



# Learning Data Analytics

WITH IRONHACK // 2024

# This is Ironhack

**Welcome, aspiring Ironhacker! We're happy to see you here!**

Before we dive into your new Program, let us tell you a little about who we are and what we do. We help career changers launch their new tech career. How do we do that?

## We offer training in highly sought-after skills

Our deep understanding of the market means we know exactly which skills tech companies are looking for, and our alumni walk away with the in-demand skills that'll help them get a job.

## We offer life-changing career guidance

We set students on a career path that'll bring them job satisfaction and lead to the role of their dreams.

## We're our students' partners, not just a tech school

We're partners for our students beyond graduation, helping them figure out the messy middle of job-hunting.



A photograph showing two students, a man and a woman, sitting at a desk and working on laptops. The Ironhack logo is visible on the screens of both laptops.

# Ironhack in Numbers

Ironhack was born in: 2013

**4.8/5**

In Course Report and SwitchUp

**70+**

Nationalities

**18,000+**

Students graduated

# The Course

4

## Length

400+ total hours  
9 Weeks - Full Time  
24 Weeks - Part Time

## Format and Schedule

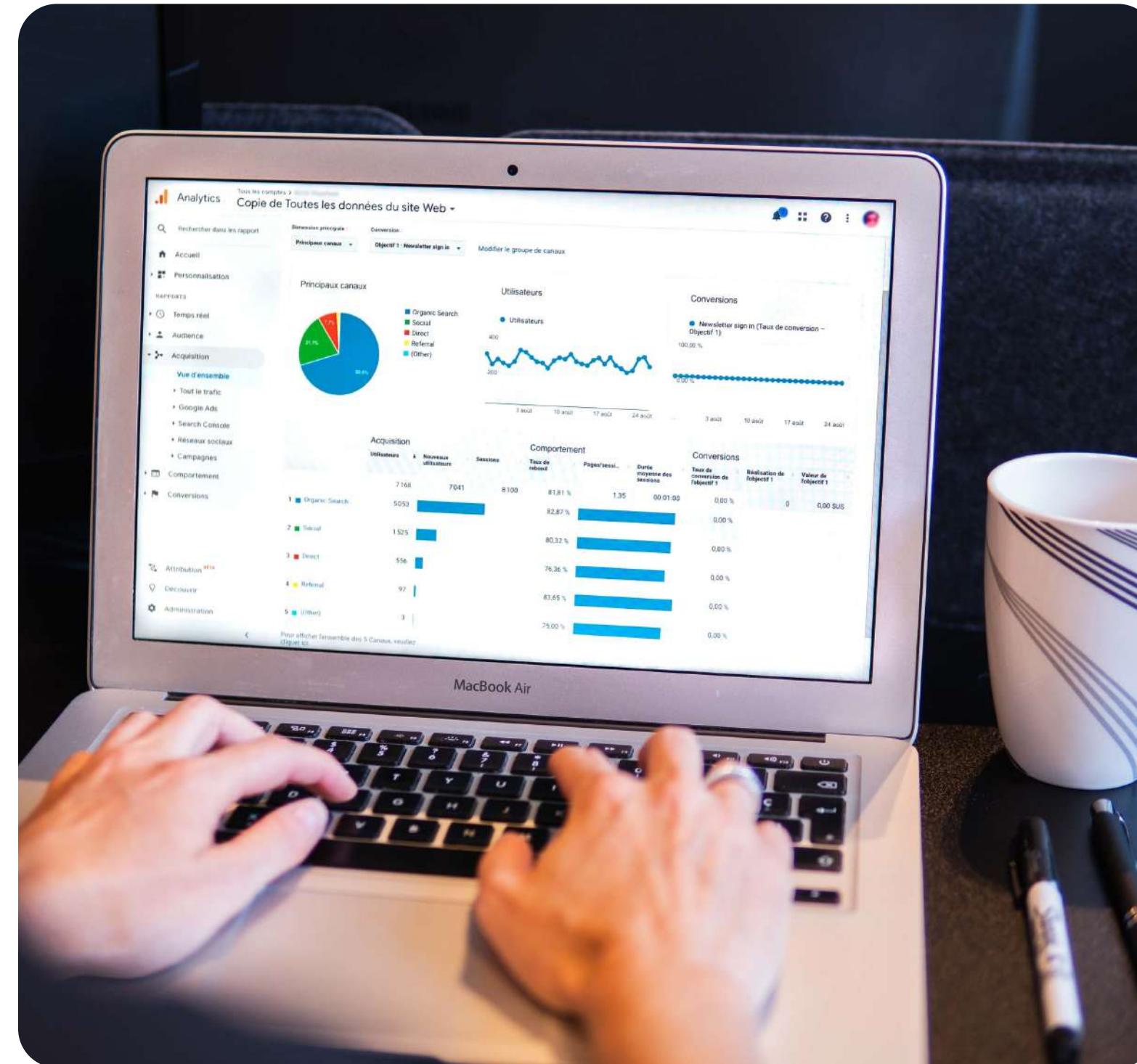
Remote - Live  
On Campus - In person

# Learning Outcomes

- Identify business problems and opportunities for improvement through data analysis, and apply appropriate data analytics techniques to generate meaningful insights and inform decision-making.
- Explain and implement the data analytics process in full from acquiring, cleaning, processing and exploring data, to visualizing and communicating insights.
- Demonstrate proficiency in cleaning, transforming, and processing data using techniques such as joins, grouping, aggregation, and missing data imputation, to create clean and usable datasets for data analysis and modeling.
- Conduct exploratory data analysis, including univariate, bivariate and multivariate analysis techniques, to understand the characteristics, patterns, and relationships in the data, and understand how these results impact the data analysis process.
- Apply key preprocessing techniques for predictive analytics, including feature engineering, feature selection, data balancing, scaling and normalization, handling missing values, and transforming skewed data to effectively prepare and enhance datasets for modeling, considering the specific data and model requirements.



- Apply basic concepts of probability and statistics to data analysis, including descriptive statistics, probability distributions, and hypothesis testing.
