Econ622 : Data visualisation

COURSE AIMS & OBJECTIVES, KEY SKILLS AND LEARNING OUTCOMES

Course Aims & Objectives: This course gives an introduction to data visualisation and PowerBI. The course highlights key aspects of data visualisation techniques and best practices. Further, it covers data import and preparation, creating visualisations, and publishing reports.

Key Skills: By the end of this course, students should have some knowledge and understanding of:

- Data Visualization Skills: Creating impactful visualisations for data science.
- Power BI Proficiency: Producing high-quality visualisations using Power BI.
- Effective Communication: Conveying insights through clear and engaging visual representation.
- Interactive Visualization: Creating interactive and compelling data visualisations.
- Practical Application: Applying visualisation skills to real-world data science projects.

Desired Outcomes: By the end of this course, students should be able to:

- Understand the basics of data visualisation and the role of PowerBI in the data visualisation process;
- Import and prepare data for visualisation using PowerBI;
- Create a variety of visualisations using PowerBI, including graphs, charts, maps, and dashboards;
- Publish and share PowerBI reports with others;
- Apply common data visualisation techniques and best practices to real-world data sets.

COURSE STRUCTURE

Econ 622 is a 10 credits course and therefore students are expected to input approximately 100 hours of study into the course. The total number of contact hours on Econ 622 is 15 hours. This leaves 85 hours for private study. Course Delivery comes in the

form of Lectures with 15 hours delivered over the first 3 weeks of the term (10 hours of lectures and 5 hours of tutorials). There will be optional clinics on the last day of the course.

During your private study you should strike a balance between reading the course material (which is the primary source of information) and the recommended textbooks, thinking critically about how these fit in to the body of knowledge on the subject and about how our level of knowledge can be improved, performing exercises, completing coursework and revising for examinations. You can expect to perform well on this course only if you work consistently through the year.

COURSE CONVENOR
Victor Levallois

LECTURERS CONTACT INFORMATION (Including Office Hours)
Victor Levallois   email: vlevallois@equancy.com

COURSEWORK ASSESSMENT
The CWA mark will be calculated as 100% coursework. The coursework will be assigned at the end of the course

The coursework will be delivered to students at the end of week 6 of each term and is due for submission at the end of week 10 of the term, allowing students 4 weeks for completion.

Coursework must be submitted electronically through the Moodle site for this course:

FEEDBACK ON COURSEWORK:
The coursework will be marked and returned to students within 4 weeks of the submission deadline. Feedback will consist of marker's notes appended to the pdf of your coursework.

MARKING CRITERIA AND PENALTIES
Marking criteria can be found in the Economics Undergraduate Handbook and the general course information paper. An electronic copy of this can be found via the Current Student page of the university website then follow the Academic Regulations link
https://gap.lancs.ac.uk/ASQ/QAE/MARP/Documents/UG-Assess-Regs.pdf

FINAL MARK INFORMATION
This course is assessed 100% by means of coursework. The final mark is the average of the marks obtained in the two pieces of coursework.

COURSE TEXT AND RECOMMENDED READING

Lecture notes and Lecture slides.

Fundamentals of Data Visualization: A Primer on Making Informative and Compelling Figures - Claus O. Wilke, O'Reilly Media, Inc.

Data Visualization: A Practical Introduction - Kieran Healy, Princeton University Press

Data Science and Big Data Analytics: Discovering, Analysing, Visualising and Presenting Data. Jan 2015 - John Wiley & Sons

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COURSE OUTLINE/LECTURE SCHEDULE

Introduction to Data Visualisation

- The basics of data visualisation.

  - Why data visualisation and why Business Intelligence;
  - What kind of visualisations for each situation.

Introduction to BI tools

- Global view of all BI tools, in order to better introduce Power BI;
- Quick history of Power BI and explanation of the Power BI way of working (relation between tables, DAX calculation, Data preparation within the tool);
- Installation and discovery of the interface.

Importing and Preparing Data

- Importing data into PowerBI (different source of data existing);
- Basic data preparation and cleaning with Power Query & DAX Calculation complementary to Power Query;
- Introducing fundamentals of industrialisation and automation of the database.

Data Modelling

- Implementing a star Modelling (relationship between fact and dimension tables);
- Add tables in the Model (Summarize function);
- Introducing to Time Intelligence DAX function.

Visualisations in Power BI

- Creating visualisations in Power BI and DAX measures;
- Graphs, charts, maps, and dashboards;
- Formatting and customising visualisations and Dashboard navigation.

Publishing and Sharing PowerBI Reports

- Publishing and sharing reports;
- Collaborating on PowerBI reports;
- Applying security to the model .

Effective data visualisation techniques

- Best practices for designing and creating quality dashboards;
- Examples of good and bad data visualisations.