

Data Science Program

Syllabus

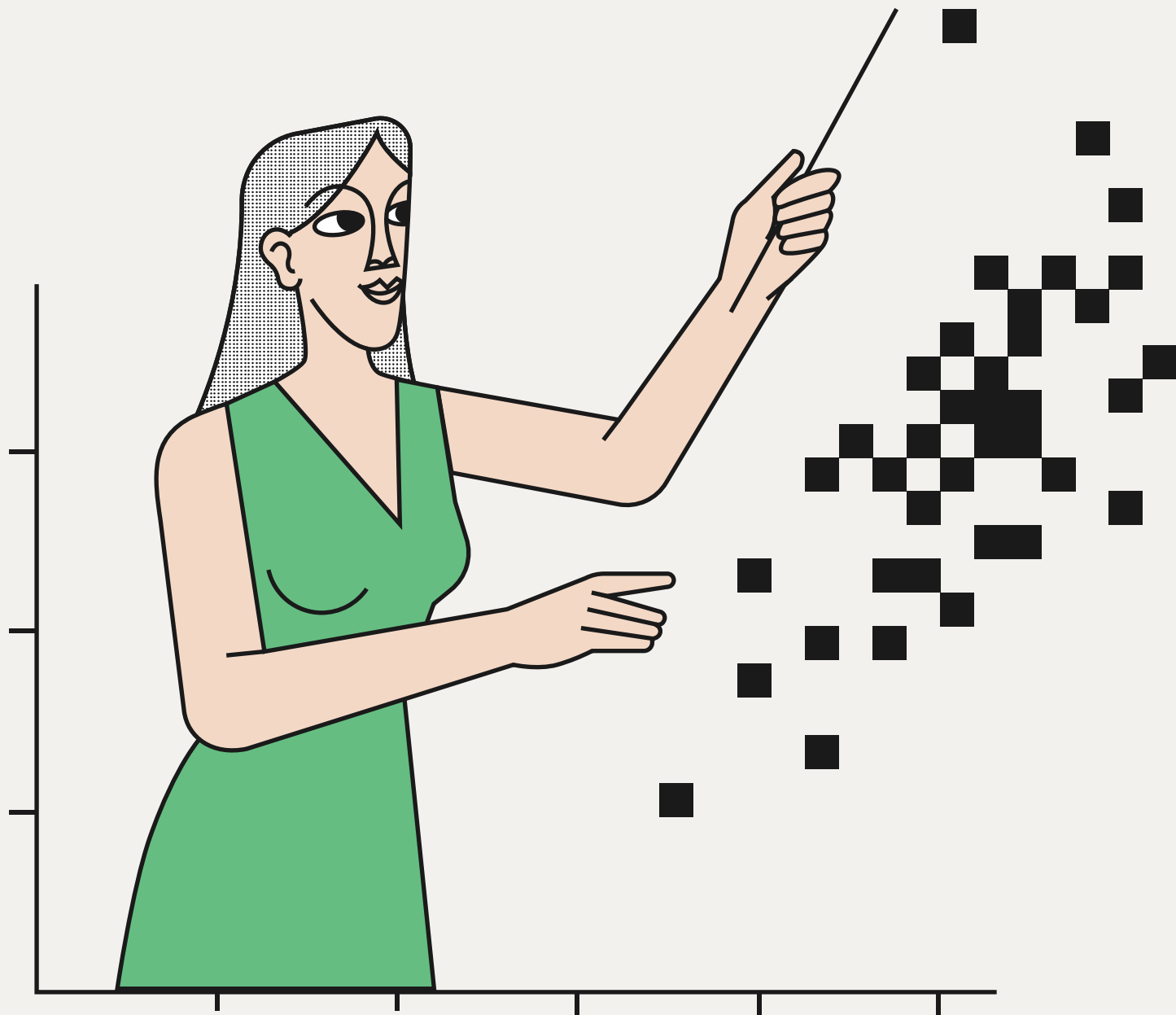
8 months

Contents

What is Data Science	02
Course Structure	03
Module 1. Python and Software Engineering for Data Science	04
Module 2. Machine Learning	07
Module 3. Neural Networks and Advanced Techniques	09
Employment Preparation	12

What is Data Science

8 months



Data Science Program

The Data Science Program by TripleTen is an 8-month course designed for people with various backgrounds. You can come from any technical background and join our course to re-skill and become a high-paid professional.

