

LIVE-ONLINE

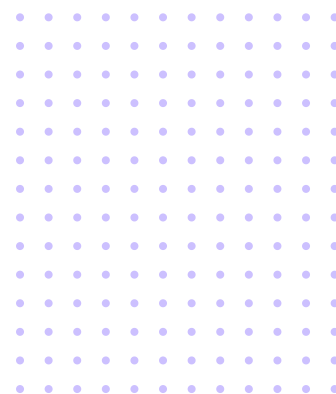
2023

WE ARE A COMMUNITY

Data Science course guide



550 HOUR BOOTCAMP
PART-TIME



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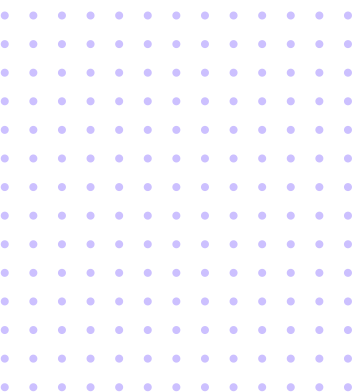
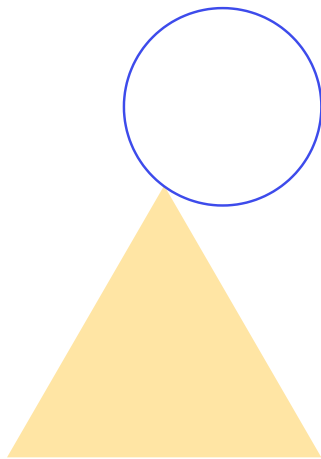
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1. About us

CodeOp is an international tech school that teaches women, transgender and nonbinary students the skills they need to work in technology. We launched CodeOp as a social venture in 2018, and have grown to be an award-winning global team that's passionate about doing meaningful work at the intersection of tech and education.

We offer three courses led by senior-level instructors to support our students across various stages of their tech journey:

- Full Stack Development course for students looking to transition to tech.
- Data Science course for those with a statistical, technical, or BI background.
- 60-hour live-online Product Management course for existing product managers, as well as anyone looking to break into tech or upskill their digital business acumen.



2. About our Data Science Course

Data Science is the process of inspecting, cleansing, transforming, and modelling data, using database querying, visualisation, statistical analysis and machine learning to discover useful information, to test hypothesis, to inform conclusions and to support decision-making. These methods and tools are used in different businesses, science, and social science contexts.

During this course you'll learn the different steps of the data science process, from exploring data, to modelling and communicating insights from data to impact decision making.

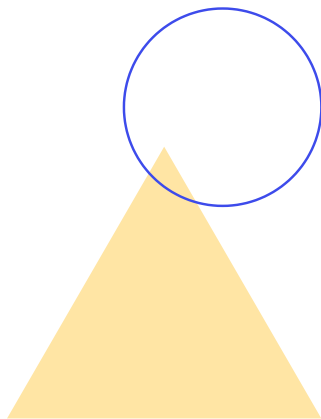


The data types covered in this course range from numerical data to Natural Language Processing, Imaging and relational data (e.g.: data tables). You'll also learn to extract these types of data from relational and non-relational databases using SQL. The course is hands-on and follows an incremental approach, building on the knowledge gained from each previous module.

You'll spend the first few weeks getting acquainted with some key technologies and concepts needed to build a solid technical foundation. Then, you'll delve into basic statistics and applied machine learning before moving on to the more advanced machine learning module. In the latter part of the course, students will build end-to-end data science projects individually as well as in groups.

By the end of the programme, you'll be able to identify which type of questions can be solved with data science and how to solve them, by leveraging the right tool, or combination of tools.

3. What you'll learn

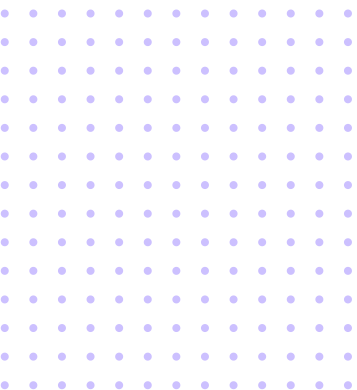


Our three-module system guarantees that our graduates are industry-ready.

Module 1 is focused on the fundamentals. In addition to reviewing the foundations, you'll learn to develop problem-solving abilities and enhance your concept retention skills. We teach through scaffolded lectures and activities, live activity reviews, and milestone projects.

