北京大学 汇丰商学院
Peking University HSBC Business School

# ECON531/Fin511
# Advanced Econometrics II
# Module 3, 2017

## Course Information

***Instructor:***
Office: PHBS Building, Room
Phone: 86-755-2603- 7541
Email: qianchen@phbs.pku.edu.cn
Office Hour: Thur 2:00-3:00pm, 757, by appointment

***Teaching Assistant:***
Phone:
Email:

***Classes:***
Lectures: Tue & Fri 10:30pm-12:20pm
Venue: PHBS Building, Room 311

***Course Website:***
If any.

## 1. Course Description

### *1.1 Context*

Course overview:

Advanced Econometrics II specifically focuses on the topics of Forecasting for Economics and Business. The need to forecast or predict future values of economic time series arises frequently in many branches of applied economic and commercial work. It is a topic which lends itself naturally to econometric and statistical treatment. The time series is distinguished from other data because the order in which the sample is recorded is of relevance. As a result of this, a substantial body of statistical methodology has developed. This course provides an introduction to methods of time series analysis and forecasting. The material covered is primarily time domain methods designed for a single series and includes the building of linear time series models, the theory and practice of univariate forecasting and the use of regression methods for forecasting. Throughout the course a balance between theory and practical application is maintained.

**The lab sessions** are essential for learning and understanding the software SAS, and even Excel, and how these assist in providing and assessing forecasts from econometric and statistical models. These sessions require the use of a computer. Participation is strongly encouraged for the students to check their understanding of coding and syntax rules in SAS.

**Software**

The course involves a considerable amount of computing, and students are encouraged to use Excel, and/or SAS to solve some tasks in their assignments.

Prerequisites:

Mathematics (GEN500) or Business Mathematics (ECON500) & Advanced Econometrics I (ECON530)

### *1.2 Textbooks and Reading Materials*

***Forecasting, Time Series, and Regression***, 4th edition, 2005 by Bowerman, O'Connell, and Koehler. ISBN: 0-534-40977-6. Denoted ***BOK***.

***Forecasting: Methods and Applications***, 3rd Edition, 1998 by Makridakis, Wheelwright, and Hyndman, Wiley, ISBN 0-471-53233-9. Denoted ***MWH***.
www.PrinciplesofForecasting.com. Denoted ***PoF***
***Business Forecasting***, 9th edition, 2008 by Hanke and Wichern, ISBN 0-13-500933-2
Forecasting practice and Process for Demand Management, 2006 by Levenbach H. and Cleary, J. P., ISBN0-534-26268-6, Thomson.
***Applied Econometric Time Series***, by Walter Enders, 2nd Edition, Wiley 2004.
***Introduction to Time Series and Forecasting***, 2nd edition, 2002 by Brockwell, P. J., and Davis, R. A. Springer-Verlag: New York, ISBN 0-387-95351-5.

## 2. Learning Outcomes

### *2.1 Intended Learning Outcomes*

| Learning Goals | Objectives | Assessment |
|---|---|---|
| 1. Our graduates will be effective communicators. | 1.1. Our students will produce quality business and research-oriented documents. | Assignment, Mid-term exam, group assignment, final exam |
| | 1.2. Students are able to professionally present their ideas and also logically explain and defend their argument. | Assignment, Mid-term exam, group assignment, final exam |
| 2. Our graduates will be skilled in team work and leadership. | 2.1. Students will be able to lead and participate in group for projects, discussion, and presentation. | Group assignment |
| | 2.2. Students will be able to apply leadership theories and related skills. | |
| 3. Our graduates will be trained in ethics. | 3.1. In a case setting, students will use appropriate techniques to analyze business problems and identify the ethical aspects, provide a solution and defend it. | Assignment, Mid-term exam, group assignment, final exam |
| | 3.2. Our students will practice ethics in the duration of the program. | |
| 4. Our graduates will have a global perspective. | 4.1. Students will have an international exposure. | Assignment, Mid-term exam, group assignment, final exam |
| 5. Our graduates will be skilled in problem-solving and critical thinking. | 5.1. Our students will have a good understanding of fundamental theories in their fields. | Assignment, Mid-term exam, group assignment, final exam |
| | 5.2. Our students will be prepared to face problems in various business settings and find solutions. | Assignment, Mid-term exam, group assignment, final |

| | | |
|---|---|---|
| | | exam |
| | 5.3. Our students will demonstrate competency in critical thinking. | Assignment, Mid-term exam, group assignment, final exam |

### *2.2 Course specific objectives*

### *2.3 Assessment/Grading Details*

| **Assessment task** | **Weighting** |
|---|---|
| 1. Assignment 1& 2 | 30% |
| 2. Mid-term Test | 20% |
| 3. Group Project | 30% |
| 4. Lab Sessions | 20% |
| Total | 100% |

The assignments is individual written assignment. A hard copy is required, soft copy is optional.

Late submission of assignments will not be accepted and considered failure of the tasks. The final exam will cover all the topics in class.

### *2.4 Academic Honesty and Plagiarism*

It is important for a student's effort and credit to be recognized through class assessment. Credits earned for a student work due to efforts done by others are clearly unfair. Deliberate dishonesty is considered academic misconducts, which include plagiarism; cheating on assignments or examinations; engaging in unauthorized collaboration on academic work; taking, acquiring, or using test materials without faculty permission; submitting false or incomplete records of academic achievement; acting alone or in cooperation with another to falsify records or to obtain dishonestly grades, honors, awards, or professional endorsement; or altering, forging, or misusing a University academic record; or fabricating or falsifying of data, research procedures, or data analysis.

All assessments are subject to academic misconduct check. Misconduct check may include reproducing the assessment, providing a copy to another member of faculty, and/or communicate a copy of this assignment to the PHBS Discipline Committee. A suspected plagiarized document/assignment submitted to a plagiarism checking service may be kept in its database for future reference purpose.

Where violation is suspected, penalties will be implemented. The penalties for academic misconduct may include: deduction of honour points, a mark of zero on the assessment, a fail grade for the whole course, and reference of the matter to the Peking University Registrar.

For more information of plagiarism, please refer to *PHBS Student Handbook*.

## 3. Topics, Teaching and Assessment Schedule

| Week | Topic | Lectures | Text chapters | Assignment due date | Additional information |
|---|---|---|---|---|---|
| 1 | Introduction to forecasting | 1 Sept | BOK 1, MWH 1 | | |

| | | | | | |
|---|---|---|---|---|---|
| 2 | Time series data, components, Graphical summaries, forecast accuracy<br><br>Decomposition methods | 6 and<br>8 Sept | BOK 1, 2, 3<br>MWH 1,2<br><br>BOK 7 | | First Lab session |
| 3 | Review of regression model and Time series regression | 11th and 15th Sept | BOK 6 | | Lab |
| 4 | Exponential Smoothing methods | 18th and 22nd Sept | BOK 8 | Individual writing assignment due | Lab |
| 5 | Exponential Smoothing methods | 25th and 29th Sept | BOK 8 | | Lab |
| 6 | Box-Jenkins methods | 9th and 13th Oct | BOK 9 | Mid-term on 9th Oct | Lab |
| 7 | Box-Jenkins methods | 16th and 20th Oct | BOK 10 | | Lab |
| 8 | Seasonal Box-Jenkins | 23th and 27th Oct | BOK 11 | | Lab |
| 9 | ARIMA model Intervention modelling | 30th Oct and 2nd Nov | BOK 12, MWH 12 | Group Assignment due | |

## 4. Miscellaneous