Data Science

In partnership with
HyperionDev

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Overview

Data science is a rapidly evolving field and has applications in practically every industry. As ever-increasing volumes of data get generated, stored, and used for informing strategic decisions, there is tremendous value in being able to make sense of raw data and gather meaningful insights from it.

That is what makes data science ubiquitous. Once you understand how to think like a data scientist and work with data using popular tools and techniques, you will be able to apply your learning in sectors as diverse as marketing, health, finance, technology, sports, and public policy.

As a data scientist, you will often analyse large amounts of structured and unstructured data for purposes such as identifying patterns, predictive modelling, problem-solving and visual storytelling. In doing so, you will draw upon your knowledge of concepts and techniques from mathematics, statistics, and computer science. If you have a curious bent of mind, enjoy problem-solving, and aren't afraid of numbers, this may be the career for you!

No prior knowledge of coding is required when taking this bootcamp, as we help you progress from beginner to job-ready in three to six months. As part of the bootcamp, you're taught the fundamentals of programming and statistics and machine learning to enable you to start working as a data scientist.

Going beyond the essentials

You'll learn how to write code that can design and interact with databases to extract data that can solve real-world problems. The advanced-level curriculum includes understanding and applying key machine learning and artificial intelligence concepts to practical uses.

Throughout the bootcamp, you will be guided to develop the skills required to think beyond mere coding or plain analytics. You'll also learn to communicate insights about your data to technical and non-technical stakeholders through visualisation. Your understanding of the popular applications of machine learning and AI will guide you throughout your own projects as you mature as a data scientist.
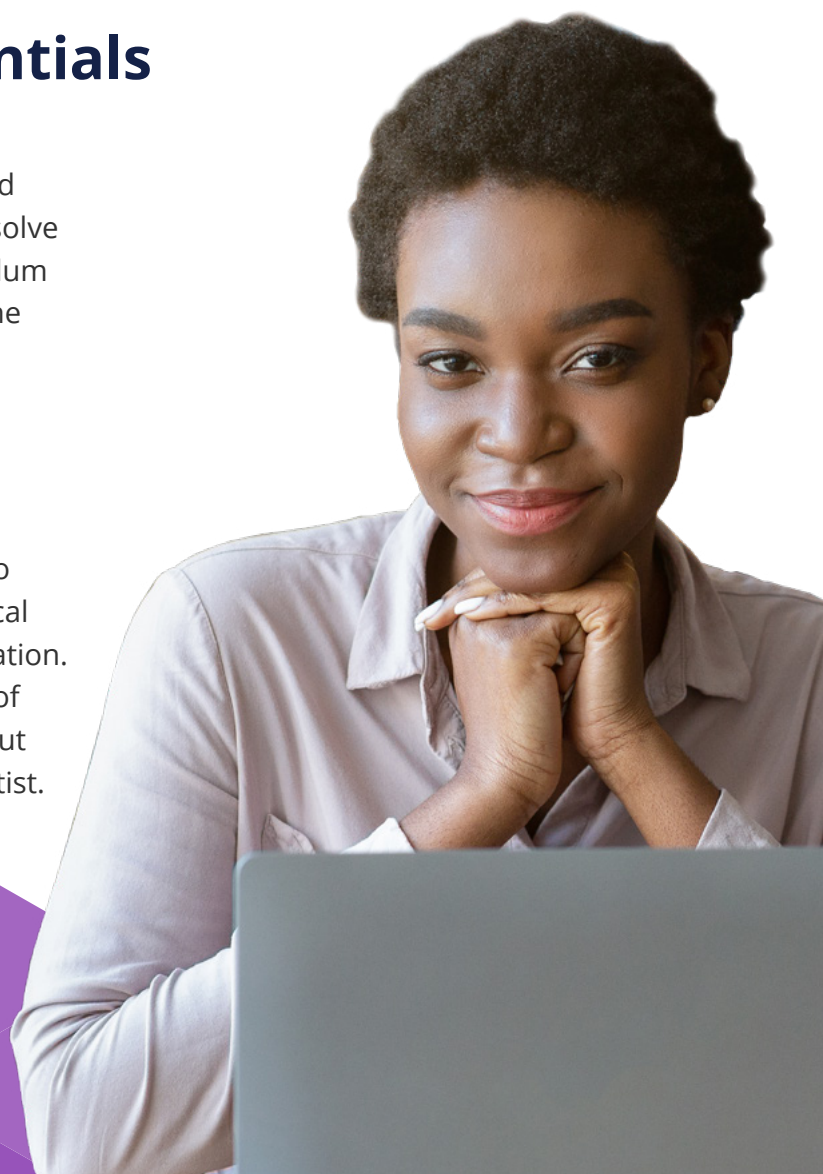
The process