- Identify appropriate machine learning models for specific business problems and data sets.
- Build and compare predictive models using supervised and unsupervised machine learning algorithms for classification and regression tasks, and understand how to choose the best-performing model for a given task.
- Evaluate the performance of predictive models using metrics such as accuracy, precision, recall, or F1-score for classification models, and mean absolute error, mean squared error, R-squared or adjusted R-squared for regression models, and be able to select the appropriate metric based on the specific business problem.
- Interpret the results of machine learning models and make appropriate adjustments to improve performance.
- Identify and select the appropriate data visualization methods to effectively communicate insights.
- Communicate data insights to non-technical stakeholders by using storytelling techniques and creating interactive and informative visualizations using data visualization tools like Tableau.



- Access, extract and manipulate data from relational databases using SQL.
- Use Python and relevant libraries to extract, clean, manipulate and analyze data from various sources, and create interactive visualizations to present their findings.
- Extract data from websites using web scraping techniques and tools, as well as understand and use APIs to access data from various sources.
- Use Command line, Git version control, GitHub, and Gitflow branching model to manage projects with others.
- Apply Agile methodologies, such as Scrum, to real-world projects which involve participating in different rituals such as daily stand-ups and sprint retrospectives.
- Write clean, modular, and efficient code following best practices.
- Demonstrate an understanding of AI tools and ecosystems, including how to use them responsibly and efficiently.
- Create well structured Large Language Model prompts for different use cases, determining potential biases and limitations for sound decision making.
- Use tools such as ChatGPT to both work and learn more quickly and efficiently.

# Course Overview

“Learn by doing” is the best way to describe Ironhack’s educational methodology. We aim to have our learning experiences translate into real-life experiences. One way we deliver this idea is through creating learning activities and projects that require on-the-job skills. Furthermore, we challenge students to be problem-solvers, collaborators, and initiators. Ironhackers leave bootcamps experienced. Period.

