

# ECON 335—Introduction to Econometrics

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## Instructor

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## Course Description

This course is an undergraduate-level introduction to econometrics, the social science in which the tools of economy theory, mathematics, and statistical inference are applied to the analysis of economic phenomena. We will study and apply regression analysis to various data sets in order to familiarize students with the core concepts of estimation of economic parameters, prediction of economic outcomes, and statistical inference.

## Course Objectives

By the end of this course, you should be able to:

- Understand the nature and scope of econometrics as a social science.
- Use statistical analysis, including the classical regression model, to estimate relevant economic parameters, predict economic outcomes, and test economic hypotheses using quantitative data.
- Understand the basic assumptions of the classical linear regression model, and identify and correct (if possible) any violations of these assumptions, such as autocorrelation and heteroskedasticity.
- Develop and maintain a working knowledge of econometrics that will provide a basic foundation for future study in econometrics and statistical techniques.

## Course Materials

The following materials are necessary to be successful in the course:

## Course Websites

Canvas (<http://info.canvas.colostate.edu/login.aspx>)

- Login using your Colorado State University eID and password
- Under *Courses*, select “2017SP-ECON-335-801: Introduction to Econometrics”
- This site will serve as our primary tool for coursework and classroom communication. Be sure to check this site often as all course changes will be communicated as “Announcements” in Canvas.
- Supplemental readings and other materials will be posted to Canvas as well.

MindTap (Link can be found on Canvas)

- MindTap will contain access to our e-textbook as well as most of our assignments this semester.
- MindTap contains “apps” that the student can use for study, practice, and graded assignments. Aplia, which is contained as an app in MindTap, will be used for graded assignments.
- The link for our specific course can be found on Canvas under Modules.
- You will need to purchase access to this online platform (~\$94.50 at the bookstore for MindTap only, or ~\$126.00 on the publisher website:  
[http://www.cengage.com/search/productOverview.do?jsessionid=E947C19213C5D962834366EAACE45924?N=16+4294922239&Ntk=P\\_EPI&Ntt=15233699181127134187474922904173452102&Ntx=mode%2Bmatchallpartial](http://www.cengage.com/search/productOverview.do?jsessionid=E947C19213C5D962834366EAACE45924?N=16+4294922239&Ntk=P_EPI&Ntt=15233699181127134187474922904173452102&Ntx=mode%2Bmatchallpartial)).

### Textbook

Purchasing a physical copy of the textbook is **optional**. Access to MindTap will grant you access to the e-textbook. If you want a loose-leaf version of the textbook, you can purchase that in tandem with MindTap (~\$118.75 at the bookstore).

If you want a hardbound version of the text book, you will still need to get access to MindTap, but the book information is the following:

***Introductory Econometrics: A Modern Approach (6<sup>th</sup> Edition) by Jeffrey M. Wooldridge, ISBN: 978-1-305-27010-7***

### Software

Microsoft Office (or similar software suite)

- Most out-of-class assignments will be submitted using Microsoft Word documents to Canvas. Microsoft Excel will also be particularly useful if you are versed in equations in Excel.
- Microsoft Office is free for currently enrolled Colorado State University students. To download, go to: <http://www.acns.colostate.edu/o365>. On the right side of this page will be *Installation Instructions* which will guide you through the download process.

Gretl

- Gretl is a free, open source program for graphics, data management, basic statistics, and econometric estimation. You will use *Gretl* to complete problem sets and empirical exercises. *Gretl* is a free and user-friendly econometric software package. You can download and install *Gretl* using the following directions:
  - Go to [gretl.sourceforge.net/](http://gretl.sourceforge.net/)
  - On the left-hand side, click on “gretl for Windows” if you are a Windows user, or click on “gretl on Mac OS X” if you are a Mac user.
    - FOR WINDOWS USERS:
      - Check to see that your PC meets the system requirements, and then download the latest release by clicking the “gretl-2016c.exe” or “gretl-2016c-64.exe” link. Your download should begin automatically.
    - FOR MAC USERS:
      - Follow the instructions on-screen to determine if your Mac has an Intel or PPC processor. Once determined, click on the appropriate button. Again, follow the on-screen instructions to download *Gretl*.

## Technological Requirements

### Hardware

- A computer with at least 2 GB of RAM.
- A fast, reliable broadband internet connection (e.g. cable, DSL)
- Recommended computer monitor or laptop screen of 13-inches or larger for better visibility of course material
- Computer speakers or headphones to listen to recorded content.
- Enough space on your computer to install the required software and save your assignments.

### Additional Software

- Web browser (Firefox generally works well with CSU websites - [free download](#))
- [Canvas Blackboard Course](#) (Canvas [technical support](#))
- Adobe Acrobat Reader ([free download](#))
- Flash Player ([free download](#))
- Microsoft Office ([free download](#))

## Prerequisites

ECON 204 and ECON 202 (Principles of Macroeconomics and Microeconomics); and MATH MATH 141 (Calculus in Management Sciences) or MATH 155 (Calculus for Biological Scientists I) or MATH 160 (Calculus for Physical Scientists I); and STAT 201 (General Statistics) or STAT 204 (Statistics for Business Students) or STAT 301 (Introduction to Statistical Methods) or STAT 307 (Introduction to Biostatistics).

