scripting econometric routines.

1. **Econometrics in R**, cran.r-project.org/doc/contrib/Farnsworth-EconometricsInR.pdf
2. **R Style Guide**, google-styleguide.googlecode.com/svn/trunk/google-r-style.html
3. **Econometrics**, *Bruce Hansen*, www.ssc.wisc.edu/~bhansen/econometrics/Econometrics.pdf

Academic integrity: Directly from the Berkeley site: These are some basic expectations of students with regards to academic integrity: ◦ Any work submitted should be your own individual thoughts, and should not have been submitted for credit in another course unless you have prior written permission to re-use it in this course from this instructor. ◦ All assignments must use "proper attribution," meaning that you have identified the original source and extent or words or ideas that you reproduce or use in your assignment. This includes drafts and homework assignments! ◦ If you are unclear about expectations, ask your instructor or GSI. ◦ Do not collaborate or work with other students on assignments or projects unless you have been given permission or instruction to do so.

Special accommodations: If you should require any disability-related accommodations during our sections, lecture, or exams, please see me privately. You will ultimately need to procure an accommodations letter from the Disabled Students Program (dsp.berkeley.edu), which will be sent directly to Max.