Prework

Bootcamp

Careerhack  
Course

# Prework



30+ hours

You will be introduced to the Ironhack online platform, where you will have access to all bootcamp materials starting from prework, covering the fundamentals of data analysis. Topics include:

- Python basics
- Introduction to Descriptive Statistics
- SQL

# Bootcamp

**360 + hours** // Here, you will start your learning journey with other classmates. Utilizing cohort-based learning, you will cover the following topics and skills:

## Server-side development

Internet, HTTP, APIs, NodeJS, ExpressJS, Authentication & Authorization, CORS, REST, Deployment, API Testing

## Databases

SQL



## Data Sources

Relational Databases, Text, CSV, and Excel Files, APIs, Web Scraping

## Programming

Python, SQL

## Python Libraries for Data Processing

Pandas, NumPy, SciPy, Scikit-Learn

## Computing Platform/Database Management

Jupyter Notebook, MySQL

## Statistics and Probability

Probability Basics, Descriptive Statistics, Inferential Statistics



## Data Visualization

Matplotlib, Seaborn, Plotly, Tableau

## Data Processes

ETLs, Data Collection, Data Preparation (Data Cleaning, Data Transformation), Exploratory Data Analysis, Feature Engineering, Modeling, Evaluation and Validation, Visualization and Reporting, Communication and Storytelling

## Machine Learning and Predictive Analytics

SciKit-Learn, Statsmodel

## Career development

Communication, Critical Thinking, Professionalism, Team-work

Disclaimer: Course topics are subject to change according to the demands of the job market. We aim to design our curriculum to meet the required skills for junior positions in the tech market. Students who do not complete the activities and final project do not earn a certificate.

# Assessment & evaluation



Throughout the bootcamp, you will complete hands-on activities and projects (individual and group) that emulate real-world scenarios, allowing you to grow your skills gradually. This practice will provide you with experience that you can leverage for your professional development. Most importantly, you'll feel yourself progress, gaining a better understanding of your strengths and areas where you can improve.

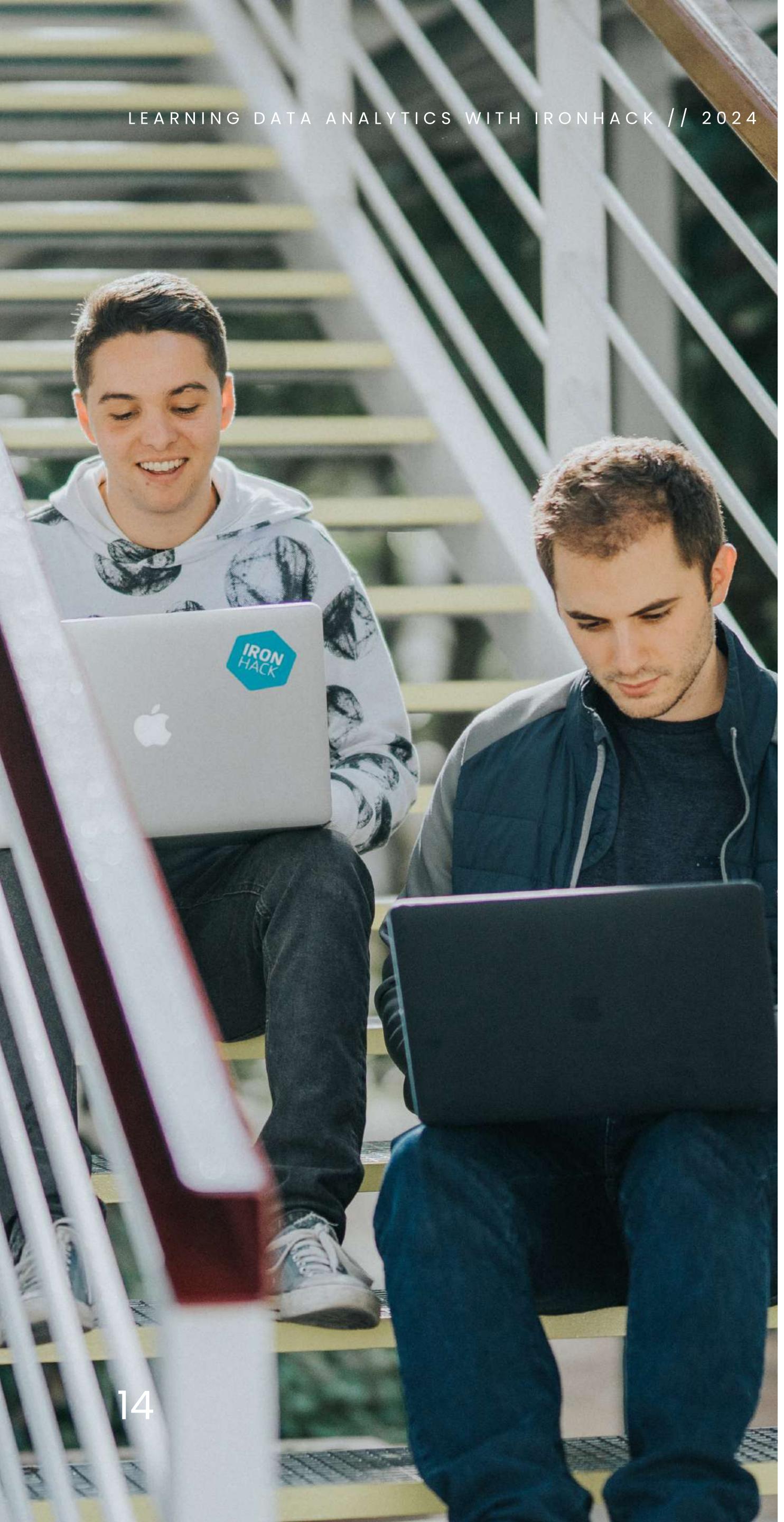
To keep you engaged and on track, we'll perform a mix of formative and summative assessments daily. The basic components are:

