

**Introduction to Econometrics I**  
**Department of Economics**  
**University of Kentucky**

**Course Information:**

Semester/Term: Spring 2024  
 Credit Hours: 3.0 Credits  
 Lectures: MW 2:00–3:15 PM, B&E 171  
 Course Web Site: <http://gatonweb.uky.edu/faculty/lamarche/ec703/ec703.html>

**Instructor Information:**

Professor: Dr. Carlos Lamarche  
 Email: [clamarche@uky.edu](mailto:clamarche@uky.edu)  
 Office phone: (859) 257-3371  
 Office hours: MW 4:45–5:45 PM (<https://uky.zoom.us/j/9844152807>) and upon request

**Course Description:**

The first course in the introduction to econometrics. A comprehensive survey of the general linear regression, autocorrelation, errors in variables and distributed lag models.

**Prerequisites:**

ECO 590 and either ECO 603 or STA 525, or consent of instructor.

**Tentative Course Schedule:**

	Week	Topic	Reference
1	January 8	Review of Multiple Regression Analysis	W 4
2	January 15	Orthogonal Projections	W 4, DM 2 & 3
3	January 22	OLS, Regularization Problems and Machine Learning	Lecture notes
4	January 29	Hypothesis Testing and Non Gaussian Disturbances	DM 4 and W 3
5	February 5	Heteroscedasticity	W 4, DM 5.5
6	February 13	Generalized Least Squares	DM 7
7	February 19	Clustered Robust Standard Errors	Lecture notes, AP 8
8	February 26	Instrumental Variables and Two Stage Least Squares	W 5.1-5.3, DM 8
9	March 4	Midterm Exam	
10	March 18	Generalized Method of Moments	H 13
11	March 25	Simultaneous Equation Models	W 8, W 9
12	April 1	Difference in Differences Models	H 18, W 21
13	April 8	Introduction to Panel Data	W 10
14	April 15	Time Series Analysis	DM 13, P 4
15	April 22	Introduction to Non-Stationary Time Series	Lecture notes, P 14, P 15
16	April 29	Final Exam	

## **Final Exam Information:**

Monday 04/29/2024 at 3:30 PM

## **Required Materials:**

### **Textbooks:**

There is no required textbook, but there are several books that are useful:

- 1) *Econometric Analysis of Cross Section and Panel Data*, Jeffrey Wooldridge (2010), MIT Press (W)
- 2) *Econometrics*, Bruce E. Hansen (2021), University of Wisconsin (H).
- 3) *Time Series and Panel Data Econometrics*, M. Hashem Pesaran (2015), Oxford University Press (P)

### **Suggested Textbooks:**

- 1) *Advanced Econometrics*, Takeshi Amemiya (1985), Harvard University Press (AM)
- 2) *Mostly Harmless Econometrics*, Joshua Angrist and Jorn-Steffen Pischke, Princeton University Press (AP)
- 3) *Econometrics Theory and Methods*, Russell Davidson and James G. MacKinnon (2004), Oxford University Press (DM)

### **Statistical Software**

The course will include discussions of STATA and R software. I will upload materials regularly but I suggest checking online resources too:

1. <http://www.stata.com/links/video-tutorials/>
2. <https://www.statmethods.net/r-tutorial/index.html>

## **Student Learning Outcomes:**

After completing this course, I expect students to be familiar with estimation and inference. Specifically, I expect the student to: (i) understand identification and estimation of econometric models under a variety of assumptions; (ii) conduct statistical inference; (iii) work independently with Stata and/or R, (iv) be familiar with issues that plague basic models and data analysis, (v) be able to independently estimate and test different models and interpret empirical results.

## **Technology Information and Requirements:**

### ***Technology Requirements***

Minimum technical requirements for UK courses and suggested hardware, software, and internet connections are available at [ITS Student Hardware & Software Guidelines](#).

Share any additional technology requirements, such as required software, and your preferred procedure for resolving technical complaints for each service or software used in the course.

### ***Technical Support***

For account help, contact UK's [Information Technology Customer Services online](#), by [email](#), or by phone at 859-218-HELP (4357).

### **Attendance Policies and Excused Absences:**

It is students' responsibility to attend class. Students however need to notify the professor of absences prior to class when possible. S.R. 5.2.4.2 defines the following as acceptable reasons for excused absences: (a) serious illness, (b) illness or death of family member, (c) University-related trips, (d) major religious holidays, and (e) other circumstances found to fit "reasonable cause for nonattendance" by the professor.

Students anticipating an absence for a major religious holiday are responsible for notifying the instructor in writing of anticipated absences due to their observance of such holidays no later than the last day in the semester to add a class. Information regarding dates of major religious holidays may be obtained through the religious liaison, Mr. Jake Karnes (859-257-2754).

Students are expected to withdraw from the class if more than 20% of the classes scheduled for the semester are missed (excused or unexcused) per university policy.

### **Verification of Absences:**

Students may be asked to verify their absences in order for them to be considered excused. Senate Rule 5.2.4.2 states that faculty have the right to request "appropriate verification" when students claim an excused absence because of illness or death in the family. Appropriate notification of absences due to university-related trips is required prior to the absence.