1 Log onto your personalised dashboard

2 Complete coding exercises online

3 Your code reviewer reviews your work within 48 hours

4 Perfect your coding over 3-6 months

5 Earn a certificate of completion

6 Begin your new career in tech

Outcomes

- Write useful code in Python, one of the most popular languages for programming and data science.

- Collect and clean large amounts and varieties of data and transform them into more usable formats.

- Develop an understanding of key statistical methods in order to read, analyse, and summarise data.

- Present and communicate insights about your data through visual storytelling and reports.

- Use analytical techniques in machine learning, deep learning, and text analytics to identify patterns and build predictive models.

- Look for relationships and patterns in data and spot trends in complex datasets.

- Solve industry-specific problems using data-driven techniques and domain knowledge.

Code reviewers in partnership with

Bootcamp code reviewers are expertly trained to integrate code review into the lives and bootcamp curriculum of participants. The on-demand code review method helps participants to become fluent in the language of their choice.

Our 1-on-1 code review approach works

Code review enables you to learn to code and work with data science tools the right way, which is a prerequisite for a career in data science. We help you master the deeper aspects of industry-level coding skills to set the foundation for a lucrative career in data science.

Here's why learning through code review is smarter:

Don't make the same mistakes as computers

- Automated code checking is like spell check for computer programs. You can't write a world-class essay with just good spelling — you need the right tone, facts, grammar, and style. Our human-led code review can help you learn aspects of coding that are analogous to tone and style that will make you truly fluent as a developer — automated graders just can't help you learn this!

Get unstuck with on-demand technical help

- Our code reviewers will ensure you move at a steady pace by helping you debug your programs within 48 hours. This will help you to keep moving forward and help you stay on track.

Be exposed to the industry standards from day one

- Developers in the real world have their work assessed by a senior developer through the technique of code review. We're the only bootcamp in the world that exposes our participants to this technique from day one, granting you an advantage in the job market.

We layer a proven, personalised approach to our code review

Industry experts tailored to your goals

- You'll work with experienced code reviewers who will guide you through 1-on-1 calls, career coaching, live chat, and email support.

Join a community of career-changers

- Learn as part of a cohort of participants all working towards ultimate career fulfilment. Join online group tutorials, community chats and meetups, and peer coaching.

Free of fear of failure

- Human-led code review builds trust with your educators and lets you progress at your own pace. Establish a safe space to discuss any roadblocks without fear of failure.

Why choose data science as a lucrative career?

Data is only as valuable as the person who is able to read it. Data science is the art of collecting, exploring, and processing raw data so that it produces actionable insights for a business. Data scientists provide incredible value in being able to conduct in-depth analyses in order to communicate beneficial solutions to various stakeholders. Because of their inevitable significance to the tech industry, data scientists are in high demand, and in turn, earn high salaries.