The aim is to equip you with all the skills needed to land a job in the tech industry. You will learn everything from the fundamentals of data, like Python or Pandas, to more advanced topics and tools, like Machine Learning and Neural Networks. By the end of the program, you will have 17 projects in your portfolio to show future employers the exceptional specialist you have become.

And while getting to grips with a collection of professional tools and technical skills, you will train those soft skills required for success. You'll learn time management, goal setting, teamwork, and much more. You'll also learn soft skills specific to the tech industry—such as how to work with documentation—the ones needed to build an online presence in your quest for a job.

Course Structure

Your journey will be divided into sprints, one-to-two week long work intensive periods grouped into thematic modules.

Each sprint will have a particular learning objective, reinforced through quizzes and tasks. Most tech companies work in this format, so you will come prepared. At the end of the sprint, you will take the skills you've learned and combine them with your existing skills to work on a project that will be assessed by industry experts.


We provide some rough time estimates to help you plan and manage your schedule, and we recommend spending around 20 hours per week studying. However, we understand that everyone has different commitments and people learn at different speeds. We also understand you may need a break at times, so we have some suggested breaks scheduled in too.

Module 1: Python and Software Engineering for Data Science

14 weeks

Python for Data Analysis and Statistics covers the foundation necessary to build a career in the data space. Python is a highly popular programming language, widely used in data applications, and statistics is the mathematical field underpinning Data Science. In this module we introduce both, and focus on Python as it is applied to statistics and data analysis.





Welcome Sprint: Basic Python

- Onboarding
- What Is Data Science?
- Python Fundamentals
- Strings
- Lists and Tuples
- Algorithms
- Guided Case Study:
Basic Python

2 weeks

40 hours



Sprint 1: Working with Data in Python

- Introduction
- Dictionaries
- Functions
- Using pandas to Work with Data
- Project: Basic Python

2 weeks

40 hours



Sprint 2: Exploratory Data Analysis (EDA)

- Reading and Viewing Data
- Working with Missing
and Duplicate Values
- Data Vizualisation
- Filtering Data
- Data Types
- Feature Engineering
- Data Transformations
- Soft Skills Lessons:
Analytical & Critical Thinking
- Project

2 weeks

40 hours



Sprint 3: Statistical Data Analysis

- Descriptive Statistics
- Probability Theory
- Testing Hypotheses
- Project
- Soft Skills Lessons:
Communication Skills & Teamwork

2 weeks

40 hours



Sprint 4: Software Development Tools

- Intro to Command Line
- Development Environment
- Git and GitHub
- Intermediate Python
- Project

2 weeks

40 hours



Sprint 5: Integrated Project 1

A video game retailer has user and expert reviews, genre, console, and historical data on game sales available. Identify patterns that determine whether a game succeeds or not in order to spot potential big winners and plan advertising campaigns.

2 weeks

40 hours



Sprint 6: Data Collection and Storage (SQL)

- Retrieving Data from Online Resources
- SQL as a Tool for Working with Data
- Advanced SQL Features for Analysts
- Relationships Between Tables
- PySpark
- Project
- Soft Skills Lessons: Self-Management

