PREDICTIVE ANALYSIS FOR DECISION MAKING

INTRODUCTION

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Predictive Analysis for Decision Making

Introducing the Module

ABOUT THE COURSE

- Focus: econometric modelling of financial issues using big data.

- Methods: statistical and mathematical, a bit of computing, research and analytical skills.

- Level of the course:
  - Advanced compared to Data Analytics
  - Mix of theory and applied
  - Introduces methods to complement those in other courses such as Artificial Intelligence and Big Data

AIMS AND OBJECTIVES

- Discuss the concept and methods of prediction analytics using the proper terminology.

- Identify and properly state research problems related to prediction analytics in different business settings.

- Critically discuss alternative prediction approaches and methods and choose the right prediction models for a prediction exercise, implement them, and prepare predictions.

- Formulate managerial guidelines and make recommendations.

- Use specialised software (Python/ R/ IBM SPSS and SPSS Modeller/ MATLAB/ EViews) to solve real world problems.

INDICATIVE CONTENT

- The following are the broader areas the module this years aims to cover

  - Predictive Modelling: conceptual framework and methodological issues.

  - Extending Linear Model (including endogeneity issue).

  - Time Series Models.

  Optional Topics
  - Generalised Linear Models (If time allows)
  - Introducing Text Analytics (If time allows).

TEACHING STRUCTURE AND ASSESSMENT

- Weekly onsite.

- Structure
  - Lecture: (from 1 hour to 2 hours, depending on the topic).
  - Seminar: alternate between theoretical and applied. Bring your laptops.

- Assessment
  - CW (2000 words): Due on 11/04/2024 at 1pm UK time. 40% of the final mark.
  - Empirical Report (3000 words): Mini project due on 09/05/2024 at 1pm UK time. 60% of the final mark.
  - Both are will be made available in due course.

READING AND KEY TEXT

- **Depends on the topic but some are often used:**
  - Efron, B., and Hastie, T. (2021). *Computer Age Statistical Inference*. Cambridge: Cambridge University Press.

  - Diebold, F. X. (2019). *Econometric Data Science: A predictive Modelling Approach*. Online Manuscript. Available at: https://www.sas.upenn.edu/~fdiebold/Teaching104/Econometrics.pdf

  - Bekes, G., and Kezdi, G. (2020). *Data Analysis for Business, Economics, and Policy*. Cambridge: Cambridge University Press.

  - Brooks, C. (2014) Introductory Econometrics for Finance, Cambridge University Press.

  - Zaki, M. J., and Meira, W. (2020). *Data Mining and Machine Learning*: *Fundamental Concepts and Algorithm*. Cambridge: Cambridge University Press.