

**AREC/ECON335 Introduction to Econometrics**  
**Fall 2020**  
**Instructor: Dr. Anita Alves Pena**

**Contact:**

Email: [anita.pena@colostate.edu](mailto:anita.pena@colostate.edu)

(I will typically respond within 24 hours. If you do not receive a response in that time frame, you should assume that I did not receive your message and you should resend it.)

**Scheduled Class Meetings:**

TR 9:30-10:45 (Section 1) or TR 11-12:15 (Section 2)

You should expect to be actively involved in the class and to regularly attend class sessions at your scheduled time. You are expected to be available at your regular class time and working on “metrics” even on days when there is not a formal lecture.

You should expect for Tuesdays to be regular, core material live lectures by Zoom. Links for your particular section are on Canvas under Modules.

You should expect Thursdays to be a mix of video exercises, examples/demos, practice problems, and exams. Although there will not be formal live lectures on Thursdays, you are strongly encouraged to use the regular class time to work on the class work for the day (which will typically be due Thursdays at midnight, see accompanying Course Schedule document). Note that your class’ Zoom link will be “on” at your scheduled time on Thursdays in case you want to use this space to collaborate with others in the class.

**Professor’s Regular Office Hours:**

T 12:30-2 (both sections) or by appointment, by Zoom (link is on Canvas under Modules)

In addition to office hours, you may also ask questions via email. Please again note that I will typically respond within 24 hours (to questions and/or appointment requests).

**Undergraduate Teaching Assistants:**

Ryan Heidelberg, [ryanhei@rams.colostate.edu](mailto:ryanhei@rams.colostate.edu)

Charles Palmer, [clpalmer@rams.colostate.edu](mailto:clpalmer@rams.colostate.edu)

**TAs’ Office Hours:** will be announced on Canvas and will start in week 2

**Course Website:** login at <http://canvas.colostate.edu>

Please make sure that your correct email is set to receive announcements from this system. In the uncommon circumstance that I have to cancel regular class or office hours, I will announce this on the course website and through its email system.

**Instructional Methodology and Delivery:**

The course will be delivered in a remote, distance education format using the CSU Canvas system (<http://canvas.colostate.edu>). This format will use a combination of live lectures, textbook readings, online discussion, and web-based study resources (other videos, worked-out

examples, practice problems, etc.). You will interact with me and other students using communication functions online and will submit all assignments using Canvas. All email announcements will be saved under “Announcements” on the left side menu bar on Canvas.

**Online Study Group Space:**

Using the “Coffee Shop” discussion posting area on Canvas and/or creating your own online study group is encouraged (though note that you are expected to submit your own write-ups for assignments which are not simply a transcription of another student’s submission).

**Textbook (required):** James H. Stock and Mark W. Watson: Introduction to Econometrics (S&W). (The most recent is the 4<sup>th</sup> edition, though other versions are *very* similar.)

**Statistical Software (required):**

I recommend Gretl, which can be downloaded from <http://gretl.sourceforge.net> free of charge. (Note that both Windows and Mac versions are available by clicking on the links on the left-hand side of the main page.)

Note that if you are already familiar with alternative freeware (e.g., R) or commercial software (e.g., STATA, SAS, EViews) and have access to it, you are welcome to use it for problem sets as long as you highlight your answers. Since datasets for homeworks will be provided in Gretl format, it will be up to you to convert files for use with different software. Furthermore, I may or may not be able to answer questions about alternative software depending on what it is.

**Course Objectives/Intended Learning Outcomes:**

Estimating statistical regression models of economic relationships; treatment of special problems that may arise in analysis of economic data. Econometrics is designed to provide you with understanding and ability to apply the tools that economists use in empirical investigations. Econometrics applies statistical and mathematical methods to the analysis of data to test economic theories and estimate relationships. This course is difficult but will provide practical skills and therefore should be extremely valuable after completing the class successfully.

After completing the course, a successful student should be able to:

1. understand the nature and scope of economics as a social science.
2. use statistical analysis, including the classical regression model, to estimate relevant economic parameters, predict economic outcomes, and test economic hypotheses using quantitative data.
3. 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.
4. develop and maintain a working knowledge of econometrics that will provide a basic foundation for future study in econometrics and statistical techniques.

**Prerequisites:**

ECON 202 (Principles of Microeconomics); ECON 204 (Principles of Macroeconomics); 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). The prerequisites for the course will be enforced. Econometrics REQUIRES mathematical and statistical methods.

### **Grading:**

All deadlines will be at 11:59pm Mountain Time on their assigned dates. In general, submissions will be due on Thursdays as noted in the “Class Schedule” document.

Grades will be based on:

- three problem sets (that require both written and computer work) (30%)
- three exams (30%)
- final project in two parts (20%)
- discussion posts and “in-class” activities (20%)

Final letter grading will follow the traditional system that *does* include plus and minus grades with cutoffs for plus and minus determined at the instructor’s discretion at the end of the course.

The first problem set and exam will roughly cover material from Chapters 1-3. The second problem set and exam will roughly cover Chapters 4-6. The third problem set and exam will roughly cover Chapters 7-9. The final project will cover what you have learned over the full course. The final project should reflect a *significant* amount of work drawing from many parts of the course.

The formula is a standard weighted average where each category is scaled by the total number of points available. If for example you receive 80/100 on the first exam, you should multiply this by 0.1 to see the contribution of this exam to your final score. The same goes for other categories, and adding these gets to the final score. This is a 300-level CSU course, and the work level and grading is according to that standard.

**CAUTION:** You will NOT pass this class if you do not do the computer work for the problem sets and individual final project in addition to the written portions of homeworks and exams.

