Beam Institute of Technology

Data Science Course

BIT Data Science Course 2024

Data will talk to you if you're willing to listen.

Jim Bergeson

Introduction

Our Data Science Course in bits:

- 36 weeks of classes (ca. 9 months)
- Classes from 9 am to 4.30 pm, Monday to Friday
- Online classes
- Master python, data analysis and machine learning algorithms
- Build a portfolio of projects

Our Data Science Course is a **full-time**, **36 weeks** intensive course taking place **online**. The program consists of **9 months of intensive classes** that will take you **from beginner to professional** in the broad field of data science. The course is divided in 3 main modules (that can be taken singularly) and a final project of 6 weeks. The main topics and concepts that you will learn in the 9-months course are **python**, **data analysis** and **machine learning algorithms**.

Learning about data and machine learning is only one of the many skills that you will acquire after joining BIT. A part of the program focuses on **career development**. You will learn how to **write an effective CV and motivational letter**, prepare for job interviews and connect with our partners. We will be there to help you every step of the way.

The Data Science Program is hard work: you will have **classes Monday to Friday from 9 am to 4.30 pm**. However, hard and good work always repays: At the end of the course you will have a **portfolio of data science related projects**, comprehensive understanding of the data science field and **enhance your social skills**. Most importantly, you will begin an exciting career path towards a meaningful and fulfilling career!

CONTENTS

Introduction

Who is a Data Scientist?

A data scientist is a professional who specialises in **extracting meaningful insights and knowledge from data**. They are experts in utilizing a combination of skills in **Python programming**, **data analysis**, and **machine learning** to solve complex problems and **make data-driven decisions**.

Some key skills for a data scientist are the following:

- **Python Programming**: Proficiency in Python is crucial for data scientists. Python is the primary programming language for data analysis, machine learning, and data manipulation.
- **Data Analysis**: Data scientists should be skilled in data manipulation, cleaning, and exploratory data analysis using Python libraries like NumPy for visualization.
- **Machine Learning**: They should have a strong foundation in machine learning concepts, algorithms, and techniques. Familiarity with libraries like Scikit-Learn and deep learning frameworks like TensorFlow or PyTorch is important.
- **Statistical Analysis**: A solid understanding of statistics is essential for model evaluation, hypothesis testing, and making informed decisions.
- **Problem-Solving**: Data scientists need strong problem-solving skills to tackle complex, real-world problems and develop innovative solutions.

Program Details

OVERVIEW

Duration	36 weeks
Holidays	school holidays
Committment	Full-time (9 am to 4.30 pm)
Location	Online
Language	English or German
Tuition	
Python - 12 weeks	7.872€€ | **Free***
Data Analysis - 6 weeks	4.116€ | **Free***
Machine Learning - 12 weeks	7.872€ | **Free***
Final Project - 6 weeks	4.077,60€ | **Free***
Starting date	Quartely
Program number (Maßnahmenummer)	In Beantragung

*The program is free if you are registered at the Agentur für Arbeit / Job Center - only for German residents

Program Details

REQUIREMENTS TO JOIN THE PROGRAM

You don't need any previous technical knowledge or coding experience to join the Data Science Course. **Basic digital skills** are helpful but more important is genuine interest in the tech field and a strong motivation to learn and discover. Whatever your background is and whatever professions you were doing before, we will help you to go from zero experience in data science to creating small and big projects using python, one of the most important and popular programming language on the market, and algorithms.

Moreover, our courses are virtual. This means that you can join the program from anywhere as long as you have a stable Internet connection. To follow the course, you need **a computer or a laptop** (MacBook). BIT will supply it to you at no extra cost (for now, this option is available only for German residents). At the end of the course, the laptop can be returned at no cost or kept for a price. For the duration of the course, you will also have access to all the necessary tools needed to complete your projects.

- No previous experience needed
- Good English or German skills (B1)
- Basic digital skills
- Laptop provided (Macbook Air)

What if I already have some technical skills? Do I have to do the full-course?

If you are already familiar with the some of the topics of the curriculum, you can do an **entry test** to have direct access to the module of interest. Specifically:

Python: No entry test, available for full-beginners
Data Analysis: Entry test, Python knowledge/experience is needed
Machine Learning: Entry test, Python and Data Analysis knowledge/experience is needed.

Curriculum

Our curriculum is designed to bring complete beginners to an intermediate-advanced level in data science. During the 9-months course, you will familiarise yourself with the most common tools, algorithms and data analysis.

