Econ 402: Econometrics

**Course info**

Instructor:

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Time and place: TBD
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**Overview**

Econometrics is doing economics with data. In this class, we'll develop the tools we need to use real-world data to uncover economic relationships. We will examine why these tools work in theory and see how to use them in practice.

Our focus will be on linear regression, a powerful and flexible tool for estimating relationships between variables. By the end of this course, you will understand the theory behind regression analysis and know how to estimate and test hypotheses about regressions in settings that are relevant for empirical economics.

**Prerequisites**

The prerequisite for this course is a C or better in Econ 230: Economic Statistics I.

**Textbook**

The required textbook is *Introductory Econometrics: Intuition, Proof and Practice* by Jeff Zax, Stanford University Press.

**Software**

Much of your work in this course will be done using gretl, a program designed specifically for doing econometric analysis. gretl is free software that runs on macOS and Windows.

To install gretl on your Mac, visit http://gretl.sourceforge.net, click on "gretl for Mac OS X," then on the button that says "Intel Mac, quartz (recommended)," then on the link for "latest release" (this is the version that will work best for most people).

To install it on your Windows PC, visit http://gretl.sourceforge.net, click on "gretl for windows," then on the link for "self-installer (64-bit)" (this is the version that will work best for most people).

Let me know if you have any difficulty downloading or installing the program.

**Assessment**

I will assign grades based on your performance on

- Several homework assignments, worth a total of 25% of your score,
- Two exams, each worth 25% of your score, and
- An empirical economics project, worth 25% of your score.

The grading scale is 90+: A, 80-89: B, 70-79: C, 60-69: D, 59 or lower: F. No plus/minus grades will be awarded. I reserve the right to modify these criteria if it is warranted by the performance of the class.

I also reserve the right to take your attendance record into account when determining final grades. In accordance with University policy, excessive absences may result in receiving an F grade or being dismissed from the course.

**Course policies**
*Attendance.* Attendance is mandatory. It's also a good way to learn the material.

*Missed exams.* If you must miss an exam because of an official (University, civic, or recognized religious) obligation or a legitimate emergency and you (i) notify me at least one week in advance and (ii) adequately document your need to miss the exam, I will, at my discretion, either drop the exam from your score or provide a makeup exam.

*Accommodations.* If you require any accommodations (such as extra time, a different testing environment, etc.), please let me know as soon as possible. For more information on the University's policies regarding such accommodations, see http://sds.olemiss.edu.

*Collaboration and plagiarism.* All of the work that you submit for this course must be your own; any violation of this standard constitutes plagiarism. Any student found plagiarizing once will fail the assignment or exam; any student found twice will fail the course.

That said, you are permitted—indeed encouraged—to discuss and collaborate with each other on your homework assignments. However, each student must turn in their own completed assignment, demonstrating their own understanding of the material.

Collaboration is not allowed on the exams, which will be closed-book and closed-notes.

*Late work.* Absent extenuating circumstances, no credit will be awarded for late assignments.

*Things with screens.* They are not allowed. Put away your phone/laptop/tablet/watch/etc. and take notes on paper.

**Topics and readings**
- Introduction (Ch. 1)
- Sum things happening here (Ch. 2)
- Covariance and correlation (3.1-3.4)
- Regression (Ch. 4)
- Properties of regression (Ch. 5)
- Inference (7.1-7.4 and 7.6; you might also want to read Ch. 6 as a review)
- Multiple regression (11.1-11.2, 14.1-14.3; read 11.3-11.5 and 12.2-12.6 for complete derivations)
- Heteroscedasticity (8.4-8.9)
- Autocorrelation (9.1-9.8)
- Endogeneity (10.1-10..6)
- Specification (Ch. 13)

**Tentative schedule**
TBD