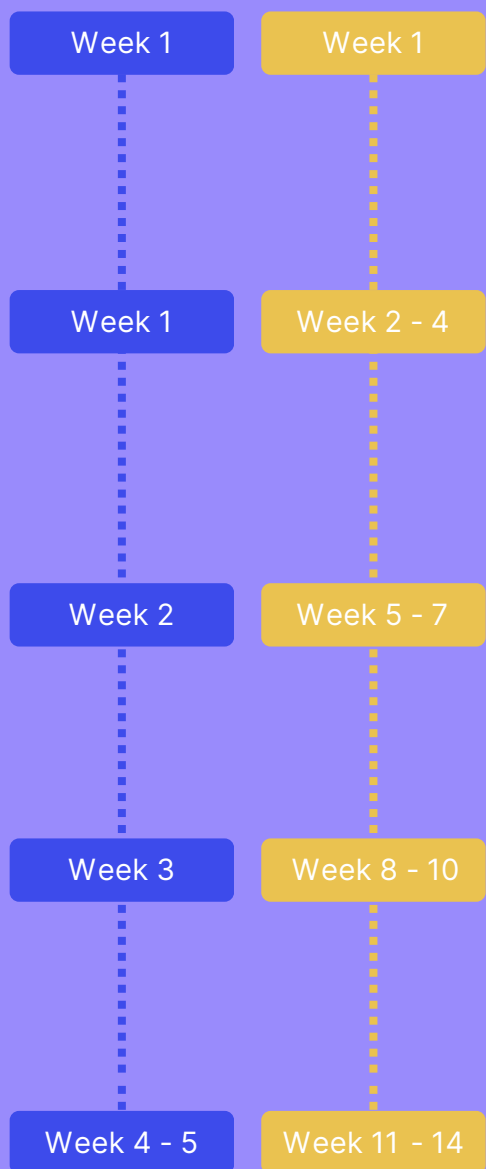
Module 2 is focused on projects. We don't have you work on just one portfolio project, we diversify your project work from datasets, to solving real-world problems, to working individually and in teams.

Module 3 is focused on preparing you to enter the tech industry. We teach through data challenges, technical improvisations, pitch-coaching, and mock HR and technical interviews.



Full time

Part time



Dev Environment for Data Scientists

- You'll set up your popular development environment for data scientists.
- Topics: Shell, Git, GitHub, Python, Jupyter Notebook

Introduction to Programming

- You'll learn the foundations of programming using the Python language.
- Topics: Python, Objected Oriented Programming (OOP)

(Big) Data Management

- You'll learn how to interact with relational databases using Python.
- Topics: SQL, Spark, and more

(Exploratory) Data Analysis

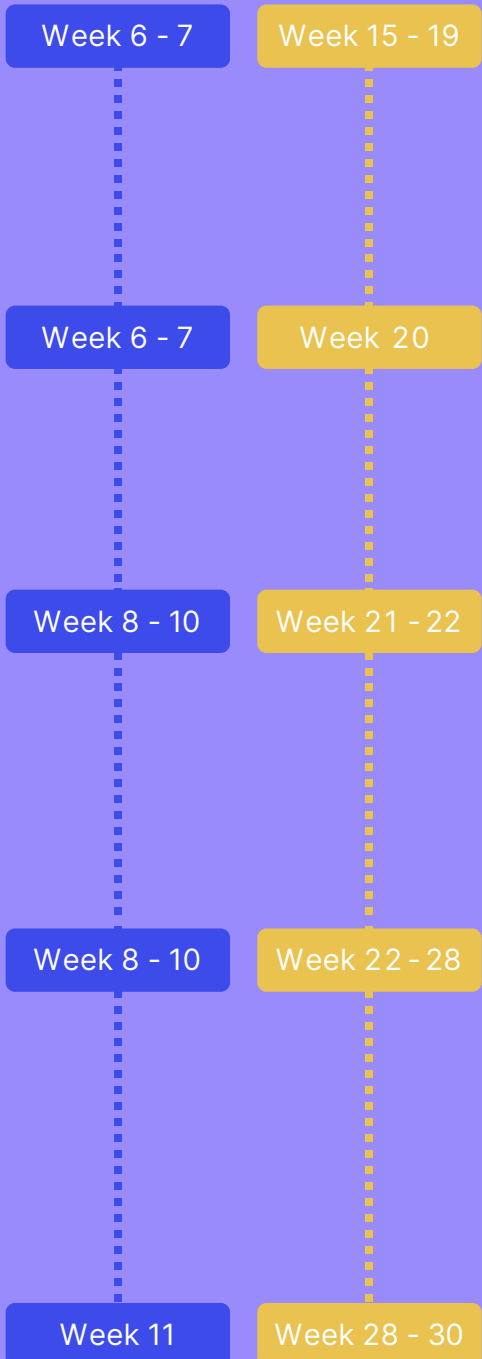
- You'll learn how to use Python libraries
- Topics: Pandas, NumPy, Matplotlib, seaborn, and more