If you're looking for a career that is both rewarding and lucrative, data science delivers on both. Those who develop data science skills can choose to pursue a variety of career paths, ranging from business analyst to machine learning engineer.
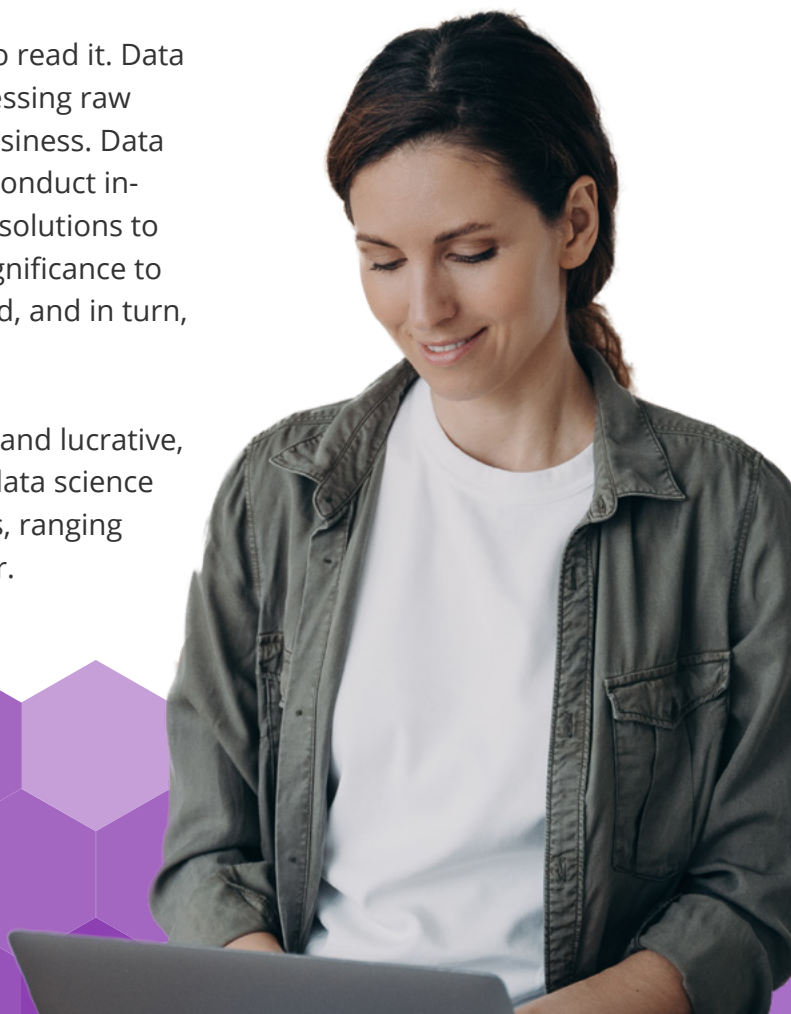
How we get you hired

We're with you every step of your journey, and our support doesn't end when you complete the bootcamp. Our career services are developed to help you stand out from the crowd, and grab the attention of top employers.

TECHNICAL CV AND PORTFOLIO

Receive technical assistance in getting your CV industry-ready according to accepted bestpractice format.

INTERVIEW PREPARATION

Know what to expect when getting ready for that big interview with expert interview preparation from professionals who have been where you are.

BOOTCAMP CERTIFICATE

Walk away with a newly minted certificate as evidence of your skills and expertise in data science.

JOIN OUR HIRING NETWORK

We work with select hiring partners and will aim to help you land your first tech job interview after the completion of the bootcamp.

Potential career paths

When you enter the world of tech - and specifically the field of data science - the career options and role designations may seem intimidating at first. While the sky certainly is the limit once you learn to code, our bootcamps get you job ready for an entry-level role at a tech business. Below are some potential career path options you may want to consider working towards, or research further.

Data Architect

Ensure data solutions are built for performance and design analytics applications for multiple platforms. In addition to creating new database systems, data architects often find ways to improve the performance and functionality of existing systems, as well as working to provide access to database administrators and analysts.

Responsibilities include:

- Developing and implementing an overall organisational data strategy that is in line with business processes.
- Identifying data sources, both internal and external, and working out a plan for data management that is aligned with organisational data strategy.
- Coordinating and collaborating with cross-functional teams, stakeholders, and vendors for the smooth functioning of the enterprise data system.
- Defining and managing the flow of data and dissemination of information within the organisation.
- Integrating technical functionality, ensuring data accessibility, accuracy, and security.

A Data Architect in the United Kingdom can earn an average salary of £66,646 per year.

