

Certification Course: Introduction to statistics and programming for data science

Summary

- ✓ Course dates: October 04, 2024 - November 15, 2024
- ✓ Course duration: 6 weeks
- ✓ Language: English
- ✓ Location: Online
- ✓ Certificate: TU Berlin Certificate of Professional Education (6 ECTS)
- ✓ Format: Online
- ✓ Lecturer: Prof. Dr. Rand Kouatly
- ✓ Price: 3980 €

Course overview

The certificate course provides intensive instruction in the fundamentals of statistics and programming for data science. It covers the basics of descriptive and inferential statistics as well as the fundamentals of programming for data analysis. Participants learn how to use the R/Python language to analyse data and create data visualizations.

Course content

Week 1: Preparation for the course - Software Installation

- ✓ What are R and RStudio?/ What are Python and Jupyter (Notebook)?
- ✓ Installing R and RStudio / Python and Jupyter (Notebook)? on your personal computer
- ✓ Errors, warnings and messages
- ✓ Tips on learning to code
- ✓ Package installation
- ✓ Package loading
- ✓ Testing and Hello World Program

Week 2: Introduction to Programming

- ✓ Topic 1: Data Types
- ✓ Topic 2: Basics Operations
- ✓ Topic 3: Data Structure
- ✓ Programming practice 1

Week 3: Overview of Statistics in Programming

- ✓ Topic 4: Types of Data
- ✓ Topic 5: Exploratory Data Analysis
- ✓ Topic 6: Statistics Analytics using Excel
- ✓ Programming practice 2

Week 4: Data Manipulation and Cleaning

- ✓ Topic 7: Data Frame operations
- ✓ Topic 8: Input and Output using R/Python
- ✓ Topic 9: Data Reshaping
- ✓ Programming practice 3

Week 5: Data Exploration and Visualization

- ✓ Topic 10: Missing data handling
- ✓ Topic 11: Exploring and visualizing techniques
- ✓ Topic 12: Visualizing data using R/Python
- ✓ Programming practice 4

Week 6: Capstone Project

- ✓ Applying the skills and knowledge learned throughout the course to a real-world data analytics project using R/Python
- ✓ Exam Project Requirement and specification
- ✓ 4 hours open consultation (Groups) – Online only

Dates

The certificate course starts with a self-study from October 04 – 10, 2024 which serves as preparation for the course. Thereafter, there is an intensive alternation between virtual classroom sessions, self-study and online support.

Course schedule:

- ✓ Self-study October 04 – 10, 2024 (10 hours)
- ✓ Virtual classroom sessions from 15:00 - 21:00 (CET): October 11, 2024; October 18, 2024; October 25, 2024
- ✓ Self-study October 26 - 31, 2024 (18 hours) including 4 hours of open consultation in a group or individually
- ✓ Virtual classroom session November 1, 2024 from 15:00 - 21:00 (CET)
- ✓ Self-study November 02 - 07, 2024 (18 hours) including 4 hours of open consultation in a group or individually
- ✓ Virtual classroom preparation for the exam November 08, 2024 (2 hours)
- ✓ Self-study November 09 - 14, 2024 (18 hours) including 2 hours of open office hours in groups
- ✓ Virtual classroom exam presentation November 15, 2024 from 15:00 - 17:00 (CET)

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!