Python

1

2 weeks of on-boarding + 10 weeks of python
Price
No entry test, full-beginners

The first **2 weeks** of the course, we'll dive into the development environment, helping students to set up their laptop and introducing them to the terminal. In the remaining **10 weeks**, you'll focus on **Python**. You'll learn the language's syntax and basic concepts, as well as functions, modules, and the basics of Object-Oriented Programming (OOP) in Python. Lastly, we'll cover Version Control with Git, testing methodologies including **PyTest**, and the essentials of deployment using cloud services and containerization tools like Docker.

Data Analysis

2

6 weeks
Price
Entry test, Python knowledge needed
The Certification 'Microsoft Certified: Power BI Data Analyst Associate' is included

In this module, you will first master the fundamentals of **data structures**, including lists, tuples, sets, and more learning when and how to apply them effectively in your programs. You will then delve into **algorithms** and move to the foundations of data science where you will acquire statistical knowledge essential for informed decision-making and data interpretation.

Curriculum

3

Machine Learning

12 weeks

Price

Entry test, Python and data analysis knowledge needed

This module covers the foundations of **machine learning**, starting with an introduction where you'll learn about its definition and various types, including supervised, unsupervised, and reinforcement learning. You'll delve into essential concepts such as features, labels, and training/testing data, as well as explore the mathematical aspects, including linear algebra, calculus, and probability theory.

Final Projects

6 weeks

Price

Entry test, Python, data analysis and machine learning knowledge needed

To complete the program it is fundamental to do a final project. The project can be done alone or in groups and it takes 6 weeks. It is important that each student chooses a topic or an idea that they are passionate about and that their project goes live and is useful for others. Once the development is completed, students have to prepare a pitch and present it in front of the other students.

4

Reviewing Day

Fridays are slightly different from the rest of the week. On this day, you will take a step back from usual projects and spend some time reflecting on what they've learned so far. This will include a mix of individual and group activities designed to help students review their progress and identify areas where they can improve.

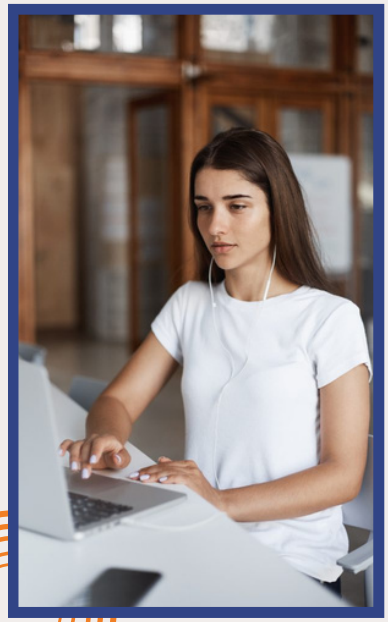
Here are some of the activities that could take place on this day:

1. **Personal Reflection**: Students will spend some time reflecting on their progress over the past week, identifying any areas where they struggled or felt particularly successful.
2. **Feedback sessions**: the teacher meets with each student individually to discuss their progress, answer any questions they may have, and provide feedback on their work. This feedback can be on various aspects of their coding skills, including their understanding of programming concepts, their ability to write clean and efficient code, their problem-solving skills, and their ability to work in a team.
3. **Peer Reviews**: You will participate in peer reviews of each other's work, providing feedback and constructive criticism to help their classmates improve. This will be an opportunity for students to practice giving and receiving feedback, a valuable skill in any professional setting.
4. **Career Development Workshops**: In addition to reviewing their coding skills, students will also focus on their professional development. This could include workshops on resume writing, job interview skills, and networking strategies. We will bring in industry experts to lead these workshops and provide students with valuable insights into the tech industry.
5. **Guest Speakers**: Finally, we will invite guest speakers to come and talk to our students about their careers in tech. These could be alumni from our school or professionals from local tech companies. They will share their experiences and offer advice to our students as they begin their own careers.

Career Development

Learning how to code is only one of the many skills that you will acquire at BIT. A significant part of the program focuses on career development and prepares students to (re-)enter the job market. You will receive **personalized career coaching**, **craft an elevator pitch**, prepare an **effective CV** and **cover letter**, **build a network**, **work on your strengths**, **practice interviews**, **negotiate salaries**, **create a comprehensive LinkedIn profile** and discover how to find a job that matches your skillset and goals by developing a **career plan**.

To guide you in this process, you will have the opportunity to join career workshops on Fridays and work with **career coaches** – specialists who will guide you in shaping your career plan, help you review job applications and prepare for interviews.
BIT's focus on career development ensures that, besides gaining indispensable professional skills in the field of choice, students learn how to thrive in their professional career by becoming better decision-makers, critical thinkers and team players.



