Logistics

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▷ Instructor: Dr.Yu Hao
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▷ Office: KK927
▷ Consultation times: Monday 10:00am – 11:00am
▷ Tutor: Ms. Karen Mai
▷ Email: maixt@hku.hk
▷ Consultation times: Thursday, TBA

▷ This course studies how practical problems can be solved by applying econometric methods.

▷ The emphasis is on the application of econometric methods to the analysis of real world economic data using R.

▷ Topics include multilinear regressions, limited dependent variable, panel data, experiments and quasi-experiments, instrumental variables, time series and forecasting, and basics of machine learning.

▷ Pre-requisites:
  ◇ Solid knowledge of statistics
  ◇ Introductory level econometric methods
  ◇ Linear algebra

▷ Students are encouraged to check out student resources the publisher provides on Moodle.

▷ Lecture slides will be posted on the course website.

▷ Additional handouts will be distributed when needed to supplement the textbook.

Main textbook:

- ▷ Stock, James and Mark Watson (2018), *Introduction to Econometrics*, Global Edition, 4th ed., Pearson. (It is perfectly fine if you use the 3rd edition of this textbook.)
- ▷ Hanck, Christoph, Martin Arnold, Alexander Gerber, and Martin Schmelzer. "Introduction to Econometrics with R." University of Duisburg-Essen (2019).

Supplementary textbook:

- ▷ Jeffrey Wooldridge , *Introductory Econometrics: A Modern Approach*, Ohio : South-Western Cengage Learning.
- ▷ Bruce E. Hansen(2021) , *Introduction to Econometrics*.
- ▷ Cunningham, Scott. "Causal Inference." *The Mixtape* 1 (2020).
- ▷ Sheppard, Kevin. "Introduction to Python for econometrics, statistics and data analysis." *Self-published, University of Oxford, version* 2 (2012).

▷ 6 Assignments in total, distributed every Saturday
  ◇ Group work with group of maximum 5 students
  ◇ Graded based on the best 5 assignments
  ◇ Need to submit coding exercises, R notebook is recommended.
    (Karen will help with setting up)
▷ Midterm on September 18th.
▷ Final (time and venue TBA)

▷ Week 1

  ◇ Introduction: Evidence and Policy
  ◇ Causality and Validity Probability and Statistical Theory Review (SW Ch. 2 -3)
  ◇ Introduction to Programming Language

▷ Week 2

  ◇ Bivariate Regression (SW Ch. 4 – 5)
  ◇ Multivariate Regression I & II (SW Ch. 6 - 7)

▷ Week 3

  ◇ Nonlinear Regression models: Quadratic and Logarithms (SW, Ch. 8)
  ◇ Threats to (Internal / External) Validity (SW, Ch. 9)
  ◇ Midterm

▷ Week 4
  ◇ Regressions with binary dependent variables (SW, Ch. 11)
  ◇ Regressions with panel data (SW Ch. 10; Wooldridge Ch.13-14)

▷ Week 5
  ◇ Instrumental variables methods (SW, Ch. 12; Wooldridge, Ch. 15)
  ◇ Experiments and Quasi-Experiments (Chapter 13)

▷ Week 6
  ◇ Times series regressions and forecasting (SW, Ch. 14)
  ◇ Machine Learning (material will be distributed by instructors.)