



## East China Normal University

### ECON 24 Financial Econometrics

**Instructor:** Fang Zhang

**Email:** zfgirl@163.com

**Home University:** East China Normal University

**Semester:** December 19, 2022 to January 7, 2023

**Course Hour:** Monday through Friday, 160 mins per teaching day;

**Total Contact Hours:** 64 contact hours

**Credits:** 4

Designated Textbook with ISBN: **Introductory Econometrics for Finance**  
**Brooks, C., Cambridge University Press 4th ed. 2019**  
**ISBN: 9781108436823**

**Course Prerequisite:** *Fundamental Statistics/Business Statistics*

*\*Notes: The course might be moved to online delivery due to COVID-19 pandemic. Students will be notified once such decision is made.*



---

## Course Overview

This unit provides students with the statistical tools needed to track the performance and volatility of financial markets and instruments in equities, futures, options, bonds and currencies. It will also provide students with an understanding of models used to value financial assets. Students will explore market data and problems faced by fund managers and bond and currency dealers. Students will use the capital asset pricing model, the arbitrage pricing model and derivative valuation models, as well as time series models for the analysis of market data.

## Learning Outcomes

Upon completion of this course, students should be able to:

1. demonstrate professional understanding of the nature and characteristics of financial data;
2. demonstrate a professional understanding of standard models used for valuation of capital assets, common stocks, bonds, options, and futures;
3. critically evaluate complex measures of volatility in financial time series;
4. demonstrate expert knowledge and awareness of the software available for statistical analysis of financial markets; and
5. conduct a financial research project applying econometric models.



### Grading Scale and Notes

The following definitions will be used as a guide for the assignment of grades:

| Number Grade | Letter Grade | Definitions  |
|--------------|--------------|--|
| 94-100       | A            | Extraordinary distinction, indicating a full mastery of course content and excellent work.   |
| 90-93        | A-           |  |
| 87-89        | B+           | Strong performance demonstrating a high level of attainment, indicating a good comprehension of the course material and the student's full engagement with the course requirements and activities.                       |
| 84-86        | B            |  |
| 80-83        | B-           |  |
| 77-79        | C+           | Acceptable performance, demonstrating an adequate and satisfactory comprehension of the course material and the student has met the basic requirements for completing assignments and participating in class activities. |
| 70-76        | C            |  |
| 60-69        | D            | A marginal performance in the required exercises demonstrating a minimal passing level of attainment.  |
| 0-59         | F            | An unacceptable performance. The F grade indicates that the student's performance has revealed almost no understanding of the course content.  |

### Assessment Policy

| Assessment                          | Final Grade |
|-------------------------------------|-------------|
| Attendance                          | 10%         |
| Homework & Assignment               | 20%         |
| Mid-Term Examination                | 20%         |
| Group research project+presentation | 50%         |



## Course Schedule

| Date | Lecture   | Reading/Assignments/<br>Examination     |
|------|---|---|
| 1    | A Brief Overview of the Classical Linear Regression Model Section A&B;                | Chapter 3 p.147-p.208 of Brooks (2019)  |
| 2    | Further Development and Analysis of the Classical Linear Regression Model Section A&B | Chapter 4 p.209-p.253 of Brooks (2019)  |
| 3    | Classical Linear Regression Model Assumptions and Diagnostic Tests Section A&B        | Chapter 5 p.254-p.329 of Brooks 2019    |
| 4    | Univariate Time-Series Modelling and Forecasting Section, A&B                         | Chapter 6 p.330-p.386 of Brooks (2019)  |
| 5    | Multivariate Models   | Chapter 7 p.387-p.436 of Brooks (2019)  |
| 6    | VAR analysis  | Chapter 7 p.387-p.436 of Brooks (2019)  |
| 7    | Stationarity and Unit Root Testing  | Chapter 8 p.437-p.457 of Brooks (2019)  |
| 8    | Cointegration Testing   | Chapter 8 p.438-p.463 of Brooks (2019)  |
| 9    | Methods of Parameter Estimation in Cointegrated Systems                               | Chapter 8 p.464-p.480 of Brooks (2019)  |
| 10   | Modelling Volatility and Correlation  | Chapter 9 p.497-p.572 of Brooks (2019)  |
| 11   | ARCH & G-ARCH model in action   | Chapter 9 p.497-p.572 of Brooks (2019)  |
| 12   | Switching and State Space Models  | Chapter 10 p.573-p.590 of Brooks (2019) |
| 13   | Markov Switching Model & Threshold Model  | Chapter 10 p.591-p.599 of Brooks (2019) |
| 14   | Panel Data models   | Chapter 11 p.625-p.655 of Brooks (2019) |
| 15   | Presentation of Empirical Research Project  |   |

### Reading List:

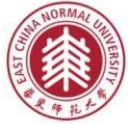
*Note: all article resources can be found through library system provided by your institution.*

#### Example article using time series analysis:

Chen, G. S., Yao, Y., & Malizard, J. (2017). Does foreign direct investment crowd in or crowd out private domestic investment in China? The effect of entry mode. *Economic Modelling*, 61, 409-419.

#### Example article using 2SLS:

Yao, Y., Chen, G. S., Salim, R., & Yu, X. (2018). Schooling returns for migrant workers in China: Estimations from the perspective of the institutional environment in a rural setting. *China Economic Review*, 51, 240-256.



**Example article with novel IV sets:**

Acemoglu, D., Johnson, S., & Robinson, J. A. (2001). The Colonial Origins of Comparative Development: An Empirical Investigation. *The American Economic Review*, 91(5), 1369-1401.

**Example article using panel dataset**

Yao, Y., & Salim, R. (2020). Crowds in or crowds out? The effect of foreign direct investment on domestic investment in Chinese cities. *Empirical Economics*, 58(5), 2129-2154.

Yao, Y., Ivanovski, K., Inekwe, J., & Smyth, R. (2019). Human capital and energy consumption: Evidence from OECD countries. *Energy Economics*, 84, 104534. doi.org/10.1016/j.eneco.2019.104534

**Example article using probit/logit model:**

Chen, Y., & Fang, H. (2021). The long-term consequences of China's "Later, Longer, Fewer" campaign in old age. *Journal of Development Economics*, 151, 102664. doi.org/10.1016/j.jdeveco.2021.102664

**Further Reading List:**

Wooldridge, J.M. (2012). *Introductory Econometrics: A Modern Approach*. 5th edition. South-Western Press: Mason, Ohio.

Online copy can be found at:

[https://economics.ut.ac.ir/documents/3030266/14100645/Jeffrey M. Wooldridge Introductory Econometrics A Modern Approach 2012.pdf](https://economics.ut.ac.ir/documents/3030266/14100645/Jeffrey_M._Wooldridge_Introductory_Econometrics_A_Modern_Approach_2012.pdf)

**Chapter 14** Advanced Panel Data Methods (pp.448-483)

**Chapter 15** Instrumental Variables Estimation and Two Stage Least Squares (pp.484-511)

**Chapter 16** Simultaneous Equations Models (pp.511-553)

**Chapter 17** Limited Dependent Variable Models and Sample Selection Corrections (pp. 583-631)

**Online resource:**

Dataset provided by the textbook:

<http://principlesofeconometrics.com/poe4/poe4.htm>

Text book:

<http://repositorii.urindo.ac.id/repository2/files/original/112377a4f88699ef6d0e6a0a9fc7150b2811c4f5.pdf>