Exams will include both multiple choice and written questions and will be completed through the Canvas system in a (one-hour fifteen minute) timed format since we would have had that amount of time in the classroom if we were in on-campus. For each exam, you will be asked to confirm that you understand and acknowledge CSU’s honor code. **We will be using the online proctoring system Respondus’ Monitor in conjunction with Lockdown Browser. You are therefore required to have a web camera for exams (and should get one now if you do not already have one or make arrangements to check one out from CSU Libraries).** Please contact me during the first two weeks of the course to discuss alternate proctoring if this is problematic for your case.

Final projects will be based on data analysis and interpretation pertaining to data and a question that interests you. This is individual work.

*There are no extra credit activities. Please do not ask me for extra credit at the end of the*

*course.* It is your responsibility to understand the grading scheme from the start and to plan accordingly. It is possible that there may be a small “curve” at the end of the course depending on overall class scores, but this is *not* guaranteed and will not be determined until the end of the term.

**Contact Hours and Expectations for Work Outside of Instructional Time:**

This is a three-credit course. The federal credit hour definition requires two hours of outside work (reading textbook chapters, research) for each contact hour of instructional time. You therefore should plan to spend approximately six hours per week of outside time (beyond work conducted during the regular class period). You should expect this general level of intensity throughout the class, though there may be some variation from week to week. Approval of make-up work is at my discretion.

**Other Course Policies:**

You are responsible for material covered whether or not that material is covered posted online. If you miss class, it is your responsibility to find out *from your classmates* what you missed. As per University policy, students are exempted from attending class for University sanctioned activities *with appropriate official documentation*. In general, with evidence of a sanctioned activity, you may be able to arrange to turn in materials *early*.

*In general, I will expect that you will be respectful of me and your classmates and that you will take the course seriously.* Disruptive behavior is not tolerated and is grounds for being asked to leave. Note that if we were in the classroom that I would note that this includes the use of cell phones and reading newspapers and other unrelated material in class. While those examples may not be perfectly meaningful for an online delivery, please take note of the spirit of those examples. *Basically, be present and engage in the course material when you are in class or office hours whether in person or online (and whether with me or with someone else)!* Offensive or threatening treatment of an individual is especially not tolerated. Disruptive students will be referred to University officials.

**Accommodations:**

Students requesting special accommodations should contact Student Disability Center (SDC) at 970-491-6385. Accommodations for exams will not be granted without pre-approval from SDC. If this applies to you, please make arrangements immediately.

**Statement on Copyright:**

Please do not share material from this course in online, print or other media. Course material is the property of the instructor who developed the course. Materials authored by third parties and used in the course are also subject to copyright protections. Posting course materials on external sites (commercial or not) violates the CSU Student Conduct Code. Students who share course content without the instructor's express permission, including with online sites that post materials to sell to other students, could face disciplinary or legal action.

**Academic Integrity:**

This course will adhere to the CSU Academic Integrity Policy as found on the Student Responsibilities page of the CSU General Catalog and in the Student Conduct Code. At a

minimum, violations will result in a grading penalty in this course. As per university policy, “Any student found responsible for having engaged in academic misconduct will be subject to academic penalty and/or University disciplinary action” (General Catalog, <http://catalog.colostate.edu/general-catalog/policies/students-responsibilities/>). As such, any academic dishonesty in this course may result in a grade of “F” for the course and may be reported to the Office of Conflict Resolution and Student Conduct Services. Please be aware that the General Catalog specifically identifies the following examples of academic dishonesty: cheating, plagiarism, unauthorized possession or disposition of academic materials, falsification, and facilitation of cases of academic dishonesty. Plagiarism is defined as follows: “Plagiarism – Plagiarism includes the copying of language, structure, images, ideas, or thoughts of another, and representing them as one’s own without proper acknowledgment and is related only to work submitted for credit; the failure to cite sources properly; sources must always be appropriately referenced, whether the source is printed, electronic or spoken. Examples include a submission of purchased research papers or homework as one’s own work; paraphrasing and/or quoting material without properly documenting the source” (General Catalog, <http://catalog.colostate.edu/general-catalog/policies/students-responsibilities/>).

#### **Title IX:**

CSU’s Discrimination, Harassment, Sexual Harassment, Sexual Misconduct, Domestic Violence, Dating Violence, Stalking, and Retaliation policy designates faculty and employees of the University as “Responsible Employees.” This designation is consistent with federal law and guidance, and requires faculty to report information regarding students who may have experienced any form of sexual harassment, sexual misconduct, relationship violence, stalking or retaliation. This includes information shared with faculty in person, electronic communications or in class assignments. As “Responsible Employees,” faculty may refer students to campus resources (see below), together with informing the Office of Support and Safety Assessment to help ensure student safety and welfare. Information regarding sexual harassment, sexual misconduct, relationship violence, stalking and retaliation is treated with the greatest degree of confidentiality possible while also ensuring student and campus safety.

Any student who may be the victim of sexual harassment, sexual misconduct, relationship violence, stalking or retaliation is encouraged to report to CSU through one or more of the following resources: Emergency Response 911, Deputy Title IX Coordinator/Office of Support and Safety Assessment (970) 491-1350, Colorado State University Police Department (non-emergency) (970) 491-6425. For counseling support and assistance, please see the CSU Health Network, which includes a variety of counseling services that can be accessed at: <http://www.health.colostate.edu/>. The Sexual Assault Victim Assistance Team is a confidential student resource that does not have a reporting requirement: <http://www.wgac.colostate.edu/need-help-support>

**CSU COVID-19 site:** <https://covidrecovery.colostate.edu/>

See “Class Schedule” document for a more detailed list of specific assignments and deadlines.

Please also regularly check the “Announcements” section of Canvas throughout the term.