As such I will assume that most students are familiar with (or can rapidly learn) basic economic theory, as discussed in ECON 202 and 204; basic statistical concepts, including probability distributions and hypothesis testing; algebraic concepts, including the ability to graph lines and curves in two dimensions; and a basic understanding of differential calculus.

## Course Weekly Structure

A “module” in the course will correspond to the same amount of material that would be covered in a single week of an in-person 17 week semester (including Spring Break and Finals Week). Each module can be found in the *Modules* section on Canvas. You will be assigned one module per week. Modules will be comprised of readings from the course texts, supplemental class notes, homework (generally on MindTap), empirical exercises (on Canvas), and various outside sources of information such as additional readings and video content.

**Because this is an online course, you will need to be diligent about following the course schedule and moving through the weeks as dictated by the course schedule. The “Syllabus” page on Canvas can help you clearly see due dates and the “Modules” page has been divided into weeks to help you better move through the content. Certain chapters will be covered over multiple weeks and so the notes I post will be copied into the multiple weeks—this is not a trick as the notes are the same.**

## Coursework

All coursework can be divided into three categories: Homework, Empirical Exercises, and Proctored Exams. Generally speaking, you will have a homework assignment due on the Monday following completion of a Chapter, so plan your schedule accordingly.

### Homework (on MindTap)

You will be required to complete sixteen homework sets, one for each chapter of material covered this semester and one precursor assignment teaching how to complete Aplia assignments. Aplia is an app in MindTap that we will use for the majority of our homework sets. Homework sets will be due at 11:00pm on the deadline. Generally, deadlines will be the Monday after we have finished a chapter.

You can purchase access to MindTap from the bookstore, or the publisher directly.

### Gretl Empirical Exercises

You also will be required to complete two empirical exercises using *Gretl* econometrics software to aid in your understanding of the material and develop the software skills necessary to succeed in this course.

### Exams

There will be three midterm exams to confirm and evaluate your understanding; as well as a cumulative final exam. These will be administered through Canvas and must be proctored (see Proctoring Policy below) and will be due by 11:00 pm MST on the day listed on the class schedule regardless of your exam start time. You will receive access to each exam by Monday of the week that the exam is due. Between this time and the due date, you and your proctor can schedule to take the exam. The exams must be **submitted** before the following deadlines:

**Exam 1:** 02.24.17 at 11:00pm

**Exam 2:** 03.31.17 at 11:00pm

**Exam 3:** 04.21.17 at 11:00pm

**Final Exam:** 05.12.17 at 11:00pm

### Grading System

As this is an econometrics course, your final course percentage grade will be determined using the following algorithm:

$$GRADE = .25[\textit{average homework percentage score}] + .20[\textit{average empirical exercise score}] \\ + .10\textit{exam1} + .10\textit{exam2} + .15\textit{exam3} + .20\textit{final}$$

Where *exam1*, *exam2*, and *exam3* are the three midterm exam scores, chronologically. Your average homework score will determine 25% of your final grade, your empirical exercises will determine 20%, and your exams will constitute the other 55%.

The grading scale will be as follows:

A+:	97.5% – 100%	B-:	79.5% – 82.9%
A:	93.0% – 97.4%	C+:	77.5% – 79.4%
A-:	89.5% – 92.9%	C:	69.5% – 77.4%
B+:	87.5% – 89.4%	D:	59.5% – 69.4%
B:	83.0% – 87.4%	F:	59.4% or below

Any regrade requests must be made, via email, within 7 days of the grade being entered. No extra credit or bumps will be offered when it comes to final grades. Your final percentage will be rounded (using standard rounding: 0.44 rounds to 0.40 and 0.45 rounds to 0.50) to the nearest tenth of a percentage point. The way to improve your grade beyond what it otherwise would be is to work hard to understand the material.

### Proctoring Policy

**This course requires proctored examinations.** Proctors are individuals who agree to administer examinations following the guidelines provided by Colorado State University. Exams or passwords are mailed or emailed directly to your proctor, so contact your proctor prior to your exam day and time and schedule well in advance—no extensions will be given for a proctor coordination failure.

#### For Those In Fort Collins

You can take your exam:

1. **With me** at the Department of Economics. There is no cost for using this proctor. This option is only on selected days during the exam period.
2. At the **University Testing Center (UTC)** on-campus in Fort Collins, CO. There may be a cost for using the UTC. This option is only available M-F during regular business hours.
3. With **ProctorU** - an online proctoring service that uses a webcam and microphone. To use this service, you must have access to a computer with a webcam and a microphone. There may be a cost for using ProctorU services if scheduled "last minute."