Machine Learning

- You'll learn the step-by-step guide for solving general ML problems.
- Topics: Regressions, Classification, Clustering, Bias-Variance Trade off, Cross-validation, Model Selection and more

Full time

Part time



Advanced Machine Learning

- You'll learn advanced methods in data science.
- Topics: Deep Learning, Natural Language Processing, Recommender System, and more

Decision Science:
Experimental Design and Causal Inference

- You'll learn how to answer causal (a.k.a. "why") questions.
- Topics: A/B Testing, RCT, and more

Data Visualization Presentation:
Dashboards & Storytelling

- You will learn the best practices for designing dashboards, including how to choose the appropriate visualizations for your data. We will also cover the most commonly used tools and techniques.
- Topics: Tableau and Dashboard

Data Science Project

- You'll get the opportunity to do an individual and a collaborative data Science project and apply the knowledge gained in the previous modules to a real use case.
- Topics: Advanced Github techniques, Agile Development, Data Visualization, Technical Presentations

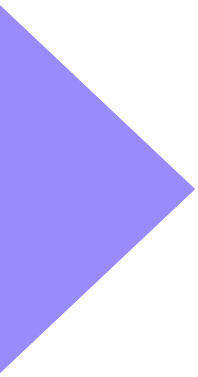
Career Prep

- By these last weeks of the course, you'll be prepared to enter the job market with a finished resume and strategies for interviews.
- Topics: Resume development, online portfolio, technical challenges, whiteboarding, interview strategies.

4. How you'll learn

"The instructor is always available and has this way of commenting on your solution that opens up a totally new way of thinking."

CodeOp Bootcamp Student, 2022



Theoretical Phase

Lectures

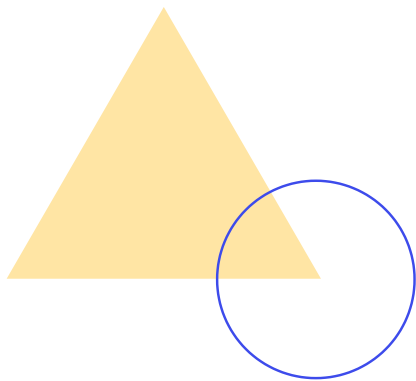
Lecture slides focus on topics (e.g. SQL, data visualisation, machine learning, etc.) and are shared with students.

These slides are concise for two reasons:

- To encourage the lecture to be as interactive as possible, and
- To encourage students to use the Internet as their primary source of information.

Activities

Activities consist of exercises or tasks that are related to the lecture content and reinforce what was covered in class. They allow students to get some hands-on learning and to practice in their own time.



Live Activity Review

The instructor goes over ways in which the activity could be approached, explaining their thinking and the steps they would take to complete a task. Time is set aside to answer any student questions and to go over the different approaches that students took.

Milestone Activity / Assessment

The purpose of the assessment is to target student problem-solving abilities and concept retention, as well as any weaknesses in learning the curriculum. Students are assigned supplementary work based on their results. This can involve redoing past assignments, doing a new assignment, and fixing or finishing their assessment.

Mini Industry Lectures

Students participate in lectures from senior-level professionals from within the local tech community (these may be broader than data science– e.g. data engineering, FOSS, D3.js, agile methodologies, product development)

Project Phase

For their final projects, students have the choice of proposing their own idea, or working on one of the challenges proposed in the class (e.g. advanced regression techniques applied to house prices, building a Twitter crawler for geotagged data, and so on).

Students are encouraged to think about both projects in the brainstorming class, as the proof of concept can serve as a stepping stone to the collaborative project.

During this phase, the instructor meets regularly with students throughout the project phase, helping them to prioritise tasks and offering technical suggestions.

Objective:

Apply the knowledge about data science methods and tools acquired during the lecture phase to a use case. In addition, students should learn how to work independently and in a collaborative way.

The projects can cover one or more of the advanced topics covered during the course (e.g. NLP, AB testing, or deep learning).

The projects should follow the 5 steps of the data science lifecycle:

- Discovery
- Data Preparation
- Model Building
- Repeat
- Communicating Results



The results are communicated at the end of the project with a presentation, which should include a slide deck or an interactive dashboard. This presentation should communicate the main insights to a non-technical audience, as well as more in depth technical information (e.g. tech stack, used algorithms). Students should be ready to defend their technical choices.

Individual Proof of Concept (PoC):

This is the first of the two projects and has a shorter timeline. It could be a self-contained project, or a building block for the collaborative project. The project ends with a presentation to communicate the results.

