



# DATA ANALYTICS

550 HOUR BOOTCAMP  
FULL TIME / PART TIME

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# 1. WHAT YOU SHOULD KNOW ABOUT US

CodeOp is an international tech school headquartered in Barcelona. Launched as a social venture by a San Francisco native in 2018, CodeOp is comprised of an international team that is passionate about doing meaningful work at the intersection of tech and education.

We offer three courses led by senior-level professionals to support our students at various stages of their technical journey:

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

## 2. WHAT YOU SHOULD KNOW ABOUT OUR DATA ANALYTICS COURSE

Data Analysis is the process of inspecting, cleansing, transforming and modelling data, using database querying, visualization, statistical analysis and machine learning to discover useful information, to inform conclusions and to support decision-making. These methods and tools are used in different business, science, and social science domains, to answer questions, test hypotheses or disprove theories, which is why it has become such an in-demand knowledge.

During this course you will learn the different steps of the data analysis pipeline, from ingestion to modelling to communicating insights.

The data types covered in this course will include not only relational data (e.g.: data tables), but also more complex data types such as text and geospatial information. The course will be hands-on—"learn by doing"—and it will follow an incremental approach, building on the knowledge of previous modules.

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

By the end of the program, you will be able to identify which sort of questions can be solved with data analytics, 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 concept retention. 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 the problems to working individually and on 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.

"Everyone at CodeOp is so kind and so competent. The program has exceeded all my expectations."

# FULL TIME PART TIME

Week 1 Week 1

## Overview of Data Analytics/Dev Environment

You'll set up your development environment and you'll learn what Data Analysis is, the lifecycle of Data Analysis projects and which methods and tools are used throughout it.

Topics: shell, Git, GitHub, VS Studio code, Remote Servers

Week 1 Week 2-4

## Introduction to Programming

You'll learn the foundations of programming using the Python language.

Topics: Ubuntu, Python v3, Anaconda.

Week 2 Week 5-8

## Programming for Data Analysis

You'll learn how to use Python libraries and Jupyter notebooks.

Topics: Pandas, NumPy, Pytorch, Matplotlib

Week 3 Week 9-11

## Infrastructure and SQL

You'll learn how to extend the development infrastructure using cloud providers, interact with relational databases using Python and how to use Docker.

Topics: Docker, AWS, SQL, BigQuery, Azure

Week 4-5 Week 12-15

## Statistics

You'll learn basic statistics concepts such as probabilities, central tendency measures, charts and graphs.

Topics: statistical inference, descriptive analytics, predictive analytics, Jupyter Notebooks

# FULL TIME PART TIME

**Week 4-5**      **Week 12-15**

## Machine Learning

You'll learn the differences between supervised and unsupervised machine learning methods, and the different families of algorithms within each group.

Topics: classification, regression, clustering

**Week 6-7**      **Week 15-18**

## Advanced Data Analytics Topics

You'll learn more advanced methods of data analysis which deal with data types such as text, geospatial data, time-series and networks.

Topics: Time-Series, Text Analysis, GeoSpatial Info, AB Testing

**Week 8-10**      **Week 19-24**

## Data Analytics Project

You'll get the opportunity to do an individual and a collaborative data analytics 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

**Week 11**      **Week 25-26**

## 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 he has this way of commenting on your solution that opens up a totally new way of thinking."



# THEORETICAL PHASE

## Lectures

Lecture slides focus on topics (e.g. “SQL”, “Data Visualization”, “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 for 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 go over 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 weaknesses in teaching and the curriculum. Students are assigned supplementary work based on their results. This can involve redoing past assignments, doing a new assignment, and fixing / finishing their assessment, etc.

## Mini Industry Lectures

Students participate in lectures from senior-level professionals from within the local tech community (these may be broader than data analytics- e.g. Data Engineering, FOSS, D3.js, Agile Methodologies, Product Development)

# PROJECT PHASE

On the final projects, students will 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, build Twitter crawler for geotagged data).

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 prioritize tasks and offering technical suggestions.

## Objective

Apply the knowledge about DA 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, geospatial analysis, AB testing, TSA).

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

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

The results are communicated at the end of the project with a presentation, which should include a slide deck. 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 a first iteration to a DA project, with a shorter timeline. It could be a self-contained project, or a building block for the collaborative project. The project ends with the presentation to communicate the results.

## Collaborative Project

The collaborative project can be more ambitious than the PoC, as it has a longer timeline and counts with 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 a final delivery of the project.

# CAREER PREP PHASE

## Data Challenges

Students are given a data challenge that they need to complete within a specified period of time. Challenges usually include a data set and a problem and students are tasked with explaining how the data can be pre-processed, modelled and how they could gather insights in the end. These challenges are an opportunity for students to practice tackling different kinds of problems and explain their thinking clearly- a skill which will be necessary in order to succeed in future interviews.

## Activities

Students undertake tasks like resume writing, personal story development, online presence polishing, mock HR and technical interviews, as well as technical trivia practice.

## 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 Analytics course was built in collaboration with a collection of folks 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 artifacts, 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 Coach Sessions and Guest Lectures from Senior Professionals

### **Individual Completion of Activities**

A learner-centered 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.

## Funding Your Bootcamp

### Deferred Tuition

We believe in removing barriers to tech for women and the TGNC community. That's why we offer payment plans for everyone, no matter where you're coming from.

### 600€ Deposit

The only amount required to pay up front. When you're accepted into CodeOp, you submit a deposit to confirm your enrollment. This amount is applied toward your total tuition.

## Remote Program

### 3600€ + 0% Interest

Payment plans of 3 months or less will be interest-free.

### 3600€ + Interest\*

Your deferred tuition is the remaining tuition you owe after paying your deposit. This amount is paid in installments of 6 or 12 months.

## In-Person Program

### 6600€

Receive 600€ off when you pay your tuition upfront.

### 7200€ + 0% Interest

Payment plans of 3 months or less will be interest-free.

### 7200€ + Interest

Your deferred tuition is the remaining tuition you owe after paying your deposit. This amount is paid in installments of 6 or 12 months.

## Scholarships

This program is meant to support those who have experienced economic hardships and who have demonstrated a strong desire to develop their technical skills. Scholarship amounts are awarded up to 1000€ and must be applied to the cost of tuition.

The number of scholarships awarded depends on the class size and number of applications of each cohort. Scholarships have been made available through a supportive network of CodeOp investors, who believe in our mission to diversify tech.

[apply for a scholarship](#)

[apply now](#)