2 weeks

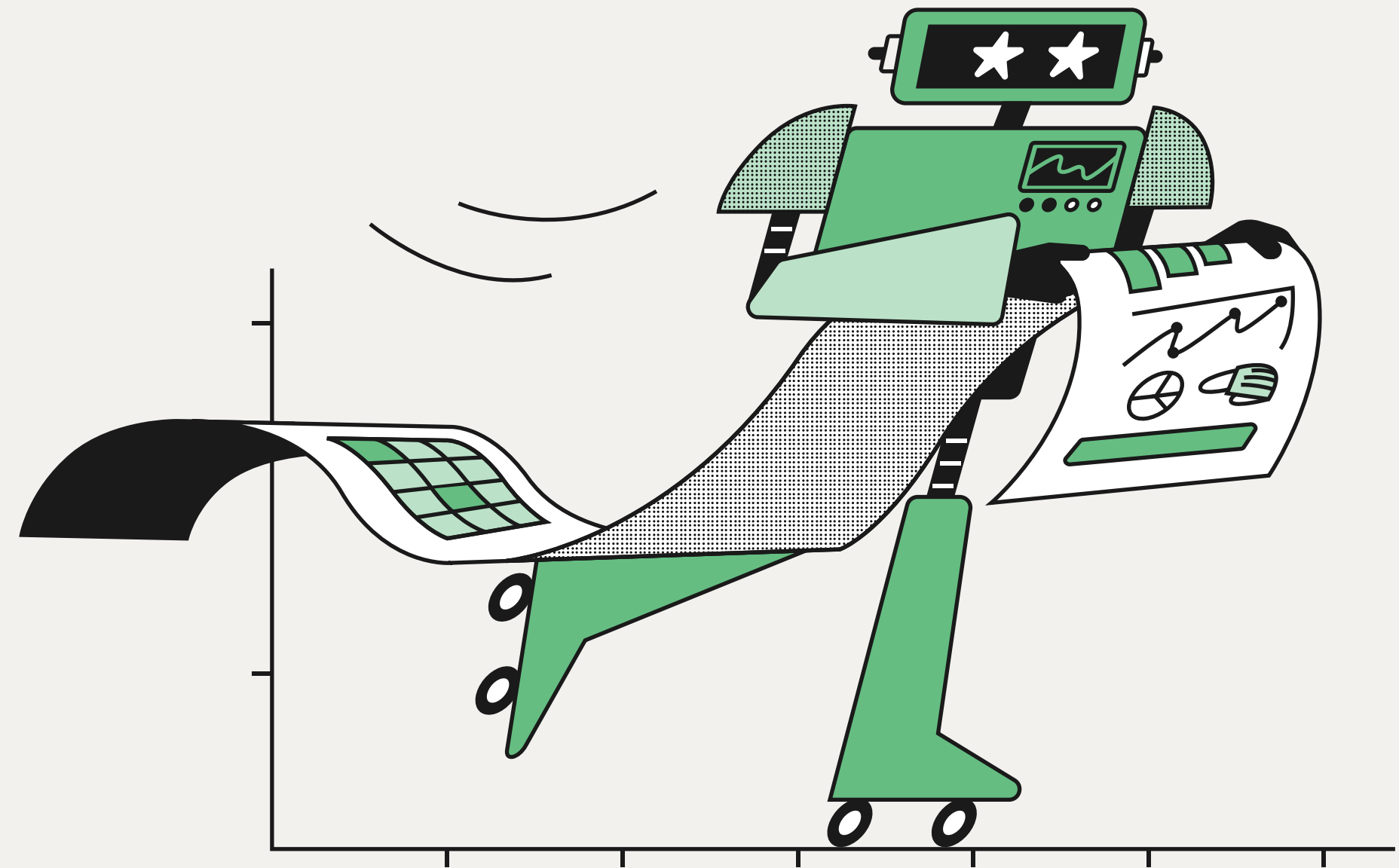
40 hours

Module 2: Machine Learning

8 weeks

Data Science can do many things, but one of the most magical is Machine Learning—making computer models that can predict and enable inferences about the real world. Machine Learning builds on everything we have learned so far—statistics, Python, and software engineering—to enable creating intelligent systems.

This module introduces Machine Learning, covers supervised learning (including regression and classification models), and discusses how to explain Machine Learning and apply it in practical business situations.





Sprint 7: Introduction to Machine Learning

- Introduction to Machine Learning
- First Trained Model
- Model Quality
- Model Improvement
- Moving on to Regression
- Project

2 weeks

40 hours



Sprint 8: Supervised Learning

- Feature Preparation
- Classification Metrics
- Imbalanced Classification
- Regression Metrics
- Project
- Soft Skills Lessons: Task Management

2 weeks

40 hours



Sprint 9: Machine Learning in Business

- Business Metrics
- Implementing New Functionality
- Data Collection
- Project
- Soft Skills Lessons: Business Thinking & Problem Solving

2 weeks

40 hours



Sprint 10: Integrated Project 2

Prepare a prototype of a machine learning model for Zyfra. The company is developing efficiency solutions for the heavy industry. The model should predict the amount of gold extracted from gold ore. You have the data on extraction and purification. The model will help optimize production and eliminate unprofitable parameters.

2 weeks

40 hours

Module 3: Neural Networks and Advanced Techniques

10 weeks

One of the coolest things about Data Science is how it keeps advancing—new techniques are constantly developed, and the array of possibilities for the field is amazing. Nobody can learn all of it, but we're here to give you a curated selection of some of the best.

In this module we cover Time Series (handling data with a time dimension), Unsupervised Learning, Natural Language Processing, and Neural Networks applied to Computer Vision and more.





