ACADEMY
TU BERLIN

2 DAYS, 09:00-16:00 · IN PERSON · GERMAN

Data Insights Practical Training: Web-Scraping, Statistics & AI

Web scraping, statistics, and machine learning for data analysis. For professionals and executives who translate data into actionable recommendations.

COURSE DATE	PRICE	ENROLLMENT DEADLINE
2027-02-11–2027-02-12	€1,190 VAT-exempt	2027-01-11

FORMAT	In person	LANGUAGE	German
DURATION	2 days, 09:00-16:00	LOCATION	Berlin · EUREF-Campus, 10829 Berlin-Charlottenburg | Access via Torgauer Straße, house 9, seminar room 2
CERTIFICATE	Certificate of Participation		

EDUCATIONAL LEAVE BEGINNERS

Course Overview

In today's business world, data literacy is far more than just a technical skill—it is the foundation for strategic competitive advantages. This two-day workshop guides you through the entire process of modern data analysis, from the automated collection of market information to the accurate forecasting of business trends.

What you will do differently afterwards

- With the R analysis software, you can go beyond the limitations of traditional spreadsheets
- You can mathematically identify the interactions between complex success drivers with precision
- Using predictive models, you can identify future trends early on
- You can translate complex analysis results into clear, decision-oriented graphics

Course Content

DATA COLLECTION & CAUSAL ANALYSIS

Day 1

On the first day, you'll learn how to use web scraping to gather external competitive data and, through professional experimental designs (e.g., A/B tests), demonstrate robust causal relationships rather than mere correlations. By working with the R analysis software, you'll move beyond the limitations of traditional spreadsheets and use advanced regression models to precisely identify complex success drivers and their interactions (interaction effects).

Web Scraping

- Introduction & How It Works
- Legal & Ethical Framework
- Tools & Methods
- Practical Workflow

Experiment Design and Implementation

- Causality
- Laboratory, Online, and Field Experiments
- Paradigms of Experimental Economic Research
- Treatment Design
- Practical Workflow

Data Processing in R

- Data Formats and Transformations
- R vs. Excel
- Plotting and Understanding Data
- Standard Errors and Confidence Intervals

Regression Analysis and Interaction Effects

- Linear Regression
- Measures of Quality
- Interaction Effects
- Spline Regression
- Practical Implementation in R

STRUCTURAL ANALYSIS & PREDICTIVE MODELING

Day 2

On the second day, you'll expand your analytical repertoire with innovative approaches to network analysis and machine learning. You'll learn how to uncover hidden patterns in customer or supplier data and use predictive models to identify future trends early on. The course concludes with data visualization, where you'll learn to translate complex analytical results into clear, decision-oriented graphics. The goal of the course is to equip you with the methodological tools to not only manage data but also transform it into concrete recommendations for action for your company.

Network Analysis

- Introduction and Formal Foundations
- Centrality Measures
- Clustering, Homophily
- Small World Networks
- Link Prediction
- Practical Implementation in R

Machine Learning 101

- Paradigm Shift: ML vs. Statistics
- Bias & Variance
- Neural Networks
- Generative AI and Agents
- Causal Inference and Machine Learning

Data Visualization

- Examples (Dos and Don'ts)
- Chart Types and Applications
- Visual Characteristics
- Color and Typography
- Practical Implementation in R

Learning Goals

- You will develop the ability to automatically extract market data using web scraping and to utilize this data—while adhering to legal requirements—as a valid information base for strategic analyses.
- You will learn how to methodically plan experiments and A/B tests to precisely distinguish causal drivers of success from random correlations and to support business decisions with evidence-based insights.
- You will master advanced regression analysis in R to isolate complex interactions between influencing factors and create robust forecasting models for business metrics.
- You will understand how network analysis and machine learning methods work in order to identify hidden structures in data and objectively evaluate the potential applications of modern AI systems.

- You will develop the ability to translate analytical results into meaningful visualizations through professional information design, thereby supporting the translation of data into well-informed management decisions.

Participation & Requirements

TARGET GROUP	This course is designed for professionals and executives who take an analytical approach to their work and operate at the intersection of operational implementation and strategic decision-making.
PRIOR KNOWLEDGE	Confidence in working with numbers. Practical experience in processing and analyzing data (for example, through extensive use of Excel).
TECHNICAL REQUIREMENTS	A personal laptop with administrative privileges to install R and RStudio is absolutely required for the hands-on exercises.
CERTIFICATE DETAILS	Upon successful completion, you will receive a certificate of participation from the TU Berlin Academy. This course is recognized in accordance with Section 10(5) of the Berlin Educational Leave Act (BiZeitG).

Instructors

Prof. Dr. Timm Teubner

Prof. Dr. Timm Teubner conducts research and teaches at the Technical University of Berlin and at the Einstein Center Digital Future (ECDF). His interdisciplinary work focuses on the question of how trust is established in the digital space—analyzed from economic, technical, and sociological perspectives.

His areas of expertise include:

- Online platforms and multi-sided markets
- Reputation systems and user behavior
- Internet auctions and cybersecurity
- The sharing economy and crowd-based models

His findings are reflected in numerous international journals and conference proceedings and find practical application on platforms ranging from Airbnb to BlaBlaCar to Zalando.

Teubner studied industrial engineering at the Karlsruhe Institute of Technology (KIT), including a year abroad at the University of Massachusetts (UMass). He earned his Ph.D. at KIT and subsequently worked as a postdoc. He finds new balance and inspiration for his academic work through playing the piano and running (ultra)marathons.

QUESTIONS ABOUT THIS COURSE?

Register Now

https://academy-tu.berlin/en/courses/short/data-science/data-insights-praxis-training
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Course is recognized as educational leave in Berlin
No prior IT knowledge required

QR code to the course page

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