Introduction to Data Science with Python

JAN BISCHOFF
DATA SCIENCE & VISUALIZATION

Objective

Data analysis plays a critical role in many academic disciplines, and the Python programming language has become one of the standard tools within the Data Science community. However, the first steps in coding can be intimidating and discouraging—especially if you have never worked with a programming language before. This course will introduce programming with Python and how to use it for data analysis.

After successfully completing this course, you will be able to understand the fundamentals of the Python programming language. This skill set includes basic data analysis by data wrangling, visualizing data, and applying simple statistical models in Python. Our goal is to show you the scope of possibilities within Python and leave you with the impression that you can confidently implement your own empirical projects in Python.

Description

This course aims at beginners. Hence, we will cover Python's programming fundamentals, such as variables, loops, and logic statements, before we dive into Data Science.

You will learn:

- Syntax and basics of Python and how to use Jupyter Notebooks as a coding environment
- Data analysis, data wrangling, and data visualization using numpy, pandas and matplotlib
- Introduction on how to use simple statistical models in Python with scikit-learn

This course will not cover deeper statistical or theoretical concepts as we focus on applied coding.

Methods

- The course will alternate between short introductions to concepts or methods and small do-it-yourself coding exercises.
- In between the three sessions, you are encouraged to work on provided exercises that further deepen your understanding.

Conditions

- **No prior coding experience is needed.** If you already did some programming, keep in mind that this course's beginning could be redundant for you as we aim at programming beginners.
- **A Google Account** to work with Google Colab as a simple and ready-to-go development environment. Alternative: a locally installed Jupyter Notebook environment. Due to time constraints, we will not go through the installation and setup, so we highly encourage using Google Colab.
- **Please bring your own laptop** to code along during the application exercises.