Machine Learning Engineer

Machine Learning Engineers create data funnels and deliver software solutions. They typically need strong statistics and programming skills, as well as a knowledge of software engineering. In addition to designing and building machine learning systems, they are also responsible for running tests and experiments to monitor the performance and functionality of such systems.

Responsibilities include:

- Designing and developing machine learning and deep learning systems.
- Running machine learning tests and experiments.
- Implementing appropriate ML algorithms.

A Machine Learning Engineer in the United Kingdom can earn an average salary of £51,487 per year.

Applications Architect

An Applications Architect tracks the behaviour of applications used within a business and how they interact with each other and with users. They focus on designing the architecture of applications as well, including building components like the user interface and infrastructure.

Responsibilities include:

- Designing major aspects of the architecture of an application, including components such as the user interface, middleware, and infrastructure.
- Providing technical leadership to the application development team.
- Performing design and code reviews.
- Ensuring that uniform enterprise-wide application design standards are maintained.
- Collaborating with other stakeholders to ensure the architecture is aligned with business requirements.

An Applications Architect in the United Kingdom can earn an average salary of £61,621 per year.

Business Intelligence (BI) Developer

BI Developers design and develop strategies to assist business users in quickly finding the information they need to make better business decisions. Extremely data-savvy, they use BI tools or develop custom BI analytic applications to facilitate the end-users' understanding of their systems.

Responsibilities include:

- Designing, developing, and maintaining business intelligence solutions.
- Crafting and executing queries upon request for data.
- Maintaining and supporting data analytics platform.
- Creating tools to store data.
- Conducting unit testing and troubleshooting.
- Evaluating and improving existing BI systems.

A Business Intelligence (BI) Developer in the United Kingdom can earn an average salary of £44,571 per year.

Data Engineer

Perform batch processing or real-time processing on gathered and stored data. Data Engineers are also responsible for building and maintaining data pipelines which create a robust and interconnected data ecosystem within an organisation, making information accessible for data scientists.

Responsibilities include:

- Analysing and organising raw data.
- Building data systems and pipelines.
- Interpreting trends and patterns.
- Building algorithms and prototypes.
- Developing analytical tools and programs.

A Data Engineer in the United Kingdom can earn an average salary of £48,481 per year.

Business Analyst

A Business Analyst examines and analyses business processes. This professional finds efficiencies and takes on a leadership position when it comes to project teams. The business analyst provides necessary technical information for the business.

Responsibilities include:

- Creating solutions and communicating them to the business.
- Evaluating business processes.
- Report management.
- Data analysis, including pricing, budget forecasts, and plans.
- Effective presentation of data to the business.

A Business Analyst in the United Kingdom can earn an average salary of £42,768 per year.

Structure of the bootcamp

This bootcamp helps you progress from learning the basics of programming and data science to becoming a data scientist with a rewarding and satisfying job. Proceed from novice to job-ready, and embark on the successful career path you deserve.

Bootcamp prep (Before you start)

- Learn about programming and data science in general, and how we support you in achieving your career goals. Start programming with Python with an introduction to basic machine learning concepts to decide if a data science career is really for you.

Python for Data Science (Beginner level)

- Get to grips with the fundamentals of Python, fast emerging as the most popular programming language for data science.

Data Analytics and Exploration (Intermediate level)

- Learn how to work with databases and popular Python packages to handle a broad set of data analysis problems. You also learn how to create visualisations that can communicate insights about your data.

Machine Learning and AI (Advanced level)

- Begin with fundamental statistical and machine learning concepts. As you progress through the tasks, build a solid understanding of supervised learning, unsupervised learning and machine learning applications in various industries.

Career Readiness and Employability (Post Bootcamp completion)

- Once you have completed your bootcamp we provide career support and guidance, including interview preparation and CV review, to equip you with technical skills and professional career development tools to succeed in your job search.

- We introduce the participants who have completed the bootcamp to the industry through various networking events, career expos and job opportunities with our hiring partners. Most of our participants get hired within six months of completing the bootcamp with our support and mentorship.