### **Academic Integrity:**

Per university policy, students shall not plagiarize, cheat, or falsify or misuse academic records. Students are expected to adhere to University policy on cheating and plagiarism in all courses. The minimum penalty for a first offense is a zero on the assignment on which the offense occurred. If the offense is considered severe or the student has other academic offenses on their record, more serious penalties, up to suspension from the university may be imposed.

Plagiarism and cheating are serious breaches of academic conduct. Each student is advised to become familiar with the various forms of academic dishonesty as explained in the Code of Student Rights and Responsibilities. Complete information can be found at the following website: <http://www.uky.edu/Ombud>. A plea of ignorance is not acceptable as a defense against the charge of academic dishonesty. It is important that you review this information as all ideas borrowed from others need to be properly credited.

Part II of *Student Rights and Responsibilities* (available online <http://www.uky.edu/StudentAffairs/Code/part2.html>) states that all academic work, written or otherwise, submitted by students to their instructors or other academic supervisors, is expected to be the result of their own thought, research, or self-expression. In cases where students feel unsure about the question of plagiarism involving their own work, they are obliged to consult their instructors on the matter before submission.

When students submit work purporting to be their own, but which in any way borrows ideas, organization, wording or anything else from another source without appropriate acknowledgement of the fact, the students are guilty of plagiarism. Plagiarism includes reproducing someone else's work, whether it be a published article, chapter of a book, a paper from a friend or some file, or something similar to this. Plagiarism also includes the practice of employing or allowing another person to alter or revise the work which a student submits as his/her own, whoever that other person may be.

Students may discuss assignments among themselves or with an instructor or tutor, but when the actual work is done, it must be done by the student, and the student alone. When a student's assignment involves research in outside sources of information, the student must carefully acknowledge exactly what, where and how he/she employed them. If the words of someone else are used, the student must put quotation marks around the passage in question and add an appropriate indication of its origin. Making simple changes while leaving the organization, content and phraseology intact is plagiaristic. However, nothing in these Rules shall apply to those ideas which are so generally and freely circulated as to be a part of the public domain (Section 6.3.1).

### **Diversity, Equity and Inclusion:**

The University of Kentucky is committed to our core values of diversity and inclusion, mutual respect and human dignity, and a sense of community (Governing Regulations XIV). We acknowledge and respect the seen and unseen diverse identities and experiences of all members of the university community (<https://www.uky.edu/regs/gr14>). These identities include but are not limited to those based on race, ethnicity, gender identity and expressions, ideas and perspectives, religious and cultural beliefs, sexual orientation, national origin, age, ability, and socioeconomic status. We are committed to equity and justice and providing a learning and engaging community in which every member is engaged, heard, and valued.

We strive to rectify and change behavior that is inconsistent with our principles and commitment to diversity, equity, and inclusion. If students encounter such behavior in a course, they are encouraged to speak with the instructor of record and/or the Office of Institutional Equity and Equal Opportunity. Students may also contact a faculty member within the department, program director, the director of undergraduate or graduate studies, the department chair, any college administrator, or the dean. All of these individuals are mandatory reporters under University policies.

### **Accommodations due to disability:**

If you have a documented disability that requires academic accommodations, please see me as soon as possible during scheduled office hours. In order to receive accommodations in this course, you must provide me with a Letter of Accommodation from the Disability Resource Center (DRC). The DRC coordinates campus disability services available to students with disabilities. Visit the [DRC website](#), [email the DRC](#), contact them by phone at (859) 257-2754, or visit their office on the corner of Rose Street and Huguelet Drive in the Multidisciplinary Science Building, Suite 407.

## **Activities and Assignments:**

### **Course Assignments**

Please find below the list of required assignments for the grade:

- 3 problem sets (total: 5% of the grade),
- One empirical project (15%, due day on April 22)
- Midterm exam (35%),
- Final exam (45%)

### **Summary Description of Course Assignments**

Problem sets are short empirical projects to practice data analysis and regression analysis.

The empirical project (15% of the grade) is the most important assignment and can be completed in groups of no more than 3 students. Students will discuss their ongoing work during individual meetings with the instructor.

Before you work on an idea and data, I encourage you to meet with me to discuss the feasibility of the project. Before the meeting, send to [clamarche@uky.edu](mailto:clamarche@uky.edu) a one-page proposal with the idea/question of the paper and a brief description of the data you plan to use.

### **Submission of Assignments**

Guidelines for the project will be provided and discussed in class.

I expect you to write the project in Word (or Latex) and submit it electronically via Canvas.

## **Course Grade:**

### **Grading scale and standardized scores:**

The grade distribution is below, however, I reserve the right to curve (standardize) the grades as I see fit.

Grading Scale

90 - 100% = A

80 - 89% = B

70 - 79% = C

Below 70%= E

**Mid-term Grade:**

Mid-term grades will be posted in myUK by the deadline established in the [Academic Calendar](#).