SPICED

Program Curriculum

Data Science & AI

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Spiced gave me exactly what I hoped to get: the confidence to enter the thrilling field of Data Science.

Benedikt, Data Science Graduate

Hallo! 👋

Everyone has to start somewhere.

For us, it started in Berlin with a simple idea. To propel highly motivated people into the careers they want, through expert-led and meticulously curated tech courses.

We don't just teach the latest technologies, though.

Spiced is an attitude. It's a community and a melting pot. It's a place where you can meet and connect with people that could change the trajectory of your life. Those who help you develop professionally and personally. From your cohort and beyond.

It takes guts to do what you're doing. No-one's born a genius - it's going to take hard work and dedication to get where you're going.

We're here with you, every step of the way 🚀

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See yourself as a Data Scientist? So do we.

From getting to grips with Python to getting deep with Deep Learning, our Data Science course will get you thinking and building beyond your comfort zone.

You'll quickly move from aspiring data scientist to an inspiring one. Every step of the program is built around real-world projects related to the course's content, so you'll be rolling up your sleeves and getting your hands dirty with data from day one.

It's not all about crunching numbers and stats, either. You'll gain lifelong skills in analytical thinking, problem solving, and effective communication.

On top of all that, our careers service is the place where practical meets personal. You'll build your soft skills and receive CV advice, learn job search techniques, get technical interview coaching and much more.

Over the past few months, I have learned a great deal, despite being a complete beginner. It has been an intensive learning experience! Being surrounded by individuals who share the drive to learn new things is inspiring.

Annika van Rooijen
Data Science Graduate

My time at SPICED has been a roller coaster ride. It's challenging but at the same time a lot of fun. I've learned so much in a short amount of time!

Nadine Co
Data Science Graduate

The whole curriculum is worth an entire semester or more at university and was neatly packed into digestible chunks!

Zvonko Vugreshek
Data Science Graduate

Before the Course

(40 Hours)

Before the course you'll be required to pass a short assessment. Nothing to sweat about, we just want to see how you are with basic concepts that will be important for your success in the course. Upon successful completion of the assessment, you'll be sent some Python-based prep work to get you ready for the on-site portion of the program.

What You'll Learn

(16 Weeks)

Phase 1

In your first weeks you'll focus on the data science basics — learning to use Python libraries for common data handling and visualization tasks, use relational databases, as well as building machine learning systems with scikit-learn. Your first project will be about the data exploration phase, done before applying machine learning - this is a crucial step of any data science project.

Important Topics

- Git & python environments
- python programming
- NumPy & pandas
- Relational Databases + SQL
- Machine Learning with Scikit-learn
- Supervised Learning: Classification + Regression

Phase 2

In the second part of the bootcamp you'll learn about a range of advanced topics across the modern data science landscape. You'll learn how to build ensemble and deep learning solutions with TensorFlow, and connect multiple components to a pipeline. Your second project will be a small group project to build your first machine-learning solution from scratch. As your programs grow, you will learn techniques to write bigger Python applications.

Important Topics

- Non-linear models
- Forecasting time series
- Deep Learning with TensorFlow
- Convolutional Neural Networks

Phase 3

In the final part of the program, you'll build your own data science solution in a group project of your choice. You'll combine everything you've learnt, as well as practice team-work and agile workflows on your final project.

Important Topics

- Setting up and developing a Data Science project
- Agile Project Management
- Final project
- Teamwork and working with supervision

The curricula presented here are intended as a guide to the course content. We expressly reserve the right to make adjustments to the content and structure for didactic and organisational reasons, and to adapt the course to reflect the state of the art and current labour market requirements, without affecting the character of the course and the overall quality of the content.