A Day at BIT*

- 9 am - 10.30 am: **LIVE CLASSES**
- 10.30 am - 10.45 am: **BREAK**
- 10.45 am - 12.15 pm: **CHALLENGES**
- 12.15 pm - 1.15 pm: **LUNCH**
- 1.15 pm - 3.30 pm: **LIVE CLASSES**
- 3.30 pm - 3.45 pm: **BREAK**
- 3.45 pm - 4.30 pm: **CHALLENGES**

*This is a general indication. The actual structure of the day might vary depending on the topic and the teacher.

Support

Classes take place Monday to Friday from 9 am to 4.30 pm. During this period of time, you are always supervised by either a **teacher** or an **assistant teacher**. Fridays are dedicated to review and career development activities. For all modules, students work in close contact with a coach or a teacher.

Teachers and coaches are not the only figures that will help and support you during your program at BIT. If you need help, you can reach out any time to your **advisor**, the point of contact if you encounter any administrative difficulties or if you have any issues with the program. If you joined the program with an educational voucher (Bildungsgutschein) from the Agentur für Arbeit / Job Center, you need to check in regularly with your advisor and must inform us and the Agentur für Arbeit if you get sick, can't work regularly on the program or have any other problem while taking the course.

Last but not least, the power and value of doing a course at BIT lies also in the fact that you will join a **motivated community** of fellow students, both during the program and after graduation. You can reach out to your coursemates to work on side projects together, organize meetups and study groups. Most importantly, you will have lifetime access to the community and, after graduation, you can become a mentor yourself sharing your professional and technical experiences with the rest of the community.

Course Certificate

At BIT **there is no final exam**: Students are considered successful if they have attended 85% of classes, submitted regularly assignments, and the teacher marked as completed all the necessary modules of the curriculum to become a Data Scientist. To complete the program is fundamental to do a final project and present it in front of the others.

At the end of the course, students who have successfully completed the program will receive a **certificate**. Compared to a university degree, our courses offer a more practical approach as they focus on technical knowledge, building a portfolio and working in teams rather than on theoretical competencies.

To ensure the quality of the course, we went through a rigorous certification process in accordance with the guidelines set out by AZAV (Akkreditierungs- und Zulassungsverordnung Arbeitsförderung—Accreditation and Licensing Regulation for Employment Promotion). This allows us to accept educational vouchers from the Agentur für Arbeit / Job Center.

CERTQUA

Qualitätsmanagement

zugelassener Träger nach AZAV

Payment Options

EDUCATIONAL VOUCHERS (BILDUNGSGUTSCHEIN)

If you are resident in Germany and unemployed (or soon to be), you can get the program entirely financed by the Agentur für Arbeit / Job Center.

To get our courses sponsored by the Agentur für Arbeit / Job Center, you need to:

- Be resident in Germany and registered as unemployed (or soon to be) at the Agentur für Arbeit / Jobcenter
- Have a contact person / advisor at your local Agentur für Arbeit / Job Center
- Apply for our course and get an offer from us
- Forward the offer to your advisor and emphasise the reasons why you want to do the course and how it will help you in your professional career

Once your advisor approves your choice, you will receive an educational voucher. Send it to our team as soon as possible. Only when we receive the voucher, we can enroll you in the next course. If you are planning to apply through an educational voucher, we strongly recommend reading this guide. Don't hesitate to get in touch if you have more questions.

IN SHORT:

Apply

We verify your elegibility and send you an offer

Send your offer to the Agentur für Arbeit / Job Center and then send us back your voucher

Start your course

Payment Options

SELF-PAYMENT

The total cost of the Data Course is 23.937,60€. If you are a self-payer, we recommend you focusing on the module that interest you most. Different modules have different prices (and entry test!).

You can pay in 3 instalments: the first one before the beginning of the course, the second one after the first two weeks and the third before the end of the program.

Alternatively, if you decide to pay the full tuition before the beginning of the course and get a discount of 10%.

The prices of the modules are the following:
Python - 12 weeks: 7.872€
Data Analysis - 6 weeks: 4.116€
Machine Learning - 12 weeks: 7.872€

Why BIT

Laptop provided
You receive a laptop for the duration of the course. Once you complete the course, you can return it at no additional cost or purchase it.

Learning Platform
You get a lifetime access to our student learning platform with exercises, materials and more. This is also a great way to stay in touch with the community.

GitHub Campus Partner
Enjoy the benefits of the GitHub Student Developer Pack, which includes GitHub Pro and other exclusive features.

Live training by experienced teachers
Experts are not always the best teachers. Our instructors have real technical know-how combined with years of teaching experience.

Beam Institute of Technology

For more information, get in touch with us!

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