Sprint 11: Linear Algebra

- Vectors and Vector Operations
- Distance Between Vectors
- Matrices and Matrix Operations
- Linear Regression From the Inside
- Project

2 weeks

40 hours



Sprint 12: Numerical Methods

- Algorithm Analysis
- Gradient Descent
- Gradient Descent Training
- Gradient Boosting
- Project

2 weeks

40 hours



Sprint 13: Time Series

- Time Series Analysis
- Time Series Forecasting with Machine Learning
- Project

1 week

20 hours




Sprint 14: Machine Learning for Texts

- Text Vectorization
- Language Representations
- Project

1 week

20 hours



Sprint 15: Computer Vision

- Fully Connected Network
- Convolutional Neural Networks
- Project

1 week

20 hours



Sprint 16: Unsupervised Learning

- Cluster Analysis
- Anomaly Detection

1 week

20 hours



Sprint 17: Final Project

A telecom operator would like to be able to forecast their churn of clients. If it’s discovered that a user is planning to leave, they will be offered promotional codes and special plan options. Interconnect’s marketing team has collected some of their clientele’s personal data, including information about their plans and contracts.

2 weeks

40 hours

Employment Preparation

In addition to the main educational course, our career help is divided into four parts: Career Prep Course, Career Acceleration, Externships and Post-Offer Career Support

🕒 10–20 hours in total

Career Prep Course

Prepare to take your job search to the next level with our Career Prep Course. You'll learn how to craft a strategic job search plan, tailor your resume and cover letter specifically for tech positions, optimize your LinkedIn profile to attract recruiters, master the art of networking to expand your professional connections, build an impressive project portfolio and GitHub profile, and much more. Additionally, our team will conduct a thorough review of your resume, cover letter, LinkedIn, and GitHub profiles to ensure you're fully prepared for a successful job search.

🕒 Up to 6 months after graduation

Career Acceleration Program

In this program, you'll collaborate with our career coach and professionals from the HR and tech world to effortlessly meet market demands and secure your dream job. The Career Acceleration program lasts up to six months, during which you'll benefit from one-on-one biweekly coaching to:

- Develop an effective job search strategy
- Build a streamlined application funnel
- Acquire valuable networking tips and job search hacks
- Hone your interview skills through phone screenings, technical assessments, and cultural fit interviews
- Create impressive project demo videos
- Craft outstanding project articles to effectively showcase your work.

🕒 4 to 5 weeks, 30+ hours

Externships

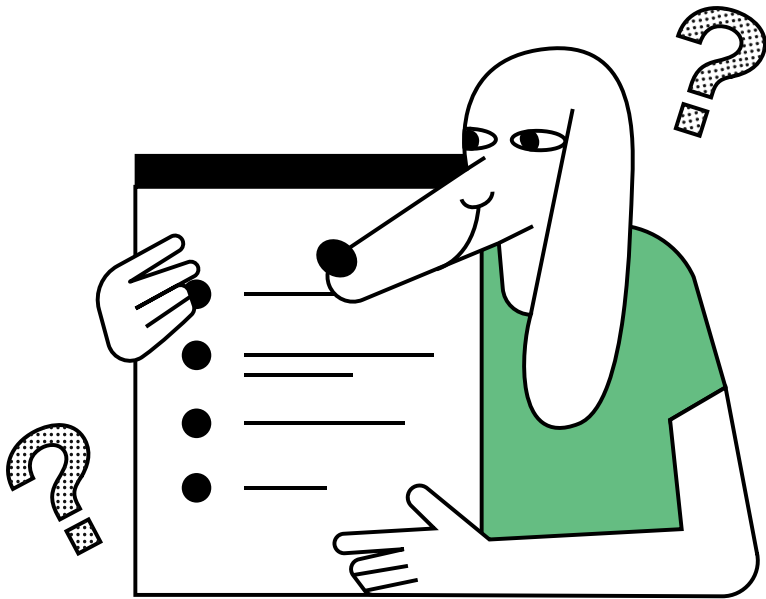
Boost your portfolio and gain confidence in solving work tasks by completing a project for a real company. Learn to communicate with clients, meet their expectations, exchange peer reviews with colleagues, and present results to a company. Externships become available for participants towards the end of the bootcamp. They are also available after graduation.



🕒 10–15 hours in total

Post-Offer Career Support

We don't stop when the search is over—we'll continue to support you even after you receive a job offer. Seamlessly transition to your new position with our expert career tips and personalized assistance. Whether it's advice on making a strong impression in your new role or navigating the first few months, we've got your back.



Learn  the job.
✦ ✦ Get the job. ✦ ✦