

ECO304: ANALYTICS FOR ECONOMICS
Fall, 2022 (Tuesday/Thursday 1:30-3:00 PM)
(DePaul Center Room 8205)
updated: 08/17/2022

INSTRUCTOR: Jin Man Lee
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COMMUNICATION:

The best way to reach me is to send email. Please use ECO304 as a prefix on the subject line, and that will get my attention immediately. If you don't receive my reply within 24 hours, please remind me again. Due to many email filters and mass email, your email might be lost. All office hours and appointment will be available via Zoom meeting. Make sure you have appropriate computer with internet connection.

CLASS and OFFICE HOURS:

- CLASS: Tuesday/Thursday 1:30-3:00 PM
- OFFICE HOUR: In-Person or ZOOM Every Tuesday and Thursday 4:00-5:00 PM. Any suggested topics are welcome via email prior to the meeting as a group. It can be a personal office hour and serve as first-come-first-serve.
- ZOOM Address for office hours:
<https://depaul.zoom.us/j/95326652941>

LEARNING OUTCOMES:

- Understand and apply the linear regression model to applications in economics and business
- Perform, interpret, present, and write about ones own empirical analyses
- Clean real-world data and further develop data presentation skills
- Develop statistical programming skills using Stata

REQUIRED TEXTBOOK:

Michael A. Bailey, Real Econometrics: The Right Tools to Answer Important Questions, 1st or 2nd Edition, Oxford University Press.

PREREQUISITES:

ECO 105, ECO 106, MAT 137 (or equivalent), and BUS 102 I have put together a review of the basic statistics that you need for this course. It is available on D2L. This handout goes over most of the important concepts that will be used this semester such as expected values,

covariance, correlation, linear combinations of random variables, and hypothesis testing. We will review these concepts in Week 1, but then continue to use it as a resource.

SUPPLEMENTARY MATERIAL

My lecture notes will be available on D2L Tuesday at 10:00AM for each week. I will assign mandatory readings of academic articles or manuals. Most of the reading material will be available to download in PDF format from D2L.

SOFTWARE USED in CLASS (required for homework)

This course will also use the statistical package, STATA. You have two options to use STATA for this class:

- DePaul offers the virtual computer labs. Depending upon your Internet connection speed and number of users, the service can be very slow or easily reset by the hosts. Make sure you have frequently before you lose your connection. The instruction to use virtual PC is available from <https://offices.depaul.edu/information-services/services/Software/Pages/Software-for-the-Virtual-Lab.aspx>
- Students should consider purchasing a 6 (12) month license of Stata IC, which costs 48(94). It is available at: <https://www.stata.com/order/new/edu/gradplans/student-pricing/> .

GRADE

Exam I (20%), Exam II (15%), Final Project (20%), Weekly Homework (45%)

Scale of grade: A: 93 or above, A-: 88-92.9, B+: 85-87.9, B: 80-84.9, B-: 77-79.9, C+: 75-76.9, C: 70-74.9, C-: 68-69.9, D+: 65-67.9, D: 60-64.9, F: Below 60

EXAMS AND FINAL PROJECT SCHEDULE

- Exam I (WEEK 5)
- Exam II (WEEK 9)
- Final Project (Written report submission to D2L on November 22 (Tuesday) at 10:00 PM.)

WEEKLY ASSIGNMENTS

- Weekly homework will be assigned and posted on D2L every Tuesday at 10:00AM. The weekly homework is due the following Monday at 10:00 PM.
- Most of homework requires to use STATA to analyze the data for each week.
- All assignments are to be prepared individually unless otherwise stated by me. You risk an academic integrity violation if submit the same work and answers with others. Group study is encouraged but not the submission of homework.
- No Late submission will be allowed. Only limited exception will be granted due to emergency and extraordinary circumstance proved by appropriate document.

DISCUSSIONS in D2L We will have weekly discussions in D2L. You can ask any questions related the material we covered in each week including homework. This is a great online-community space, so you are welcome to give answers or explanations to the questions. I will review the discussion board, and leave comments if needed.

ACADEMIC HONESTY

Work done for this course must adhere to the University Academic Integrity Policy. Violations include but are not limited to the following categories: cheating; plagiarism; fabrication and academic misconduct.

- **Cheating:** any action that violates University norms or an instructor's guidelines for the preparation and submission of assignments. Such actions may include using or providing unauthorized assistance or materials on course assignments, or possessing unauthorized materials during an examination.
- **Plagiarism:** the representation of another's work as your own. You are to prepare your own homework assignments. Violations may result in the failure of the assignment, failure of the course, and/or additional disciplinary actions.
- **Misconduct:** This includes but is not limited to attempts to bribe an instructor for academic advantage; persistent hostile treatment of, or any act or threat of violence against, an instructor, advisor or other students. Violations may result in additional disciplinary actions by other university officials and possible civil or criminal prosecution.

You may review the Academic Integrity Policy in the Student Handbook or by visiting Academic Integrity at DePaul University (<http://academicintegrity.depaul.edu>)

Student with Disability: Students with Disability may register the The Productive Learning Strategies (PLuS) Program. You may request your exam schedule arrangement by requesting through the PLuS program. For more information on the PLuS program, you may visit <http://studentaffairs.depaul.edu/plus/> or call: 312-362-8000.

SUMMARY OF WEEKLY SCHEDULE:

1. Tuesday 10:00 AM: New weekly material will be posted in D2L including lecture note and homework
2. Tuesday/Thursday class at 1:30-3:00 PM
3. Monday 10:00 PM : Weekly Assignments Due

TENTATIVE SCHEDULE OF TOPICS:

(The instructor may change the order or contents by needs, any special material needs for class will be available on D2L)

- WEEK 1, Introduction to STATA and Statistics Review
 - Introduction to STATA
 - Statistics Review (Sampling Distribution and Statistical Inference)
- WEEK 2, Correlation to Causality
 - Reading: Bailey, Chapter 1-2
- WEEK 3, Bivariate Regression Model Estimation
 - Reading: Bailey, Chapter 3
 - Applications: Does greater healthcare spending improve health outcomes?
How does education affect earnings?
- WEEK 4, Bivariate Regression Model: hypothesis testing and interval estimation
 - Reading: Bailey, Chapter 4
- WEEK 5 MIDTERM EXAM I
 - Reading: Bailey, Chapter 1-4
- WEEK 6, Multivariate Regression Analysis
 - Reading: Bailey, Chapter 5
- WEEK 7, Dummy Variables, Functional Forms of Regression Model
 - Reading: Bailey, Chapter 6-7
- WEEK 8, Limited Dependent Variable Regression Models
 - Reading: Bailey, Chapter 12
- WEEK 9 MIDTERM EXAM II
Using Regression as a Predictive Tool and Forecasting
 - Reading: Bailey, Chapter 13
- WEEK 10, Regression Analysis Project: Business Application of Regression Analysis
 - Regression Model Design
 - Regression Project Proposal
 - Each group present the proposal for the final project (ppt slides required as Homework 10)
- FINAL PROJECT DUE
Written report submission to D2L by **November 22(Tuesday) at 10:00 PM**