Breakdown of syllabus

The bootcamp is structured to allow you to start coding as soon as possible.
Tasks are designed to:

- Teach you the theory needed to develop your skills.

- Give you the platform to practise implementing your new knowledge by completing practical exercises.

Remember, with HyperionDev, you're never alone. Contact a code reviewer for support whenever you need help with a task. The code that you submit for each task is reviewed by an expert, ready to help improve the efficiency and quality of your code.

Python for data science

Tasks: 36   **Capstone projects: 5**

Tasks no.	Task name	Description
1	Thinking Like a Programmer — Pseudo Code I	Learn how pseudo-code can help you clarify your thoughts and properly plan your programs before writing any code.
2	Thinking Like a Programmer — Pseudo Code II	Delve further into algorithm design and representation.
3	Your First Computer Program	Get acquainted with Python, the powerful, easy to learn and extremely
4	Variables - Storing Data in Programs	Learn how to store and interact with the data in our programs using variables.
5	The String Data Type	Learn how to store and manipulate text using the string data type.
6	Numerical Data Types	Explore the different types of numbers used in the Python programming language.
7	If Statements and the Boolean Data Type	Learn how to use the if statement and the boolean data type to make decisions in your program.
8	Beginner Control Structures - Else Statements	Learn how to use else statements.

Tasks no.	Task name	Description
9	Beginner Control Structures - Elif Statements	Learn how to check for multiple conditions using elif statements.
10	Logical Programming - Operators	Learn how to tell the compiler how to perform specific mathematical, relational or logical operations using operators.
11	Capstone Project I - Variables and Control Structures	Put your knowledge of variables and control structures to the test by creating an investment calculator.
12	Beginner Control Structures - While Loop	Learn how to execute a block of code repeatedly until a given condition returns false using while loops.
13	Beginner Control Structures - For Loop	Learn how to use the for loop to repeat a section of code a specified number of times.
14	Towards Defensive Programming - Error Handling	Discover the different types of errors that might occur in your programs and how to handle them.
15	String Handling	Learn how to manipulate text using Python's built-in functions.
16	Beginner Data Structures - The List	Discover the most frequently used and versatile collection datatype used in Python - the list.
17	Working with External Data Sources - Input	Create smarter programs by learning how to read data from text files.

Tasks no.	Task name	Description
18	Working with External Data Sources - Output	Learn how to write data to text files.
19	Capstone Project II - Files	Put everything you've learnt about files to the test in this comprehensive task.
20	Beginner Data Structures - Lists and Dictionaries	Learn how to manipulate lists and become acquainted with dictionaries.
21	Beginner Programming with Functions - Using Built-In Functions	Learn how to use Python's built-in functions to provide better modularity for your programs and encourage code reuse.
22	Beginner Programming with Functions - Defining Your Own Functions	Create your own Python functions to carry out specific tasks.
23	Hypothesis-Driven Debugging With The Stack Trace	Learn to debug methodically and move away from trying to resolve errors randomly.
24	Capstone Project III - Lists, Functions And String Handling	Use all the knowledge you have gained throughout this bootcamp thus far to create a useful program.
25	Introduction to Python - Data Structures - 2D Lists	Discover the most frequently used and versatile collection data type used in Python.
26	Applied Recursion	Explore the concepts of recursive programming and how to "think recursively".
27	Towards Defensive Programming II	Learn how to guard against errors you don't expect.

Tasks no.	Task name	Description
28	Introduction To OOP I - Classes	Introduction to the principles of Object Oriented Programming (OOP).
29	Introduction to OOP II - Inheritance	Learn how you can improve the modularity and reuse of code using inheritance and the critical role it plays in Python's object system.
30	Capstone Project IV - OOP	Apply the fundamentals of object-orientation to solve a simple problem.
31	Introduction to NLP	Get acquainted with Natural Language Processing by learning about parts of speech, parsing, and how to install and start using spaCy.
32	Semantic Similarity (NLP)	Learn about semantic similarity, a popular application of NLP widely used for social media analysis.
33	Capstone Project V: Introductory NLP	Utilise your newly acquired knowledge of semantic similarity and natural language processing in this capstone project.
34	Discrete Maths	Learn the basics of discrete maths to support your understanding of analytics and machine learning in Level 2 and 3.
35	Calculus	Learn the basics of calculus to support your understanding of analytics and machine learning in Level 2 and 3.
36	Statistics	Learn the basics of statistics to support your understanding of analytics and machine learning in Level 2 and 3.

