

# Peking University HSBC Business School

## 2014 Fall Module 1

### Advanced Econometrics II

#### Instructor:

Qian Chen, Email: [qianchen@phbs.pku.edu.cn](mailto:qianchen@phbs.pku.edu.cn)

Office hours/place: Tue 2:00-3:00pm, 757

Meeting time/Venue: Tue & Fri 3:30pm-5:20pm, 403

Credits: 3

TA: TBD Email:

#### Course objectives:

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.

#### Supporting textbook:

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

#### Suggested Readings

*Forecasting: Methods and Applications*, 3rd Edition, 1998 by Makridakis, Wheelwright, and Hyndman, Wiley, ISBN 0-471-53233-9. Denoted **MWH**.

[www.PrinciplesofForecasting.com](http://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.

## **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.

## **Assessment**

<b>Assessment task</b>	<b>Weighting</b>
1. Assignment	15%
2. Mid-term Test	15%
3. Group Assignment	20%
4. Final Exam	50%
Total	100%

The first assignment is an individual written assignment, which will be due by the end of the fifth week. A hard copy is required, soft copy is optional.

The group assignment report will be due by the end of the last week of Module IV. A hard copy is required.

Late submission of assignments will not be accepted and considered failure of the tasks.

The final exam will cover all the topics in class.

## **Academic honesty:**

Academic dishonesty will not be tolerated in this class. Students are expected to abide by the code of academic honesty of PHBS. Failure to abide the code will be prosecuted through the University's judiciary system. Ignorance of the code is not a defense against a charge of dishonesty.

## Week-by-Week Topic Guide

Week	Topic	Lectures	Text chapters	Assignment due date	Additional information
1	Introduction to forecasting	2nd May	BOK 1, MWH 1		
2	Time series data, components, Graphical summaries, forecast accuracy  Decomposition methods	6th and 9th May	BOK 1, 2, 3 MWH 1,2  BOK 7		First Lab session 9th May
3	Review of regression model and Time series regression	13th and 16th May	BOK 6		Lab on 13th May
4	Exponential Smoothing methods	20th and 23rd May	BOK 8	Individual writing assignment due on 23rd May	Lab on 20th May
5	Exponential Smoothing methods	27th and 30th May	BOK 8		Lab on 30th May
6	Box-Jenkins methods	3rd and 6th June	BOK 9	Mid-term on 3rd June	Lab
7	Box-Jenkins method	10th and 13th June	BOK 10		Lab
8	Seasonal Box-Jenkins	17th and 20th June	BOK 11		Lab
9	ARIMA model Intervention modelling	24th and 26th June	BOK 12, MWH 12	Group Assignment due on 5 July	