

ECON 640, Econometrics I
Fall 2025

Instructor:	Professor Liang	Email:	yang.liang@sdsu.edu
Office Hours	Thursday, 5:00-6:00 PM (or by appointment)	Office:	NH-323
Class Location:	NH-324 (Conference Room)	Class Time:	TTH 14:00 - 15:15

Course Description

Economics 640 serves as the first part of a two-semester sequence in graduate econometrics. It provides an introduction to the fundamental concepts and methods used in econometric analysis. The course primarily focuses on the linear model, its assumptions, estimation methods, hypothesis testing, and the practical challenges encountered in empirical research. Emphasis will be placed on understanding the underlying mathematical and statistical principles, as well as on the use of STATA. Successful completion of this course should allow you to read and understand the basic techniques used in the professional empirical literature in economics.

Learning Outcomes

- Understand the foundations of econometrics
- Grasp the mathematical and statistical underpinnings of econometric models
- Comprehend the assumptions of the linear regression model and their implications
- Develop proficiency in estimating and interpreting regression models
- Formulate econometric models to address specific research questions
- Analyze data and derive insights to inform economic policy

Prerequisites

Prerequisites: ECON 321; MATH 120, 121, or 150. A thorough understanding of the content in these courses is expected. If you are not confident in your grasp of this material or feel that your knowledge has diminished, you should review the relevant topics.

Textbook and Canvas

Most of the course is designed around detailed lecture notes. These notes will be available on Canvas. There are two key texts that are both classical and highly useful: Introduction to Econometrics (4th Edition) by James H. Stock and Mark W. Watson, published by Pearson, and Introductory Econometrics: A Modern Approach (7th Edition) by Jeffrey M. Wooldridge. Wooldridge's text is slightly more advanced. Having different concepts explained by different authors can provide new perspectives and help you grasp ideas more quickly. You can use an earlier edition, as the changes between versions are generally minor. Introduction to Mathematical Statistics by Craig, McKean, and Hogg is another recommended text for statistics review.

Course Grade

- Problem Set (30%)
 - There will be four/five problem sets starting from the 3rd week. The problem sets will typically be assigned on Thursdays and will be due in class two weeks later.
 - Conduct of Problem sets: Students may work **alone or in pairs** on each problem set. A student may be a member of only one pair per problem set. Students who worked in pairs must indicate their partner's name on their solutions. Any student listed in more than one pair for a problem set will receive a failing grade. Each student must turn in written solutions to the problem set questions. No group copies please. Allowing your work to be copied verbatim

by another person, even your problem set partner, and copying verbatim another person's work, even your problem set partners', on a problem set are considered violations of academic honesty.

- STATA part: each student must turn in a copy of the STATA output used to answer the problem set questions. This output will be in the form of a printed STATA do file and log file. Students that worked in pairs to generate the STATA output may each turn in a copy of the same printed STATA do/log file. Students are allowed to share knowledge of the operation and use of the statistical software STATA, but are not allowed to copy programs written to calculate answers to the problem set questions. Such copying is considered a violation of academic honesty.
- Exams (70% = 30% Midterm + 40% Final)
 - The midterm exam will be on Thursday, October 16. The final exam date will be on December 11. It is cumulative for the course, but will focus primarily on the material after the midterm.
 - Failure to show up for a scheduled exam will result in a failing grade for that exam. I'll try to conduct a review session before each exam, but I advise not to rely solely on my review. The most effective strategy is to cross-reference my list with yours.
- Seminar Participation and Class Attendance (Bonus points)
 - Instead of taking attendance, I will randomly assign quizzes throughout the semester. Some quizzes will have an extra credit component, the extra credit question(s) will be based on the topics covered in the class. Empirically, good attendance is correlated with a good course grade (but it is not necessarily a causal relationship!)
 - The Center for Health Economics & Policy Studies ([CHEPS](#)) provides an excellent economics seminar series. There are many reasons why you should participate: it helps you enhance the understanding of the subject matter; it provides an opportunity for you to develop critical thinking through discussions and presentations; it exposes you to various cutting-edge empirical tools. (**Location and Time: AL 660, Thursdays 3:30-4:45PM**)
- Deadlines and Due Dates
 - Late submission will not be accepted. If you need an extension, you should contact me ASAP, if granted an extension posting of the solutions will be delayed.

