

## Data Science: Programming with Python (S17) 3 – 7 July 2023

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Saturday and Sunday		
Time	Activity	Description
12.00-18.00	Key pick up	You will find the exact key pick up location in the pre-departure information, which becomes available after you have paid the course fee.

Please note that on all days, both during the morning and afternoon session, a short break is scheduled. Coffee, tea and lunch will be provided.

Day	Time	Type	Description	Location
Monday	09:00 -10:30	Lecture + exercise session 1	<b>Introduction to the course (30 min)</b>  <b>Unit 1.1 (first part): Getting started with Python: The programming environment, editing and running Python programs, "Hello World!", simple output, sequential execution, comments, literal constants, strings, numbers</b>	<a href="#">Sjoerd Groenman building</a> Room C028
	10:45-12:15	Lecture + exercise session 2	<b>Unit 1.2 (rest): arithmetic expressions, variables, formatted output, interactive input exercises</b>	
	12:15 – 13:45	Lunch	In <a href="#">Educatorium</a>	
	13:45 – 15:15	Lecture + exercise session 3	<b>Unit 1.3: conditional branching, exercises</b>	
	15:30-17:00	Lecture + exercise session 4	<b>Unit 1.4: loops (while- and for-loops), exercises</b>	
Tuesday	09:00 -10:30	Lecture + exercise session 1	<b>Unit 2.1: Functions and modules, the Python standard library, the Python Package Index (PyPI), exercises</b>	<a href="#">Sjoerd Groenman building</a> Room C028
	10:45-12:15	Lecture + exercise session 2	<b>Unit 2.2: Data Structures (Lists, Tuples), exercises</b>	
	12:15 – 13:45	Lunch	In <a href="#">Educatorium</a>	
	13:45 – 15:15	Group assignment	Group project (selection of dataset, formulation of research questions, find Python packages)	
	15:30-17:00	Lecture + exercise session 3	<b>Unit 2.3: Data Structures (Dictionaries and Sets), exercises</b>	

For information about the (online) Social Programme, please have a look at the [Utrecht Summer School website!](#)

Wednesday	09:00 -10:30	Lecture + exercise session 1	<b>Unit 3.1: Object-Oriented Programming (functions vs methods-objects)</b>	<a href="#">Sjoerd Groenman building</a> Room C028
	10:45-12:15	Lecture + exercise session 2	<b>Unit 3.2: What is a CSV file, Using pandas data frames for working with tabular data.</b>	
	12:15 – 13:45	Lunch	In <a href="#">Educatorium</a>	
	13:45 – 15:15	Lecture + exercise session 3	<b>Unit 3.3: Join two dataframes, group by and correlations of variables</b>	
	15:30 – 17:00	Group assignment	Work on group project (start coding, read your file/files, implement functions)	
Thursday	09:00 -10:30	Lecture + exercise session 1	<b>Unit 4.1: Data visualization with matplotlib</b>	<a href="#">Sjoerd Groenman building</a> Room C028
	10:45-12:15	Lecture + exercise session 2	<b>Unit 4.2: Working with date and time</b>	
	12:15 – 13:45	Lunch	In <a href="#">Educatorium</a>	
	13:45 – 15:15	Group assignment	Work on group project (further analysis, produce plots, results)	
	15:30 – 17:00	Lecture + exercise session 3	<b>Unit 4.3: Matrix computations with the numpy package</b>	
Friday	09:00 -10:30	Group assignment	Work on group project (finish last details on the project and presentation)	<a href="#">Sjoerd Groenman building</a> Room C028
	10:45-12:15	Group presentations	<b>Group project presentations (10 min each)</b>	
	12:15 – 13:45	Lunch	In <a href="#">Educatorium</a>	
	13:45 – 15:15	Group presentations	<b>Group project presentations (10 min each)</b>	
	15:30 – 17:00		Lecture on additional topics (Software engineering practices, licences, git), discussion	

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