JUSTUS-LIEBIG-UNIVERSITÄT GIESSEN

GGS Gießener Graduiertenzentrum Sozial-, Wirtschafts- und Rechtswissenschaften

Workshop

Introduction to Python (for Data Preparation)

Organisational details

Instructor:	Dr Tobias Keller
Date:	August 18, 2025, 9.00 am – 5.00 pm
Venue:	Room 001, Licher Str. 68, 35394 Giessen.
ECTS:	1
Max. participants:	10

Objectives

Python is a versatile and widely-used programming language known for its simplicity. From data analysis and machine learning to web development and automation, Python's applications are vast and diverse. Throughout this one-day course, participants gain foundational knowledge and skills necessary to begin their journey in Python programming.

While this course serves as a standalone introduction to Python, its primary purpose lies in preparing individuals for the subsequent "Data Preparation with Python" course. It is also an ideal complement for those taking the course "Machine Learning with Python".

Content and methods

The course covers the following topics:

- Python as a calculator
- Numeric data types (integers and floating-point numbers)
- String manipulation and string formatting
- Utilizing methods and method chaining
- Working with boolean data types and boolean operators
- Lists and their functionality
- Dictionaries and their usage
- Conditional statements with if statements
- Loop structures
- List comprehensions for concise data manipulation
- The creation and use of functions
- Understanding and implementing lambda functions
- Using modules and packages

Hands-on tutorials and exercises will make up about 90 per cent of the course time. Participants will complete those using their own computers. Please see the preparation requirements below for a list of software that needs to be installed to that end. The exercises will be based on exemplary datasets that will be provided to the participants before the course.

To gain the ECTS credit points participants have to:

- Follow the installation instructions provided in time before the course,
- Download and extract the course material and exemplary datasets that will be provided in time before the course,
- Actively participate during the workshop.

Target group

Doctoral candidates or postdoctoral researchers doing empirical research or intending to work as data scientists.

Course language

English (German, if only German participants)

Please note: As this is not an English language course proficiency in English at the C1 level of competency is required.

About the Instructor

Dr Tobias Keller has been working as data scientist at ZERO.ONE.DATA, the big data startup of Deutsche Bahn AG since 2016. He consults on and applies machine learning and statistics for artificial intelligence systems in a big data environment. Furthermore, he teaches data science at Deutsche Bahn, in the doctoral education programmes at Justus Liebig University Giessen, and in the doctoral programme and master programme at WHU – Otto Beisheim School of Management. His research interests include machine learning and artificial intelligence, finance and accounting, strategic management.

Registration

By August 4, 2025 via e-mail at info@ggs.uni-giessen.de.