Certification Course: Practical Python Applications

Summary

- ✓ Course dates: 14.02.2025 – 07.03.2025
- ✓ Course duration: 3 weeks
- ✓ Language: English
- ✓ Location: Online
- ✓ Certificate: TU Berlin Certificate of Professional Education
- ✓ Format: Online
- ✓ Lecturer: Dongrui Jiang
- ✓ Price: 3898,50 €

Course overview

This course is tailored for individuals who have a basic understanding of Python but struggle to connect it with their work or projects. It's designed to bridge that gap, equipping participants with the skills to apply Python in solving real-world challenges. The course goes beyond theory, offering a deep dive into essential techniques for data collection, processing, and visualization. Participants will learn how to use Python to scrape data from the web, process complex datasets - including geo-data and time-series - and visualize this data in a meaningful way.

By the end of the course, participants will be able to create interactive dashboards that not only display their visualizations but also connect to databases for real-time data updates. This hands-on experience will enable learners to turn raw data into actionable insights that can drive decisions and impact their field. Whether you're looking to integrate Python more effectively into your work or seeking to advance your data skills, this course provides a practical, step-by-step approach to mastering data collection, processing, and visualization with Python. The course culminates in a final project that incorporates all the skills and knowledge gained throughout the course.

Course content

1. Python Programming Review

   - ✓ Rapid review of fundamental Python concepts
   - ✓ Hands-on exercises with advanced data types for real-world scenarios

2. Web Scraping

   - ✓ Introduction to web scraping: concepts, ethics, HTTP, and HTML basics
   - ✓ Static scraping using Requests and BeautifulSoup
   - ✓ Dynamic scraping using Selenium for interacting with dynamic pages

- ✓ Data storage and processing techniques for scraped data
- ✓ Hands-on practice with static and dynamic website scraping

3. Data Processing

- ✓ Handling time series data with Pandas
- ✓ Processing geo-referenced data using GeoPandas
- ✓ Pandas vs. Excel: Comparative analysis for practical applications
- ✓ Real-world data manipulation with Pandas
- ✓ Hands-on practice with time series and geo-data

4. Database Integration

- ✓ Overview of database types and structures
- ✓ Interacting with SQL databases using Python
- ✓ Working with NoSQL databases like MongoDB
- ✓ Hands-on practice integrating scraped data into databases

5. Building Interactive Dashboards

- ✓ Fundamentals of creating interactive dashboards
- ✓ Introduction to Docker for dashboard deployment and scalability
- ✓ Hands-on practice building and deploying a dashboard using Docker

Dates

Course schedule:

- ✓ Virtual classroom session on February 14, 2025 from 15:00 - 21:00 (CET)
- ✓ Self-Study from February 15 -21, 2025 (20-30 hours) including 6 hours of open consultation in a group or individually
- ✓ Virtual classroom session on February 22, 2025 from 09:00 - 17:00 (CET)
- ✓ Self-Study from February 23, 2025 – March, 06, 2025 (20-30 hours) including 10 hours of open consultation in a group or individually
- ✓ Virtual classroom session on March 07, 2025 from 09:00 - 17:00 (CET) incl. final project presentation and results

Following the conclusion of the first two virtual classroom sessions, participants will undertake a period of a self-study of 20-30 hours, e.g. with homework and exercises. This independent study phase will be accompanied by the lecturer, up to the date of the final virtual classroom session. The lecturer will support participants for approx. 8 hours online, in the form of an open consultation, a small group workshop (or similar), by arrangement.

Booking and contact

Register here: https://www.academy-tu.berlin/en/courses/short-courses

Should you have any questions, please contact the TU Berlin Academy Team at: +49 30 4472 0232
or via email: info@academy-tu.berlin. We hope to see you in Berlin - or online - very soon!