## **Class activities and checks for understanding**

These are small interactions to check that everybody is moving together, getting the concepts and keeping engaged.

## **Labs**

Labs help consolidate knowledge and review core concepts that you've learned during that day (or evening). They are designed to help you learn by assessment. Our AI Feedback for Labs gives you instant feedback, making it easier to learn and improve right away.



## Projects

Projects are a core part of the learning journey, they summarize the capacities you can demonstrate in different areas. Briefs are adjusted to be engaging, emulate real-world scenarios and portfolio-worthy. By the end of the bootcamp you will be able to include these projects in your portfolio as experience. There's a mix of group and individual projects.

In addition, we provide you with the tools to help you self-evaluate your work and peer-evaluate those of others. This will allow you to add another skill, self-efficacy, which is key to developing professional autonomy throughout your career trajectory. Each week is designed with you in mind!

# Career Services

Put your fingers on the pulse of what companies are looking for in candidates with our on-demand courses on industry best practices and talks from industry experts. You'll hear from a variety of professionals in your field of interest including tech, HR, and recruitment experts to give you a full, 360 degree view of what's up in the tech job market.

As an Ironhacker, you'll get guidance on how to build your resume and LinkedIn, which we'll also review to make sure you have the best tools for starting the job search. You can book one-on-one sessions with your Career Advisor to help you practice your pitch or interviewing or figure out the messy middle of job hunting.

And one more thing: you'll have the chance to mingle and share stories at many networking events. You might just find your next big career break or a helpful contact!

Our goal is to help you land a job as soon as possible, but if you need it, all Ironhackers have access to our dedicated Career Services as long as they're actively job hunting for up to a full year post-graduation. Stay connected with your Career Advisor, as well as your fellow Ironhackers and our global alumni network even after your program is over!

# What are the job roles available to me after bootcamp completion?

Data Analyst  
Business Analyst  
Data Scientist  
Data Engineer

Disclaimer: We do not guarantee job placements, but we work very hard to get you employed!



## Where Ironhackers Work

**Klarna.**

**Google**

**VISA**



**amazon**

**Uber**

**Meta**



**pipedrive™**

**Glovo**

**Revolut**

**ZARA**

**MANGO**



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