# ECN 4330 - Introduction to Econometrics
## Spring 2022 - Syllabus

## Contact Details

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## Location and Time

**Class**          Huntsman Hall 222, **Mon** and **Wed**, 9:00am to 10:15am

**Office Hours**   Every **Wednesday** from 12:30pm to 2:30pm or by appointment

**Exams**          Midterm 1: **Feb 15 - Feb 23**

                   Midterm 2: **Mar 27 - Apr 4**

                   Final Exam: **TBA**

## Course Resources

**Textbook**: The required textbooks for the course are:

1. *Introductory Econometrics, A Modern Approach* by Jeffrey M. Wooldridge. Make sure you get the **sixth edition** (6th edition).
2. *Using R for Introductory Econometrics (first edition)* by Florian Heiss. **Free** online version [here](here)

**Slides**: I use slides to present materials **online**. A complete set of slides is available on my GitHub account. I frequently update the slides (add corrections/clarifications, etc). Make sure you print the slides, attend classes, take notes and follow up with changes on the Canvas.

**Canvas:**  I will use Canvas to send emails to the class, as well as post announcements, homework assignments and solutions, grades, and other course materials. It is your responsibility to ensure that you have access to Canvas and your USU email address is properly set up to receive emails through Canvas.

**Media Gallery**: Classes will be recorded and medias will be available on Canvas for your reference. However, this should not tempt you to skip any classes.

**YouTube channel**: Online lectures will be available on my YouTube Channel. You are expected to watch the online lectures and complete its quiz **before** each class!

**Software**: I will use **R** and **Markdown** for this course. R is an Open source (free to download and install) statistical software. I will do a crash course on R at the begining of the semester.

## Course Description

Introduction to basic statistics, simple linear regression, multiple regression, and linear estimation techniques.

## Prerequisites:

STAT 2000 or STAT 2300 or STAT 3000. This means you should be familiar with: Introduction to statistical concepts, graphical techniques, probability, discrete and continuous distributions, parameter estimation, chi-square tests, sampling, hypothesis testing and correlation.

## Course Objectives

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

1. Construct, estimate, and interpret regression models to identify relationships between explanatory and outcome variables.
2. Construct, estimate, and interpret various functional forms for regression models, including the use of binary variables, log and quadratic functions, and interaction effects.
3. Apply econometric models to data using the statistical package **R**

Note that this is an applied course so I will try to keep mathematical notation to a minimum and instead will focus attention on using data, software and **interpreting** results.

## Evaluation Methods and Criteria:

Your grade on the course is based on your performance in:

| Group | Weight |
|-------|--------|
| Assignments | 30% |
| Final and Midterm Exams | 20% |
| Final Project/Presentation | 10% |
| Lecture Quizzes | 30% |
| Class participation | 10% |
| **Total** | **100%** |

Note: In the category of "Final and Midterm Exams" all the exams are **equally weighted** and your **lowest score will be dropped**.

### Homework assignments (30%)

Completing all assignments is necessary for learning the class materials. I highly encourage you to discuss the homework problems with your peers, however, the submitted work should represent your **own** work. The key will be released on Canvas and no homework submitted after that can be accepted.

**Note:** All the homework assignments should be submitted online!

### The Final exam and Midterms (20%)

There will be 3 non-cumulative exams. Both the midterms and the final exam are open-book take-home exams.

**Note**: Your lowest score will be dropped i.e. if you ace the midterms you could safely skip the final exam!

### Final project/Presentation (10%)

A final project will be due in **team** work by the last day of classes. Projects will be done in teams of no more than 5 students. A forthcoming handout will explain this project in more detail.

### Lecture Quizzes (30%)

Throughout the semester, there will be frequent **online quizzes** due **before** each class. You will have two attempts for each quiz and the correct answers will be revealed after your **first attempt!** The goal is to take attendance and make sure you are following the materials. At the end of each quiz you will be asked how do you feel about the course and if you have any questions from the lectures! This is your best chance to communicate with me. This is your best chance to communicate with me. Hearing your concerns/regret at the end of the semester through evaluation forms is too late! Let's make it a win-win game!

**Note**: Your **two** lowest scores will be dropped i.e. no late submission is accepted.

### Class participation (10%)

Actively engaging in class is an essential part in your learning process. Collaboration is a highly recommended in this class. For each lecture, there will be a dedicated **Discussion board** available on Canvas. I expect you to take advantage of Canvas discussions for the following subjects:

- Questions from the lectures
- Coding questions in general
- HW assignments
- Reviewing sample exam questions
- Helping each other out!

The goal is to learn from each other while having friendly and healthy competition.

## Grade Scheme

Your final grade for the course will be determined by simply adding together the points earned from homework assignment, exams, pre-class quizzes, and the final project/presentation. The following grading standards will be used in this class:

| Grade | Range (Percent) |
|-------|-----------------|
| A     | 93 - 100        |
| A-    | 90 - 93         |
| B+    | 87 - 90         |
| B     | 83 - 87         |
| B-    | 80 - 83         |
| C+    | 77 - 80         |
| C     | 73 - 77         |
| C-    | 70 - 73         |
| D+    | 67 - 70         |
| D     | 60 - 67         |
| F     | 0 - 60          |

If you could manage to get an A in my class, you will be on my "Top Students" list. The top students are eligible to become my TA for the following semesters. I would be more that happy to write you a recommendation letter if you get an A in this course.

**Course Outline** For a detailed schedule, please visit the ["Tentative course schedule".](#)

### I    Introduction
   i      What is Econometrics? (W Chapter 1)

### II    Review
   i      Basic Mathematical Tools (W Appendix A)
   ii     Fundamentals of Probability (W Appendix B)
   iii    Fundamentals of Statistics (W Appendix C)

### III    Models for Cross-Sectional Data
   i      The Simple Regression Model (W Chapter 2)
   ii     Multiple Regression Model - Estimation (W Chapter 3)
   iii    Multiple Regression Model - Inference (W Chapter 4)
   iv     Multiple Regression Model - Asymptotics (W Chapter 5)
   v      Multiple Regression Model - Model Specification (W Chapter 6)
   vi     Multiple Regression Model - Dummy variables (W Chapter 7)
   vii    Heteroskedasticity (W Chapter 8)

**Final notes:**

1. Make sure you read the University Policies and Procedures

2. **Classroom Civility**: Utah State University supports the principle of freedom of expression for both faculty and students. The University respects the rights of faculty to teach and students to learn. Maintenance of these rights requires classroom conditions that do not impede the learning process. Disruptive classroom behavior will not be tolerated. An individual engaging in such behavior may be subject to disciplinary action. Read Student Code Article V Section V-3 for more information.

3. **Final Grade**: Your final grade is assigned according to the guidelines laid out in this document. I will not change my grading guidelines or cut-offs. If for any reason you absolutely need to pass this class with certain grade (e.g. you need to maintain a certain GPA to be eligible for a scholarship, etc.), YOU are responsible to work hard enough to make that happen. **I will not respond to any request for grade change or extra assignments at the end of the semester**.

4. **Recording**: No student may record or tape any classroom activities without my explicit written consent.

## Syllabus Disclaimer

The syllabus is a statement of intent and serves as an implicit agreement between the instructor and the student. Every effort will be made to avoid changing the course schedule but the possibility exists that unforeseen events will make syllabus changes necessary.