

Economics 1123
Introduction to Econometrics
<https://canvas.harvard.edu/courses/29992>

Fall Semester 2017 – Tues, Thurs. 1130-100, Sever Hall 113

Professor Elie Tamer
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Office Hours: W 10:00-12:00pm

Teaching Fellows:

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Course Description:

We analyze the linear model as a tool for describing relationships in economic data and associated disciplines. In particular, we will focus on best linear predictors under square loss and analyze this prediction problem in details using cross sectional data. We discuss nonlinear models and their approximations using linear models. Topics include: multiple regression, instrumental variables regression, analysis of random experiments and quasi-experiments, and regression with time series data. Students will learn how to conduct and critique empirical studies. The course gives sufficient details on the theory but will focus on applications. *Prerequisite:* Statistics 104 or equivalent.

Textbook:

The textbook is:

J.H. Stock and M.W. Watson, Introduction to Econometrics (third edition update), Addison-Wesley, 2015.

Earlier editions and all international editions printed in English are acceptable. An optional book that is complementary is

J. Angrist and J.S. Pishke, Mastering Metrics, Princeton University Press, 2014.

Lecture slides (if used) will be posted on the course Web site by 9pm the day before lecture.

Problem Sets

There will be weekly problem sets. Some of the problems will be computer based. The course statistical software is STATA, which is available for [download from FAS IT](#). Problem sets and data will be posted on the course Web page. Please hand in your homework assignments at the beginning of class the day they are due. Assignments handed in after this, but before answers are posted will be marked down by 50%. Assignments handed in after the solutions are posted will receive no credit. Assignments will generally be posted on Thursdays to be turned in the following Thursday.

Students are encouraged to work in groups on their problem sets, but each student must write up his or her answers separately. Please append your STATA “log” files to your assignments.

Grading, etc

Problem Sets: 30%; Midterm Exam: 25%; Final Exam: 45%. In computing your total problem set grade, the lowest grade out of problem sets will be dropped. For both exams, you will be permitted to bring in a single (two-sided) 8½x11 sheet of notes and a calculator; no textbooks, computers, cell phones, etc. The spring and fall semesters of this course are graded using the same curve. The midterm exam will be held in class on Tuesday October 10th. There will be no midterm retakes allowed, so please plan accordingly. Also, the final will be held at a time specified by the registrar’s office.

Various tidbits,...

Generally, I like talking to students in office hours and encourage you to show up (and show up early as my office hours end sharply at the end of the designated time). Also, drop by early in the semester, and introduce yourself –no need for a particular question. Please make sure that if you have a set of questions or need extra help you should try your best to show up early at office hours. Coming in with many questions 5 minutes before the end of office hours is not encouraged. Also, contact the TFs, as they are a great asset to you. Keep your email questions to ones that require quick answers such as fixing typos, etc. Long serious questions like “why linear models” require serious answers that cannot be done via email. Most importantly, if you are not catching up with the class (for whatever reason), get help and get help early.

Finally, all communications will be done via the class website with occasional emails. Please make sure you check the website, and check it often.

TENTATIVE CLASS SCHEDULE

Class no.	Date		Topic	Readings:	Problem Sets:	
				SW Ch. #	Posted	Due
1	8/31	Thurs	Review of probability & statistics	2, 3		
2	9/5	Tues	Review of probability & statistics	2, 3		
3	9/7	Thurs	Algebra of Bivariate Regression	4, 5	PS#1	
4	9/12	Tues	Inference in the Bivariate Regression	4, 5		
5	9/14	Thurs	Multiple Regressors	6	PS#2	PS#1
6	9/19	Tues	Omitted Variable Bias	6, 7		
7	9/21	Thurs	Nonlinear regression function	8	PS#3	PS#2
8	9/26	Tues	Assessing studies, external validity	9		
9	9/28	Thurs	Causality with a regression	9	PS#4	PS#3
10	10/3	Tues	Panel data I	10		
11	10/5	Thurs	Panel data II	10	PS#5	PS#4
12	10/10	Tues	MIDTERM EXAM (coverage through Class 11)			
13	10/12	Thurs	Binary Response Model	11	PS#6	PS#5
14	10/17	Tues	Binary Response Model	11		
15	10/20	Thurs	Instrumental variables model	12	PS#7	PS#6
16	10/24	Tues	Instrumental variables model	12		
17	10/26	Thurs	Instrumental variables model	12	PS#8	PS#7
18	10/31	Tues	Program Evaluation I	13		
19	11/2	Thurs	Program Evaluation II	13	PS#9	PS#8
20	11/7	Tues	Program Evaluation III	13		
21	11/9	Thurs	Forecasting I	14	PS#10	PS#9
22	11/14	Tues	Forecasting II	14		
23	11/16	Thurs	Forecasting III	14	PS#11	PS#10
24	11/21	Tues	Intro to Big Data I	Web Material		
	11/23	Thurs	THANKSGIVING			
25	11/28	Tues	Intro to Big Data II	Web Material		PS#11
26	11/30	Th	Review			

Last revised Thursday, August 31, 2017