Grading System

I utilize a standard grading scale in which 80-82 is a B-, 83-86 is a B, 87-89 is a B+ and so forth. The class grade distribution is set around with the average 78, if the average differs greatly from the target or the class distribution is too skewed, I will use a curve.

97-100:A+ 93-97:A 90-93:A- 87-90:B+ 83-87:B 80-83:B- 70-80:C 60-70:D <60:F

Attention: Please only use the provided grading scale to determine your final grade. Grades on Canvas are unweighted hence do not accurately reflect your overall grade.

Academic Integrity

I take academic dishonesty very seriously, as it is unfair to other students and undermines the principles of academia. **Do not cheat.** If you are wondering whether something constitutes cheating, ask before you do it. Suspected cases of cheating will be investigated, and if there is sufficient case for action, will be reported to the administration for possible disciplinary action. I will be taking unannounced precautions against cheating, so the probability of getting caught is likely higher than you think. While it may not seem like it at the time, it is much better in the long run to flunk an exam than to get caught cheating.

Course Schedule (Tentative and subject to change)

Week	Tuesday Date	Thursday Date	Notes
1	August 26	August 28	Intro and Review of Stats
2	September 2	September 4	Sampling, Estimation
3	September 9	September 11	Hypothesis Testing
4	September 16	September 18	Intro to Linear Regression (OLS)
5	September 23	September 25	Statistical Properties of OLS
6	September 30	October 2	Multiple Linear Regression
7	October 7	October 9	OLS with Linear Algebra (intro)
8	October 14	October 16	Midterm on Oct 16
9	October 21	October 23	Non-Linear
10	October 28	October 30	Heteroskedasticity and GLS
11	November 4	November 6	Pitfalls: OVB, measurement error, endogeneity
12	November 11	November 13	Instrumental Variables and 2SLS
13	November 18	November 20	Binary and Limited Dependent Variables
14	November 25	November 27	Thanksgiving
15	December 2	December 4	Binary and Limited Dependent Variables
16	December 9	December 11	Final on Dec 11

University Policies

Communication

Students are provided with an SDSU Gmail account, and this SDSU email address will be used for all communications. University Senate policy notes that students are responsible for checking their official university email once per day during the academic term. For more information, please see [Student Official Email Address Use Policy](#) here.

Accommodations

If you are a student with a disability and believe you will need accommodations for this class, it is your responsibility to contact Student Disability Services at (619) 594-6473. You can also learn more about the services provided by visiting the [Student with Disabilities](#) website. To avoid any delay in the receipt of your accommodations, you should contact Student Disability Services as soon as possible. Please note that accommodations are not retroactive, and that accommodations based upon disability cannot be provided until you have presented your instructor with an accommodation letter from Student Disability Services. Your cooperation is appreciated.

Student Privacy and Intellectual Property

The [Family Educational Rights and Privacy Act](#) (FERPA) mandates the protection of student information, including contact information, grades, and graded assignments. I will use [Canvas] to communicate with you, and I will not post grades or leave graded assignments in public places. Students will be notified at the time of an assignment if copies of student work will be retained beyond the end of the semester or used as examples for future students or the wider public. Students maintain intellectual property rights to work products they create as part of this course unless they are formally notified otherwise.

Religious Observance

The SDSU Senate Policy file requires that instructors reasonably accommodate students who notify them by **the end of the second week of classes** of planned absences for religious observances. This policy applies for the attendance grading as well.

Academic Support Services

A complete list of all academic support services—including the [Writing Center](#) and [Math Learning Center](#)—is available on the Student Affairs' [Academic Success website](#). Counseling & Psychological Services (619-594-5220, sdsu.edu/cps) offers a range of psychological services for students. Emergency support is available after hours at the same phone number. The San Diego Access and Crisis Line can also be accessed 24 hours/day (1-888-724-7240).

