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Economics 31
Introduction to Econometrics
Fall 2017

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Professor Bronchetti   Office hours: M 1pm-3pm & by appt.
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"Statistical thinking will one day be as necessary a qualification for efficient citizenship as the ability to read and write." – H. G. Wells

"The invalid assumption that correlation implies cause is probably among the two or three most serious and common errors of human reasoning." – Stephen Jay Gould, The Mismeasure of Man

This course is an introduction to the field of econometrics, with a focus on the fundamental principles and techniques of descriptive and inferential statistics. The course also emphasizes economic applications of simple and multiple regression models, the importance of the underlying modeling assumptions, and the challenges of empirically distinguishing correlation from causality. Upon successful completion of this course, you should be able to understand and critique basic statistical applications in economics as well as implement your own statistical analysis. The only prerequisite for this course is Econ 001.

Teaching Assistants

Your teaching assistants for this course are Ari Cepelewicz '18 (acepele1), Niyah Morgan-Dantzler '18 (nmorgan3), and Bennett Parrish '18 (bparris1). The TAs will hold clinics on Sunday nights from 7-9 p.m, location TBA (probably Kohlberg 115). I strongly recommend that you attend these clinics. Liz Whipple '18 and Michael Nafziger '18 will also be helping out as graders and occasionally attending clinics.

Resources

Required Textbook:
Anderson, Sweeney, and Williams, Essentials of Statistics for Business and Economics, 7th ed. (ASW)

Also required: Non-graphing calculator.

The textbook is available at the College bookstore. If you purchase it online, you may find the 7th edition or an earlier edition at a lower price. I would recommend that you purchase the 7th edition.

Several other texts are in the reserves section at McCabe, should you find yourself wanting to review others. I will also periodically put supplemental chapters or notes on Moodle, some of which will be considered required reading. I will make sure to distinguish these from "fun" readings.

We will make use of Microsoft Excel and a statistical software package, STATA. Both are available on the College's data-software server. You should try installing STATA on your own computer ASAP.

Ella Foster-Molina has joined Swarthmore as a Quantitative Lab Associate for the departments of Economics, Sociology, and Political Science. She will be working with us on STATA labs and will be available to you (i.e., through her own office hours) as a resource for your empirical projects.

Finally, I encourage you to become (or continue to be) an active and engaged reader of high-quality news sources and periodicals.

Intro to STATA lab

Ms. Foster-Molina will be teaching an Intro to STATA lab during the second week of classes. You are <u>required</u> to attend one of these sessions (approximately 1 hour; many choices of times).

Grading

The grading for this course will be based on two midterm exams (higher grade worth 25%, lower grade worth 20%), a semi-cumulative final exam (30%), bi-weekly problem sets (worth 15%), and an empirical project (10%). Attendance, engagement, and careful problem set work are the best way to ensure high grades on the exams and other assignments. Excessive unexcused absences will cause a reduction in your grade for the course. Active participation can positively affect your grade, especially in borderline cases.

Problem Sets

Problem sets will be assigned every 2-3 weeks. Some of these will include computer work using Excel and STATA. You may miss 1 over the course of the semester with no penalty, or you may drop your lowest score if you complete them all. <u>Late problem sets will NOT be accepted</u>, nor will problem sets sent by email. I encourage you to work on these in groups, but each student should write up and his/her own answers.

Short Empirical Projects: Learning by *Doing*

Students will work in teams of 4 or 5 to complete a short project that will apply much of what we learn in the course. A more detailed description of the assignment will be distributed within the next week or so, but you may begin letting me know about your preferred group membership now.

On November 21st, we will spend class time presenting your projects. Teams should be prepared to answer questions from peers and from me, but this day is intended to be fun and collaborative.

Policies

If you are having difficulty, do NOT delay in coming to see me during office hours.

Academic dishonesty will be penalized in accordance with the College's policies.

No make-up exams will be given unless you provide documented evidence of a circumstance that merits rescheduling (e.g. a university-sponsored event or an illness certified by the Dean's office or Worth). If the conflict is known ahead of time, <u>you must make arrangements with me well before the exam date, and the exam must be taken earlier than its scheduled time, not later.</u>

If you believe that you need accommodations for a disability, please contact the Office of Student Disability Services (Parrish 113W) or email studentdisabilityservices@swarthmore.edu to arrange an appointment to discuss your needs. As appropriate, the Office will issue students with documented disabilities a formal Accommodations Letter. Since accommodations require early planning and are not retroactive, please contact the Office of Student Disability Services as soon as possible. For details about the accommodations process, visit the Student Disability Service Website at http://www.swarthmore.edu/academic-advising-support/welcome-to-student-disability-service. You are also welcome to contact me [the faculty member] privately to discuss your academic needs. However, all disability-related accommodations must be arranged through the Office of Student Disability Services.

TENTATIVE SCHEDULE

Week	Dates	Topics	Reading	Problem Set
1	Sep. 5, 7	Introduction Representing Data Numerically and Visually	ASW 1, 2	Problem Set #1 up on Moodle
2	Sep. 12, 14	Numerical Representation of Data, cont'd Basic Probability and Set Theory **Sep. 15th: DROP/ADD PERIOD ENDS**	ASW 3, 4	
3	Sep. 19, 21	Random Variables Probability Distributions	ASW 5, 6	Problem Set #2 up on Moodle
4	Sep. 26, 28	Joint Distributions Sampling and Sampling Distributions	Notes ASW 7	
5	Oct. 3, 5	Sampling and Sampling Distributions, cont'd **October 5: MIDTERM #1**	ASW 7	Problem Set #3 up on Moodle
6	Oct. 10, 12	Estimation	ASW 8	
	Oct. 17, 19	**FALL BREAK**		
7	Oct. 24, 26	Hypothesis Testing	ASW 9	Problem Set #4 up on Moodle
8	Oct. 31, Nov. 2	Comparison of Means and Proportions Intro to Regression	ASW 10:1-3 ASW 11	
9	Nov. 7, 9	Simple Regression **Nov. 7th: MIDTERM #2** **Nov. 10th: LAST DAY TO DECLARE CR/NC or WITHDRAW WITH W**	ASW 10:4-5	
10	Nov. 14, 16	Multiple Regression	ASW 12	Problem Set #5 up on Moodle
11	Nov. 21, 23	**Nov 21st: GROUP PRESENTATIONS, WRITTEN REPORTS DUE 5 p.m.** **Nov 23rd: THANKSGIVING (No class)**	ASW 13	
12	Nov. 28, 30	Flex week		Problem Set #6 up on Moodle
13	Dec. 5, 7	Omitted Variables Bias Instrumental Variables	Notes	
14	Dec. 12	Other Problems with Regression	Supplemental Chapter	