Collaborative Project:

The collaborative project can be more ambitious than the PoC, as it has a longer timeline and more contributors. In this project, students will have the opportunity to experience working in a collaborative way, which will require some more effort in terms of coordination. In addition to the final presentation to communicate the results, students will also provide a report as part of completing the project.

Career Prep Phase

CodeOp helps you reach and expand your career goals with lifelong career support. Through workshops and focused 1-1 career coaching sessions, we ensure you discover all the options out there, and guide you on how to draw the dots between your previous career and a career in tech.

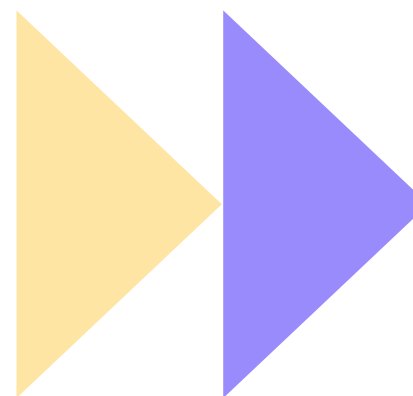
Career coaching workshops

- Tech Manager tips & Q&A: Presentation and Q&A with a technical manager to learn about best practices when searching for a job and what it takes to stand out from the crowd.
- Building your job search strategy: An interactive workshop to help think outside the box when approaching recruiters
- CV Strategy workshop: Presentation on how to make your CV stand out from the crowd
- Strategies for approaching technical challenges: How to approach the technical challenges and whiteboarding
- Whiteboarding challenge: SQL & Python
- Elevator Pitch workshop: Interactive session to make sure you can nail that 'Tell me about yourself' question in less than one minute
- Interview preparation: Practice interviews to help prepare you for job interviews and build your overall confidence
- #IamRemarkable: A Google initiative empowering women and underrepresented groups to celebrate their achievements in the workplace and beyond.

5. How we teach

"There's decades of research about instructional strategies that show things like scaffolding, modeling, and reflection are far more important to comprehending new concepts."

Krista Moroder,
CodeOp Curriculum Developer

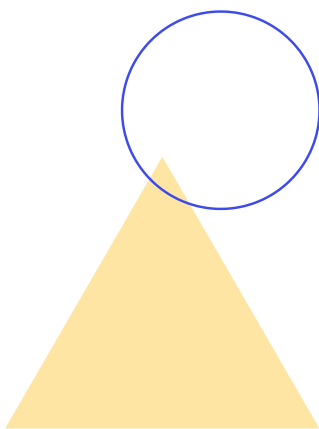


We're serious about giving you access not only to the best resources and instructors, but also the best teaching practices that will better help you comprehend new concepts.

The instructional design and curriculum for the Data Science course was built in collaboration with a collection of individuals working in both industry and academia. Some of the primary pedagogical choices are detailed in depth below.

Scaffolding Strategies

Students entering the workforce will be expected to know and understand how to find artefacts, resources, and environments in which they can gain new knowledge as the tools and technologies they use continue to evolve. Because of this, CodeOp's model doesn't just include scaffolding of content, but scaffolding of information literacy skills: being able to identify, locate, evaluate, and effectively use information to solve a problem.



Formative Feedback Strategies

The importance of ongoing, targeted feedback for student learning can't be understated. Our model incorporates this feedback in multiple ways: regular assessments, solution lectures, and activity reviews.

Mentoring Strategies

Several studies have focused exclusively on women in mentoring relationships. According to "Women and Mentoring: A Review and Research Agenda", women who had one or more mentors reported greater job success and job satisfaction. Because of this, CodeOp has created a deliberate focus on providing mentorship as part of the educational experience, including career coaching sessions and guest lectures from senior professionals.

Individual Completion of Activities

A learner-centred classroom that uses formative feedback and response to intervention strategies is considered the most impactful teaching strategy on student learning. CodeOp differentiates itself from other programming courses in this way: the classes are small, the focus is on the learner, and the interventions are flexible to the context of the current learners in the classroom.

6. Funding your bootcamp

We believe in removing barriers to tech for women, transgender, and nonbinary individuals. That's why we offer payment plans for everyone, no matter your situation.

Data Science Tuition Cost

Remote: €6500

Payment Options

We offer three different payment options as well as [scholarship options](#)



Pay upfront, interest free

10% discount when paid upfront, total would be €5850.



Income Share Agreement

Pay only part of the course now (€600) and pay the remaining amount once your bootcamp is completed and you've started working.



Deferred Tuition Payment

Break up the cost of tuition into smaller monthly payments. You can choose to pay for your bootcamp in 12, 24 or 36 months, depending on your needs and geographic location.

There are only a few things you can do in such a short amount of time that can improve your quality of life. Developing your programming skills is one of them.

Apply now

▶ You've
got this