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

Professor	Max Auffhammer	**Office hours**	Wednesdays, 5:00PM-6:00PM
GSI	Patrick Baylis	**OH location**	234 Giannini
Section time	Friday, 9:00AM - 10:00AM	**e-mail**	pbaylis@berkeley.edu
Section location	2032 Valley LSB		

The objective of section is to introduce you to `R` as a tool for econometric analysis. Each section, we will work through a coded example that uses actual econometric data in order to illustrate the use of `R` and some of the concepts that Max will cover in lecture. These are intended to be interactive so I strongly encourage you to bring your laptops to section and to interrupt me with questions and comments.

Before we get into any of the details, I (and you) owe a great deal of thanks to **Dan Hammer**, a third-year colleague of ours in ARE who originally wrote these notes for last year's class[1]. Dan and I are collaborating to produce a comprehensive set of `R`-based section notes that span ARE212 and ARE213 (which many of you will take in the fall) and it would be helpful if you would let me know about any mistakes that you find in the notes.

The following outline of section topics follows the lecture notes as they have been presented in the past. This outline may change, but the section notes will be posted in advance on bSpace. The work in progress on the notes will also be posted to my GitHub repository[2].

January 31	Introduction to R
February 7	Elementary operations in R
February 14	Matrix algebra in R
February 21	Goodness of fit
February 28	Hypothesis testing
March 7	Returns to eduction (example)
March 14	Efficiency of GLS
March 21	Large sample properties of OLS
April 4	Testing for heteroskedasticity
April 11	Feasible generalized least squares
April 18	Serial correlation
April 25	Instrumental variables
May 2	TBD
May 9	TBD

Office hours: I've scheduled office hours on Wednesdays from 5:00PM to 6:00PM in 234 Giannini. This is not ideal, but it turns out that free time and space for office hours is a scarce resource. I'm also available to meet outside of office hours.

E-mail policy: You are welcome to e-mail me questions about the course, section, or problem sets. However, if I can't answer your question in less than a paragraph, I will ask you to come to office

[1] Dan's original notes are available at www.github.com/danhammer/ARE212. You will find them to be both excellent and somewhat more technically advanced than what I present in section. I highly recommend them, in particular for students who find the pace of my sections to be slow.

[2] www.github.com/pbaylis/ARE212

hours or to make an appointment with me so that we can discuss it in person. If that isn't possible, you will have to come up with a shorter question. Brevity is the soul of econometrics.

Feedback: As a first-year GSI, I will find your feedback on the content, pace, and presentation of style immensely valuable. You are more than welcome to contact me via e-mail or in person with feedback. If you prefer, you may also submit anonymous feedback here: `https://www.get3sixty.com/:kcvz34`.

Laptops: As I mentioned above, I would be delighted if you brought your laptops to section in order to follow along with the examples I present. I do understand that having a computer open breeds certain temptations. I can't promise that I will be more interesting than Facebook, but I do think you'll learn more about econometrics from me. Unless you have a bunch of econometricians on your Feed.

Homework: Problem sets will be due at the end of class on the given date. Much of what you turn in will be code. I highly recommend you comment this code, both for your own sake and for mine. If you turn something in late, it will be up to Max to determine your deduction.

Grading: Problem sets will be graded on a 100 point scale. Complete whiffs or no-shows will recieve a 0; decent-but-not-quite-there answers will recieve a 70; good work will receive a 100.

Attendance: Attendance at section is not required. I hope the sections are helpful, but I don't expect that they will be useful for everyone. Only come if they are helpful to you, or if my jokes are just that good.

Additional resources: There are many resources available to learn `R` and basic econometrics available on the web. There are even some that do both together. I've included a few of my favorites below:

1. `R` reference card: `http://cran.r-project.org/doc/contrib/refcard.pdf`
2. Various starter resources for `R`: `http://www.ats.ucla.edu/stat/r/`
3. `R` if you already know `C++` or `Java` or `Perl` : `http://www.johndcook.com/R_language_for_programmers.html`
4. Econometrics in `R`: `http://cran.r-project.org/doc/contrib/Farnsworth-EconometricsInR.pdf`

Academic integrity: I don't want to belabor this. Most of what you will learn from this course will be a direct result of your struggles on the problem sets and exams. If you cheat on the problem sets, you will only be hurting your future grasp of the material. Similarly, while I am not against collaboration, I strongly suggest you attempt the entire problem set on your own before talking to others.

Special accomodations: 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.