Tech Stack 01

Programming & Database

Python
- Pandas
- Numpy
- Scikit-Learn
- Statsmodels
- TensorFlow/Keras

Visualization
- Matplotlib
- Seaborn
- Plotly
- Altair

Unix

SQL

Git (Github)

Exploratory Data Analysis (EDA) & Statistics

Data Analysis
- Distributional Analysis
- General Statistics

Data Visualisation
- Distribution Plots
- Relationship Plots
- Geo Visualisations

Data Ethics

Data Cleaning

Data Science Portfolio Projects

Project 1
- Exploratory Data Analysis

Project 2
- Predictive Modeling

Final Project:
- Capstone (4 weeks)

Machine Learning Algorithms

Supervised Learning
- Linear Regression
- Logistic Regression
- Decision Trees
- Random Forests
- KNN

Unsupervised Learning

Deep Learning

Natural Language Processing

Time Series

Evaluation & Performance metrics
- Confusion Matrix
- Regression and Classification Metrics
- Error Analysis

Model tuning
- Bias-Variance Tradeoff
- Regularization
- Cross-validation

Tech Stack 02

Optimization
- Gradient Descent
- Cost Functions

Collaborative Working & Social Learning

Pair Coding
- Driver & Navigator

Agile Workflow
- Daily Stand-Ups + Kanban Project Board

Communication with Stakeholders
- Non-technical Stakeholders

Data Science Lifecycle presentation
- Technical Stakeholders

Stakeholder Review
- Compact & Time-critical
- Project Alignment

Bonus topics may include:

Machine Language Engineering
- MLFlow Tracking
- Serving Machine Learning
- Online Dashboards
- Streamlit Deployment

Cloud
- Intro to GCP

AB Testing

Your day at Spiced

8:30 am — The day begins, time to review yesterday's topic

10:00 am — Your morning lecture

12:00 pm — Lunch

1:30 pm — Afternoon supervised project work

4:00 pm — Cohort stand-up: a group check-in

4:30 – 6:00 pm — Continue supervised project work, then it's time to rest 🥱

Spiced is a community. I had opportunities to connect with highly skilled and diverse people. The classroom was interactive, which allowed me to make genuine connections with classmates and teachers.

Abhishek Shrinivas
now Machine Learning Engineer @ StepStone

SPICED

Where practical meets personal

Our Career Services

Through our Learning Management System (LMS), you'll receive career tips and support from the preparation of application documents to job search strategy and personal branding - all from a single source!
Our expert Career Coaches help you excel at real-world interviews, and build your communication skills, critical thinking, teamwork and empathy. 💪

- **Job interview workshops**
- **Strategies for changing jobs and career paths**
- **Salary negotiations**
- **Career Cupid: networking event with companies,**
- **Alumni "Ask me anything" sessions**
- **Recruiter "Ask me anything" sessions**
- **Expert panels and Q&A**
- **Career roadmap for international students**

Phase 1

Identifying your skills

Phase 2

Understanding the Job Market

Phase 3

Tips for starting your new job

Phase 4

Networking

Career Opportunities

Data Scientist   Data Engineer

Machine Learning Engineer

Business Intelligence Analyst

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Community

Community rules at SPICED - after all, there's more to life than studying! For those in Berlin, we hold regular get-togethers with pizza and drinks in our beautiful campus so you can share ideas, grab a coffee, and generally unwind among fellow hungry minds.

We pride ourselves on our international culture and provide a supportive environment to both students and staff. If you need help with your code or a chat, we try to make sure there's always someone on hand for a quick Zoom, or a sit down.

Oh, and Friday drinks can be the stuff of *legend*.

Our Campus

Welcome to Kreuzberg. Home to SO36 punks, döners and the loveable rogues of Spiced-World. Just at our doorstep you'll find a world of cuisine, upscale cocktail joints, downtrodden kneipes, and cafes ranging from artisanal to hole-in-the-wall.

We love hosting tech events and bringing our ever-growing network to campus and online for workshops and talks. Even after you've graduated, there's an open invite to our events - once a Spicedling, always a Spicedling.

Online

Can't make it to campus? No worries. We make sure to keep the Spiced community alive for our remote students with dedicated breakout rooms, regular online catch ups and, of course, the opportunity to come to any of our Germany-wide meetups throughout the year.

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Thank you

For more information, please get in touch
info@spiced-academy.com