



<http://xkcd.com/552>

Economics 31: Introduction to Econometrics (T/Th 9:55-11:10, Kohlberg 115)
Spring 2014

Overview:

This course serves as an introduction to econometrics. A large fraction of this course will cover the probability and statistics that are necessary to understand as a foundation for econometrics and regression analysis. Econometrics is perhaps the most difficult sub-field in the entire discipline of economics, so even though this course has "introduction" in its title, you should in no way expect this course to be easy.

Real world and economic applications will be covered as often as possible, but this class should be understood as a math class. It will be a *very difficult* math class for many of you, especially those who are new to statistics or not mathematically inclined. The only prerequisite for this course is Econ 1, but the more math and statistics you know, the better. Calculus will be used in the course, but no prior knowledge is required, it will be covered in class as necessary. That being said, it is an unavoidable fact of life that the more pure math you have taken, the easier time you will have with other take math-based courses.

Especially if this is the first statistics course you have taken, you should not expect to understand everything intuitively. Statistics is difficult. Ask any math, statistics, or mathematically-inclined economics professor, and he/she will likely be able to tell you about an experience where, five years after they first heard of a topic, they finally understood what it actually meant.

So if econometrics is so hard, why take this class (other than to complete a requirement for the major)? Econometrics is the most useful tool you can acquire as an undergraduate to actually get a job doing something you learn in school. Consulting firms, banks, graduate schools, researchers, etc. will not ask you to draw a supply and demand curve. They *will* ask you to crunch numbers, and they *will* ask you to do produce stuff in Excel, Stata, or other statistical software. And they'll

expect you to do it correctly, meaning you have to know the math behind these programs.

Professor Contact Information:

Garret Christensen

E-mail: gchrist1@swarthmore.edu

Please begin the subject line of any class-related e-mails with “ECON 31” so I can easily identify it. Note that many questions are more easily and efficiently answered in person than via e-mail, so when possible I prefer to discuss matters in person. Please be certain not to use any texting or leetspeak abbreviations when communicating via e-mail.

Phone: (610)328-8369

Office: 204 Kohlberg. Office Hours: T 2:30-3:30, W 11:00AM-12:00PM

Please come by, either just to talk, or especially if you feel you’re falling behind! Note that I have a friendly dog (George) that I found on the street in Kenya; he spends most days in my office. If you are allergic or for any reason uncomfortable around dogs, I am more than happy to meet with you elsewhere.

Please(!) do not leave the “I’m not doing well in this course” discussion until the week of the midterm, or even the week before the midterm. You will get much more sympathy, and will have a much better chance of improving, if you make this visit in the 2nd or 3rd week of the semester.

Teaching Assistants:

Your teaching assistants for this course are Ariel Finegold ('13, afinego1@swarthmore.edu) and Eric Sherman ('13, esherma1@swarthmore.edu). They will hold clinics Thursday from 6-9pm in Kohlberg 116. You are strongly encouraged to attend.

Texts:

Statistics for Business and Economics 8e, Newbold, Carlson and Thorne. (Pearson 2012)

There is no one perfect textbook for all students. Numerous good textbooks cover probability and mathematical statistics, and dryly show detailed proofs and derivations involving multivariate calculus, at the expense of not covering much regression or being particularly aimed at future economists. (See Ross' *Introduction to Probability and Statistics for Engineers and Scientists* or Larsen and Marx's *An Introduction to Mathematical Statistics and Its Applications* for two quality examples.) Other textbooks tend to focus on more interesting applications and intuitive explanations, at the expense of (sometimes incorrectly) summarizing or “hand waving” to explain what is really just complicated algebra.

Newbold, Carlson and Thorne have produced the closest thing to a Goldilocks happy medium solution that I have been able to find. It covers regression in depth, but is slightly on the chatty side. We will use many of the mathematical appendices, and will occasionally supplement it with more purely mathematical material.

Grading:

Midterm (30%) March 7 in class. You may not reschedule the midterm without a serious and documented health emergency or death in the immediate family. (Immediate does not include grandparents.) As it has been proven to save lives, public obituaries are required in the latter case.

Final (35%) Will be held at the college-scheduled time, and only rescheduled according to College policy (<http://www.swarthmore.edu/Admin/registrar/page.phtml?sidebar=coursesinfo&content=finalconflicts>) and only if notice is given *well* in advance. Note that wanting to go home early is absolutely not an acceptable reason.

Homework (30%) 6 problem sets will be collected in class at regular intervals throughout the semester. *Late problem sets will not be accepted.* I repeat: late homework sets will not be accepted. 10 minutes counts as late. Instead, only your best 5 scores will be counted. This grants the same equal level of mercy to everyone in the class, and eliminates the need for me to verify your excuses.

Homeworks will cover both applications and pure mathematical theory. The applications will require you to install, use (and hopefully understand) both Excel (or any other basic spreadsheet software) and Stata, both of which are available from the College at <http://www.swarthmore.edu/its/software-installers.xml>.

Attendance/Quizzes (5%) Regular attendance is expected. Short unannounced quizzes may be given at any point during the semester, mostly to reward attendance or reading the textbook(s).

Academic Dishonesty:

You are encouraged to work on homework assignments with other students and the TAs. Wholesale copying of answers is cheating, however. All students must turn in their own individual assignment, and must clearly indicate at the top the other students with whom you worked. Turning in exactly identical assignments, especially without indicating the group, will receive a zero on the assignment, possibly with harsher penalties and/or referral to the College Judiciary Committee.

Tests will be closed book and closed note. Students found cheating on either exam will be referred to the College Judiciary Committee.

Accommodations:

If you believe that you need accommodations for a disability, please contact Leslie Hempling in the Office of Student Disability Services (Parrish 130) or email

lhempli1@swarthmore.edu to arrange an appointment to discuss your needs. Leslie Hempling is responsible for reviewing and approving disability-related accommodation requests. As appropriate, she will issue students with documented disabilities an Accommodation Authorization Letter. Since accommodations require early planning and are not retroactive, please contact her as soon as possible. For details about the Student Disability Service and the accommodations process, visit <http://www.swarthmore.edu/student-life/academic-advising-and-support/student-disability-services.xml>. You are welcome to contact me privately to discuss your academic needs. However, all disability-related accommodations must be arranged through Leslie Hempling in the Office of Student Disability Services.

Estimated Schedule:

Week	Dates	Topics	Reading	Problem Set
1	Jan 22,24	Intro, Graphical Data Description, Numerical Data Description	NCT 1,2	
2	Jan 29,31	Probability	NCT 3	#1 due
3	Feb 5, 7	Discrete Random Variables, Distributions	NCT 4	
4	Feb 12, 14	Continuous Random Variables, Distributions	NCT 5	#2 due
5	Feb 19, 21	Special, Joint Distributions	NCT 5	
6	Feb 26, 28	Sampling Distributions	NCT 6	#3 due
7	March 5,7	5 th : Review, 7 th : Midterm Exam		
	March 12, 14	SPRING BREAK		
8	March 19, 21	Estimation	NCT 7	
9	March 26, 28	Estimation, Hypothesis Testing	NCT 7, 9	#4 due
10	April 2, 4	Hypothesis Testing	NCT 9	
11	April 9, 11	Regression	NCT 11	#5 due
12	April 16, 18	Multiple Regression	NCT 12	
13	April 23, 25	Multiple Regression	NCT 13	

14	May 30, 2	Serial Correlation, Heteroskedasticity	NCT 13	#6 due
	May 9-18	FINAL EXAM		