UNIVERSITÄT MANNHEIM

September 2024

Introduction

Python Course 2024

STADS | Students' Association for Data Analytics & Statistics

Organization

- About me & you
- Motivation
- Course Structure
- Website, GitHub, w3schools
- Plan for Today

About me

About me

Moritz Grävinghoff
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- *Master Business Informatics*
- *Interests: Machine Learning, Computer Vision, NLP*
- *Learned Python by myself during bachelor thesis*

Bachelor vs. Master?

Study Program?

Programming Experience?

Certificate vs. Schlüsselqualifikation?

About you

Motivation

What is Python?

- Popular programming language
- Created by Guido van Rossum, and released in 1991
- Used a lot for mathematics & data science
- Can also be used for web and software development

Why Python?

- Can handle big data and perform complex mathematics

- Simple syntax similar to English language (readability)
  - New lines instead of semicolons
  - Indentation instead of parentheses

```c
for (int i = 0; i < 100; i++) {
    printf("%i\n", i);
}
```

```python
for i in range(100):
    print(i)
```

Course Structure

What? When? Where?

- *Dates*
  - 8 Course Sessions: 24.09.-12.11., 19:00-20:30
  - Q&A Session: 19.11. , 19:00-20:30
  - Exam: 26.11.

- *Hybrid (SN 163, Zoom)*

Course Outline

1	*Python Basics*	Syntax, Variables, Data Types, Input/Output
2		Booleans, Operators, Data Structures
3		Conditions, Loops, Functions, Classes
4	*Data Analysis*	Dimensions
5		↗ Scientific Computation (*numpy*)
6		↗ Data Analysis (*pandas*)
7		↗ Visualization (*matplotlib*, *plotly*)
8		

Course Structure

Introduction

- Python Tutorial
- w3schools
- Work on your own
- Finished after 3 weeks

Hands-on

- Coding projects
- Mostly Data Analysis
- Apply/Combine material
- Will get more and larger

Exam

- *Date:* 26.11.

  Duration: 45min

- *Programming Exam*
  - Prepare and use own device
  - Open book: Documentations, Google, ChatGPT, ...

Exam

Certificate

- For all
- At-home exam
- Send/Receive per email
- Separate registration

Schlüsselqualifikation

- B.Sc. WiMa
- Bring-your-laptop exam
- PrüfungsILIAS
- Enroll in ILIAS!

Tools

Recommended

- Miniconda
- Visual Studio Code
- git
- GitHub
- GitHub Desktop

Auxiliary

- Documentations
- Cheatsheets
- Stack Overflow

- ChatGPT
- GitHub Copilot

Website, GitHub, w3schools

Plan for today

Plan for today

- w3schools Tutorial — 50min

  Syntax, Comments, Variables, Data Types, Numbers, Casting, Strings, User Input

- Project 1: Band Name Generator — 10min

Registration

Website

GitHub