Sexual Violence/ TITLE IX Mandated Reporting

As an instructor, one of my responsibilities is to help create a safe learning environment on our campus. I am a mandated reporter in my role as an SDSU employee. It is my goal that you feel able to share information related to your life experiences in classroom discussions, in your written work, and in our one-on-one meetings. I will seek to keep the information you share private to the greatest extent possible. However, I am required to share information regarding sexual violence on SDSU's campus with the Title IX coordinator, Gail Mendez (619-594-6464). She (or her designee) will contact you to let you know about accommodations and support services at SDSU and possibilities for holding accountable the person who harmed you. Know that you will not be forced to share information you do not wish to disclose and your level of involvement will be your choice. If you do not want the Title IX Officer notified, instead of disclosing this information to your instructor, you can speak confidentially with the following people on campus and in the community. They can connect you with support services and discuss options for pursuing a University or criminal investigation. Sexual Violence Victim Advocate (619-594-0210) or Counseling and Psychological Services (619-594-5220, psycserv@sdsu.edu). For more information regarding your university rights and options as a survivor of sexual misconduct or sexual violence, please visit titleix.sdsu.edu.

Excused Absences for University Extracurricular Activities

Students participating in an officially sanctioned, scheduled University extracurricular activity should be given the opportunity to make up class assignments or other graded assignments missed as a result of their participation. It is the responsibility of the student to make arrangements with the instructor prior to any missed scheduled examination or other missed assignment for making up the work.

Academic Honesty

The University adheres to a [strict policy prohibiting cheating and plagiarism](#). Examples of academic dishonesty include but are not limited to:

- copying, in part or in whole, from another test or other examination;
- obtaining copies of a test, an examination, or other course material without the permission of the instructor;
- collaborating with another or others in work to be presented without the permission of the instructor;
- falsifying records, laboratory work, or other course data;
- submitting work previously presented in another course, if contrary to the rules of the course;
- altering or interfering with grading procedures;
- assisting another student in any of the above;
- using sources verbatim or paraphrasing without giving proper attribution (this can include phrases, sentences, paragraphs and/or pages of work);
- copying and pasting work from an online or offline source directly and calling it your own;
- using information you find from an online or offline source without giving the author credit;
- replacing words or phrases from another source and inserting your own words or phrases.

The California State University system requires instructors to report all instances of academic misconduct to the Center for Student Rights and Responsibilities. Academic dishonesty will result in disciplinary review by the University and may lead to probation, suspension, or expulsion. Instructors may also, at their

discretion, penalize student grades on any assignment or assessment discovered to have been produced in an academically dishonest manner.

Classroom Conduct Standards

SDSU students are expected to abide by the terms of the [Student Conduct Code](#) in classrooms and other instructional settings. Violation of these standards will result in referral to appropriate campus authorities. Prohibited conduct includes:

- Willful, material, and substantial disruption or obstruction of a University-related activity, or any on-campus activity.
- Participating in an activity that substantially and materially disrupts the normal operations of the University or infringes on the rights of members of the University community.
- Unauthorized recording, dissemination, or publication (including on websites or social media) of lectures or other course materials.
- Conduct that threatens or endangers the health or safety of any person within or related to the University community, including:
 1. Physical abuse, threats, intimidation, or harassment.
 2. Sexual misconduct.

Medical-related absences

Students are instructed to contact their professor/instructor/coach in the event they need to miss class, etc. due to an illness, injury or emergency. All decisions about the impact of an absence, as well as any arrangements for making up work, rest with the instructors. [Student Health Services](#) (SHS) does not provide medical excuses for short-term absences due to illness or injury. When a medical-related absence persists beyond five days, SHS will work with students to provide appropriate documentation. When a student is hospitalized or has a serious, ongoing illness or injury, SHS will, at the student's request and with the student's consent, communicate with the student's instructors via the Vice President for Student Affairs and may communicate with the student's Assistant Dean and/or the [Student Ability Success Center](#).

SDSU Economic Crisis Response Team

If you or a friend are experiencing food or housing insecurity, or any unforeseen financial crisis, visit sdsu.edu/ecrt, email ecrt@sdsu.edu, or walk-in to Well-being camp; Health Promotion on the 3rd floor of Calpulli Center.

Land Acknowledgment

For millennia, the Kumeyaay people have been a part of this land. This land has nourished, healed, protected and embraced them for many generations in a relationship of balance and harmony. As members of the San Diego State University community, we acknowledge this legacy. We promote this balance and harmony. We find inspiration from this land, the land of the Kumeyaay.