

Data Visualization

Get acquainted with state-of-the-art
tools and techniques

5, 12 & 19 November 2024, from 12h until 19h
KU Leuven - Bruges

Get acquainted with state-of-the-art tools and techniques for data visualization

Learn the fundamentals and get hands-on experience with data visualization, including:

- how to make useful visualizations and dashboards of data,
- how to help yourself and others to understand and analyse that data,
- how to use state-of-the-art tools and techniques

Target audience

The intended audience consists of professionals, engineers, and researchers that want to learn the fundamentals and get hands-on experience with

- how to make useful visualizations and dashboards of data,
- how to help yourself and others to understand and analyse that data,
- how to use state-of-the-art tools and techniques.

To follow the course, you will need to bring a laptop. The course requires familiarity with programming (Python). Exercises will be hosted through Google Colab, for which you need a Google account. For Module 2 it is recommended to install Tableau Public on your laptop. Datasets will be provided.

Programme

Module 1: Data storytelling

Tuesday 5 November 2024

By Quinten Rosseel & Michael Schwaenen

• Interactive Theory & Practice

- Exploratory Data Analytics (EDA) with Python/Pandas/Spark and/or Spark SQL
 - Data tools, technologies, industry best practices for data processing
 - Data processing on a realistic & representative dataset
 - Handling missing observations & data imputation
 - Handling outliers & anomalies
 - Generative AI as an aid during this process
- Basics of Data Storytelling
 - Overview of tools like matplotlib, Seaborn, plotly
 - Selecting the right visualization & structure
 - Gestalt Principles
 - Reporting DOs and DON'Ts

• Creating Your Own Data Story

- Brainstorming about storyline & your own approach
- Creating visuals & storyline
- Presenting your data story
- Feedback from colleagues

Module 2: Data visualization, tools & libraries

Tuesday 12 November 2024

By Katrien Verbert & Aditya Bhattacharya

In these workshop sessions, you will get an introduction to data visualization for data science, analysis, and storytelling. You will get hands-on experience working with popular Python libraries and standard tools on multiple datasets.

The module is divided into the following five segments:

- Introduction to fundamentals of Data Visualization
- Introduction to Data Visualization using Matplotlib, Pandas, and NumPy in Python
- Advanced Data Visualization using Seaborn in Python
- Interactive Data Visualization using Plotly in Python
- Introduction to Data Reporting using Tableau

As a key takeaway from these sessions, along with the theoretical knowledge of data visualization, you will develop hands-on skills working with practical datasets. The code and the datasets will be provided to you and we will use Google Colab to practice the exercises from the first three segments. For the last segment, we recommend you install Tableau Public.

Module 3: Dashboards and structured data

Tuesday 19 November 2024

By Jeffrey Lijffijt

Part 1: Dashboards & linked visualizations

This session gives a hands-on introduction to dashboards and linked graphics, using Plotly Dash:

- Page layout, dash components, custom components
- Recap interactive plots
- Input, output, callbacks
 - Make components respond to each other
- Examples
- Integration of server-side computations and algorithms
- Deployment

Part 2: Interactive graphics to explore complex data

This session covers creating visualizations of structured and complex data, and the integration of these into dashboards:

- Visualization of (large) time series and collections of time series
- (Choropleth) Maps and their complexities, terrain visualization, Sankey diagram/flow map
- Visualization using constructed axes: dimensionality reduction/representation learning, visualization of graphs/networks (layout algorithms, chord diagram), image databases



Practical

Dates and location

The training is held at KU Leuven - Bruges (Spoorwegstraat 12, 8200 Brugge) on these dates:

- 5 November 2024, from 12h until 19h
- 12 November 2024, from 12h until 19h
- 19 November 2024, from 12h until 19h

Registration

- Register online before 29 October 2024. Because of the hands-on character of the training, the number of participants is limited to 15.
- The fee for the series is 1200 euros. For the second participant of the same organisation, a discount of 20% is applied.
- After registration, you will automatically receive the invoice for your participation.

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- Save on your participation costs via the kmo-portfolio.
- Click here for more information. Our approval number is DV.O102270. When submitting your application, you choose the theme Innovation and the Artificial Intelligence advice and reference 400/0026/22473



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KU Leuven Kulak
E. Sabbelaan 53 bus 7643 - 8500 Kortrijk
+32 56 24 61 84 - puc@kuleuven.be
puc.kuleuven.be

Door mij in te schrijven, verklaar ik mij ermee akkoord dat de gegevens die ik verstrek gebruikt worden om mij te contacteren in de context van deze opleiding en voor alle nuttige opvolging ervan.