Data analytics & exploration

Tasks: 18 **Capstone projects: 3**

Tasks no.	Task name	Description
1	Sources of Data	Learn how to extract and import data from different sources (JSON, XML, CSV).
2	Introduction to Databases	Compare relational, graph and NoSQL databases.
3	Design and Build a Relational Database	Design a database by applying normalisation principles. Create a
4	Working With SQL	Learn how to communicate with your database using SQL and MySQL.
5	SQLite	Get comfortable with SQLite, a self-contained, public domain SQL database engine.
6	Capstone Project I: Databases	Design a system that interacts with a database.
7	Data Visualisation I	Understand basic data visualisation and how to choose the best form of visualisation based on aspects such as the nature of the dataset and expectations from the visualisation exercise.
8	Data Visualisation II	Dive into more complicated data visualisation. Scatterplot matrix. Network visualisation.

Tasks no.	Task name	Description
9	Data Visualisation III	Explore popular data visualisation tools such as Tableau.
10	Python Packages for Data Science	Get introduced to some of the most popular Python packages like pandas, NumPy, SciPy.
11	Working With Datasets	Learn how to import and export data in Python. Start importing and manipulating datasets.
12	Data Visualisation IV	Set up Matplotlib and learn how to start loading data from a CSV and NumPy + Pandas. Create basic visualisations, such as pie charts and bar graphs, using Matplotlib.
13	Data Analysis I	Learn about cleaning data, data frame manipulation, and summarising data.
14	Data Analysis II	Understand how to deal with Missing Values and turn categorical variables into quantitative variables. Explore data normalisation.
15	Exploratory Data Analysis	Learn about descriptive statistics and concepts such as GroupBy, Correlation, Analysis of Variance (ANOVA).
16	Capstone Project II: Data Analysis	Build an analysis report based on a dataset.
17	Data Visualisation V	Create advanced visualisation using Matplotlib, including scatterplots, time-series plotting, area charts, and 3D plots.
18	Capstone Project III: Data Visualisation	Put your knowledge of data analytics and visualisation to the test in this comprehensive task.

Machine learning & AI

Tasks: 12   **Capstone projects: 2**

Tasks no.	Task name	Description
1	Introduction To Machine Learning	Explore what a data scientist does. Get introduced to supervised and unsupervised machine learning.
2	Supervised Learning I: Simple Linear Regression	Learn what linear regression is and when to apply it.
3	Supervised Learning II: Multiple Linear Regression	Explore more concepts, such as multiple linear regression, and training vs. test set.
4	Supervised Learning III: Logistic Regression	Introduces the notion of classification, and the application of logistic regression to binary classification.
5	Supervised Learning IV: Decision Trees I	Learn about regression trees and classification trees that are essential concepts to supervised learning.
6	Supervised Learning V: Decision Trees II	Dive deeper into supervised learning by learning about bagging, random forests, and boosting.
7	Capstone Project I:	Build an image recognition classifier which accurately determines a house number displayed in images from Google Street View.
8	Unsupervised Learning I: Clustering I	Understand how to work on clustering algorithms such as k-means, a commonly used unsupervised learning algorithm.

Tasks no.	Task name	Description
9	Unsupervised Learning II: Clustering II	Explore more unsupervised learning algorithms such as hierarchical clustering.
10	Unsupervised Learning III: PCA	Add to your knowledge of unsupervised learning by studying dimensionality reduction.
11	Looking Ahead With Data Science: Exploring Neural Networks	Become familiar with the fundamental concepts and terminology used in neural networks. Understand backpropagation and learn how to validate your models.
12	Capstone Project II: Unsupervised Machine Learning	Test your knowledge of unsupervised machine learning in this challenging task.