#### For Those Outside Fort Collins

You can take your exam:

1. At an accredited college or university testing center in your town or nearby. There may be a cost for using this testing center.
2. With **ProctorU** (<http://www.proctoru.com/colostate/>) - an online proctoring service that uses a webcam and microphone. To use this service, you must have access to a computer with a webcam and a microphone. There is no cost for using ProctorU services if scheduled "last minute."

Please see Canvas for detailed information about proctoring, including the contact information for the UTC, ProctorU, and a nationwide list of accredited college or university testing centers. If you are in a rural area or on a military base, you may need to be approved to use a person as a proctor. Please contact the coordinator of online studies, Dr. Karen Gebhardt ([karen.gebhardt@colostate.edu](mailto:karen.gebhardt@colostate.edu)), for information about this approval process.



## Expectations

This section outlines the expectations of both the student and instructor for the semester:

### Communication

Because this course is online-only, communication is especially important. I will be available through the following means:

*Email:* I always respond promptly to email, this is probably the best way to reach me. All e-mail sent to me should contain the following: Course Name and Number, Your Name, Short Description of your question. I will respond to email within 12-18 hours, but usually within 2-4 hours. Also note that the same rules for online etiquette (as mentioned above) apply to content in an e-mail. Emailing through Canvas is the easiest, but I will accept emails in any format.

*On campus office hours:* Clark B 205, by appointment

*Online office hours:* Canvas chat, by appointment

*Announcements:* Please verify your settings for receiving Canvas announcements. In most cases, all announcements made in Canvas will be displayed on Canvas itself and sent directly to your Colorado State University email address (unless you opt-out from this option). All course communication will be posted as a Canvas announcement so be sure to set up your settings appropriately.

### Make-ups and Missing Assignments

Given the flexibility of the online system with due dates posted well in-advance, no makeup exams or homework assignments will be allowed except in very extreme, documented circumstances.

### Total Course Time Estimates

Exams (4)	8 hours
MindTap Homework/Canvas Quizzes (16)	50 hours
View class presentations	30 hours
Empirical Exercises (2)	22 hours
<u>Personal reading/study</u>	<u>40 hours</u>
Total Hours:	150 hours

**Course Withdrawal Policy:** Any student who wishes to withdraw from the course must submit a request directly to Division of Continuing Education ([CSU Online](http://www.colostate.edu/online)). For complete information, please visit their website at <http://www.online.colostate.edu/faqs/policies/drop-policy.dot>

### Online Etiquette

A majority of class time is spent sharing opinions and sharing information. Therefore, it is of utmost importance to communicate with courtesy and professionalism. Professional Courtesy includes respecting others' opinions, being courteous and respectful, and working together in the spirit of cooperation. All work and assignments will be graded with a consideration for both quality and professionalism.

### Gradebook

If you would like to request a grade change, or a question concerning a particular assignment, these appeals should be made **in email** to me within one week after the grade has been posted. This appeal



should include specific reasons you believe that grade you received does not accurately reflect your answer. I reserve the right to re-grade the entire exam or assignment, not just the questions or content under appeal.

### Academic Integrity

We take academic integrity seriously. At minimum, academic integrity means that no one will use another's work as their own. The CSU writing center defines plagiarism this way:

*"Plagiarism is the unauthorized or unacknowledged use of another person's academic or scholarly work. Done on purpose, it is cheating. Done accidentally, it is no less serious. Regardless of how it occurs, plagiarism is a theft of intellectual property and a violation of an ironclad rule demanding credit be given where credit is due."*

—Writing Guides: Understanding Plagiarism.

<http://writing.colostate.edu/guides/researchsources/understandingplagiarism>

**Academic Dishonesty could result in expulsion from the university.** Each instance of plagiarism, classroom cheating, and other types of academic dishonesty will be addressed according to the principles published in the CSU General Catalog (see page seven, column two:

<http://www.catalog.colostate.edu/front/policies.aspx>). The instructor reserves the right to assess penalties of zero grades on the assignment/exam or a failing grade in the course as appropriate.

Of course, academic integrity means more than just avoiding plagiarism and cheating. It also involves doing your own reading and studying. It includes class attendance, careful consideration of all class materials, and engagement with the class and your fellow students. Academic integrity lies at the core of our common goal: to create an intellectually honest and rigorous community. Each exam and assignment you submit, you are implicitly signing and acknowledging that you have followed the CSU student honor pledge:

*"I have not given, received, or used any unauthorized assistance."*

Further information about Academic Integrity is available at CSU's [Practicing Academic Integrity](#).

### Accommodations and Tutoring Options

Those with need for alternative testing services or other accommodations, please visit RDS (<http://rds.colostate.edu>). Help with written assignments can be found at the Writing Center (<http://writingcenter.colostate.edu>). All students are **highly** encouraged to take advantage of these extremely beneficial and costless resources.

### Technical Help

MindTap Technical Support

- See link on Canvas

Canvas Technical Support

- <http://info.canvas.colostate.edu/student-resources.aspx>

### Additional Support Services

A variety of instructional support services, such as writing center, guidance on personal or educational issues, tutoring questions and library resources are available to the students. For more information about their services, visit their websites linked under "additional resources" on Canvas.