Data Science: Programming with Python (Course code)
18.7.2022-22.7.2022

Course Director: dr. Anastasia Giachanou
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Saturday and Sunday (16 and 17 July)		
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	**Introduction to the course (30 min)** **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**	tba
	11:00-12:30	Lecture + exercise session 2	**Unit 1.1 (rest): arithmetic expressions, variables, formatted output, interactive input,** **exercises**	
	12:30 – 13:30	Lunch		
	13:30 – 15:00	Group assignment	Start of group project. Selection of dataset. Formulation of research questions. Description of possible analysis methods.	tba
	15:00-17:00	Lecture + exercise session 3	**Unit 1.2: conditional branching,** **exercises**	
Tuesday	09:00 -10:30	Lecture + exercise session 1	**Unit 2.1: loops (while- and for-loops),** **exercises**	tba
	11:00-12:30	Lecture + exercise session 2	**Unit 2.2: Functions and modules, the Python standard library, the Python Package Index (PyPI), exercises**	
	12:30 – 13:30	Lunch		
	13:30 – 15:00	Group assignment	Work on group project	tba
	15:00-17:00	Lecture + exercise session 3	**Unit 2.3: Data Structures (Lists, Tuples, Dictionaries and Sets),** **exercises**	

**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	**Unit 3.1: File Input/Output, especially CSV files, Using pandas data frames for working with tabular data.**	tba
	11:00-12:30	Lecture + exercise session 2	**Unit 3.2: Introduction to Pandas and descriptive analysis**	
	12:30 – 13:30	Lunch		
	13:30 – 15:00	Lecture + exercise	Work on group project (import the dataset, make an initial analysis of the variables)	
	15:00-17:00	Group assignment	**Unit 3.3: Join two dataframes, group by and correlations of variables**	
Thursday	09:00 -10:30	Lecture + exercise session 1	**Unit 4.1: Data visualization with matplotlib**	tba
	11:00-12:30	Lecture + exercise session 2	**Unit 4.2: Working with date and time**	
	12:30 – 13:30	Lunch		
	13:30 – 15:00	Lecture + exercise	Work on group project (further analysis, produce plots, results)	
	15:00-17:00	Group assignment	**Unit 4.3: Matrix computations with the numpy package**	
Friday	09:00 -10:30	Group assignment	Work on group project (finish last details on the project and presentation)	tba
	11:00-12:30	Group presentations	**Group project presentations (10 min each)**	
	12:30 – 13:30	Lunch		
	13:30 – 17:00	Lecture	**Lecture(s) on additional topics (TBD), discussion**	
	17:00		End of course	

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