

MODULE SPECIFICATION • ELECTIVE

Data Visualisation

The purpose of this course is to provide 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.

10 CREDITS	15h CONTACT HOURS	85h PRIVATE STUDY	100h TOTAL STUDY
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COURSE CONVENOR

NAME Victor Levallois

OFFICE By appointment — please email to arrange a convenient time

COURSE STRUCTURE

Econ 622 is a 10-credit course and students are expected to input approximately 100 hours of study. The total number of contact hours is 15 hours, leaving 85 hours for private study. Delivery is by lectures — 15 hours across the first three weeks of term, comprising 10 hours of lectures and 5 hours of tutorials. Optional clinics run on the last day of the course.

During private study, balance the course material (the primary source) against the recommended textbooks: think critically about how these fit into the body of knowledge, perform the exercises, complete coursework and revise. You can expect to perform well only by working consistently through the year.

MODULE PROGRAMME

LECT.	TOPIC	SESSION CONTENT
01	Introduction to Data Visualisation	— The basics of data visualisation — Why data visualisation and why Business Intelligence — What kind of visualisations for each situation
02	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 (relations between tables, DAX calculation, data preparation within the tool) — Installation and discovery of the interface
03	Importing and Preparing	— Importing data into PowerBI (different sources of data existing) — Basic data preparation and cleaning with Power Query and DAX calculation complementary to Power Query — Introducing fundamentals of industrialisation and automation of the database
04	Data Modelling	— Implementing a star modelling (relationship between fact and dimension tables) — Add tables in the model (Summarize function) — Introducing Time Intelligence DAX functions
05	Visualisations in Power BI	— Creating visualisations in Power BI and DAX measures — Graphs, charts, maps and dashboards — Formatting and customising visualisations, and dashboard navigation
06	Publishing and Sharing PowerBI Reports	— Publishing and sharing reports — Collaborating on PowerBI reports — Applying security to the model
07	Effective data visualisation techniques	— Best practices for designing and creating quality dashboards — Examples of good and bad data visualisations

KEY SKILLS

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

- **Data visualisation 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 visualisation.** 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

ASSESSMENT

WEIGHTING	100% coursework
ISSUED	End of week 6
DUE	End of week 10 — four weeks for completion
SUBMISSION	Electronically via the Moodle site for this course
FEEDBACK	Returned within 4 weeks of the deadline, as marker's notes appended to the PDF of your coursework

Marking criteria and penalties are set out in the Economics Undergraduate Handbook and the general course information paper, available via the Current Student page of the university website under Academic Regulations.

COURSE TEXT & RECOMMENDED READING

Lecture slides are made available on the course web pages, together with additional material and course announcements.

- Wilke, C. O. Fundamentals of Data Visualization: A Primer on Making Informative and Compelling Figures. O'Reilly Media
- Healy, K. Data Visualization: A Practical Introduction. Princeton University Press
- Data Science and Big Data Analytics: Discovering, Analysing, Visualising and Presenting Data (2015). John Wiley & Sons