Introduction to Econometrics (ECON 3334, Spring 2021)

Department of Economics, HKUST

Instructor: WANG, Peng Email: pwang@ust.hk Phone: 2358-7630)
Office: Rm 6082, LSK Bldg Office Hours: by appointment.
TA: TSUI, Peter Email: ecpeter@ust.hk

Course Description:

This course will introduce students to econometric methods and their applications in economic analysis. It begins with a review of probability and statistics, followed by linear regression models with one regressor, linear regression models with multiple regressors. Emphasis will be put on practical issues in econometric analysis of cross-sectional data. The free software Gretl and R will be used for data analysis.

Prerequisites:

Basic statistics or consent of instructor.

Lectures:

The lectures will initially be conducted through the online mode via **Zoom**. You need to join the Zoom meeting through **Canvas** during the class time. The regular classroom teaching will not start until further notice from the university. The planned classroom teaching schedule is as follows:

(L1) Monday and Wednesday 9:00 - 10:20.
(L2) Monday and Wednesday 10:30 - 11:50.

Tutorial Sessions: TA: TSUI, Peter. (ecpeter@ust.hk)

The tutorial is NOT weekly. The TA will make an announcement through Canvas when there is a tutorial session. Initially, the tutorial will be conducted via **Zoom**.

Textbook: Stock, James and Mark Watson (2019) "*Introduction to Econometrics*." 4th Edition, Pearson. You may also use other editions of the same title, but homework will be based on the 4th Edition.

- We also use the materials in the Companion Website: https://media.pearsoncmg.com/intl/ge/2019/cws/ge_stock_econometrics_4/
- Eight copies of textbook are reserved in the library. Ebook is also available from the library's website, although it only allows four concurrent users to access.
- Also feel free to use HKUST bookstore's online purchase link for the Ebook: https://w5.ab.ust.hk/cgi-bin/std_cgi.sh/WService=broker_ba_p/prg/ba_stdt_main.r

Course Web Site: http://canvas.ust.hk

Slides, problem sets and other materials will be posted on Canvas. You should check the course website at least **twice a week** for important announcement such as the homework information.

Computer Software

- Gretl is available at: http://gretl.sourceforge.net/
- R is available at: https://www.r-project.org/. You may install R first. Then install Rstudio (https://rstudio.com/), which is an easy interface to use R.
- You may also use other software such as Matlab, Eviews, Stata, Python, etc (except Excel), to finish problem sets. However, they will not be taught in this course.

Course Requirements:

Homework (15%): There will be 5 graded problem sets (3 points each) and some ungraded practice quizzes, assigned during the semester. These problem sets/quizzes focus on computational and analytical exercises. Students may work in groups, but each student must submit his/her own solution. **Students must submit their solutions through Canvas**. Main solution files must be in Microsoft Word or PDF format. Data files must be read by Microsoft Excel. The due dates will be specified in each assignment. **Email or mail submissions will not be accepted.** Late submission including uploading failure will not be accepted without justification. If the submission occurs after the answer is posted, it will receive zero point.

Midterm (30%): **Date and time (tentative): Mar 19 (Friday), 8:00 pm-9:00 pm**.
The midterm will be open-book and cover all course materials before Mar 19. We will conduct the test online unless the University changes relevant policies. I will announce the details later.

Final (55%): **Time and format to be announced**.
The final will be open-book and cover all course materials, include those covered in midterm. We will conduct the test online unless the University changes relevant policies. I will announce the details later.

Class Attendance: You should use your **official name** to join a Zoom meeting. Any distracting behaviors, such as posting lecture-unrelated content, will not be tolerated. A student violating the rule will be removed from the Zoom meeting and receive significant deduction of points from his/her final grade.

Exam Policy:

- There will be no make-up exams for the midterm. If you miss the midterm, you will receive zero for that exam. The only exception is a verifiable medical reason, in which case the weight of the midterm will be moved to the final exam. If you miss the final exam, you will receive an "F"(fail) for the course. The only exception is that you successfully apply a make-up exam formally through the school. In such a case, I will allow you to do a make-up exam.

- There is zero tolerance of cheating in the exam. The case of cheating will be reported to both the department and the school level. We will check your **school ID cards** during exams.

- For the online exams, you must comply with all the rules that will be separately sent out before the exam. Some basic rules:

  - You will need a mobile device and a computer with a webcam.
  - It is your responsibility to find a private place where you have reliable internet connection to do the online exams.
  - You will be required to **record your computer's screen** throughout the exams.
  - You will be required to scan your written exam as PDF files and upload them to Canvas in the designated time.
  - Time zone, unstable internet or other technical difficulties other than Canvas/Zoom server failures, are NOT excuses for failure of complying with the rules.
  - I reserve the right to orally question you about your answers.
  - In case of disputes over any suspicious activities, I may void your exam entirely without re-examination.

Re-grading Policy: Contact your TA regarding any grading issue within one week from the time the grade is released.

Academic Integrity and Honesty: Students are required to comply with the university policy on academic integrity as detailed at http://ugadmin.ust.hk/integrity/student-1.html

Course Intended Learning Outcomes: Upon completion of the course, you will be able to:

1. Weight the significance of key assumptions used in regression models, and explain the relationship between those assumptions and properties of estimators.
2. Construct an appropriate regression model to analyze a given economic data set, and then conduct statistical inference and interpret the results.
3. Use the statistical software Gretl and R to conduct econometric analysis.
4. Collect data set to conduct empirical analysis, and provide answers to economic questions.
5. Present your understanding of certain economic problems verbally and in writing, and use empirical results to justify your explanation.

Tentative Schedule:

Classes	**Date**	**Day**	**Topic**	**Reading**
1	Feb.1	Mon	Topic 1: Introduction	Ch.1
2	Feb.3	Wed	Topic 2: Review of probability	Ch.2
3	Feb.8	Mon		Ch.2
4	Feb.10	Wed		Ch.2
5	Feb.17	Wed	Topic 3: Review of statistics	Ch.3
6	Feb.22	Mon		Ch.3
7	Feb.24	Wed		Ch.3
8	Mar.1	Mon	Topic 4: Linear regression with one regressor: estimation	Ch.4
9	Mar.3	Wed		Ch.4
10	Mar.8	Mon		Ch.4
11	Mar.10	Wed		Ch.4
12	Mar.15	Mon	Topic 5: Linear regression with one regressor: inference	Ch.5
13	Mar.17	Wed	Mixed topics	Ch.1-5
*	Mar 19	Fri	**Mid-term exam** (**8pm – 9:00pm**, Topic 1-5.)	
14	Mar.22	Mon	Topic 6: Linear regression with multiple regressors: estimation	Ch.6
15	Mar.24	Wed		Ch.6
16	Mar.29	Mon		Ch.6
17	Apr.7	Wed		Ch.6&14
18	Apr.12	Mon	Topic 7: Linear regression with multiple regressors: inference	Ch.7
19	Apr.14	Wed		Ch.7
20	Apr.19	Mon		Ch.7
21	Apr.21	Wed	Topic 8: Nonlinear regression functions	Ch.8
22	Apr.26	Mon		Ch.8&11
23	Apr.28	Wed		Ch.8&11
24	May.3	Mon	Topic 9: A guide for empirical analysis	Ch.9
25	May.5	Wed		Ch.9

Remark: no class on Feb 15 (Public Holiday), Mar 31, Apr 5 (Midterm break).