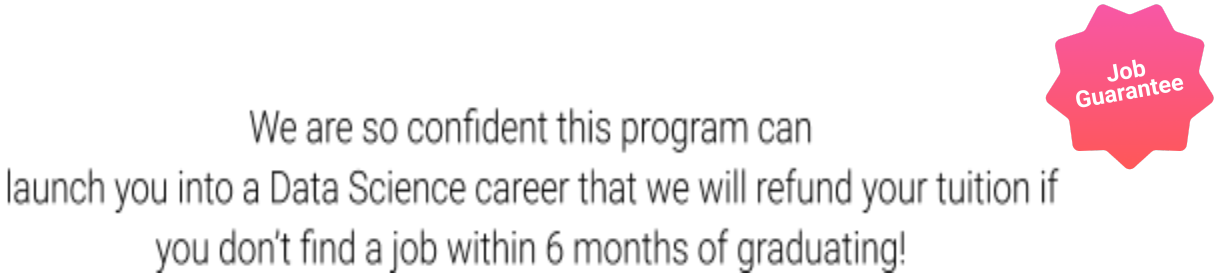
Data Science Career Track - Online Classroom

Syllabus & Course Overview

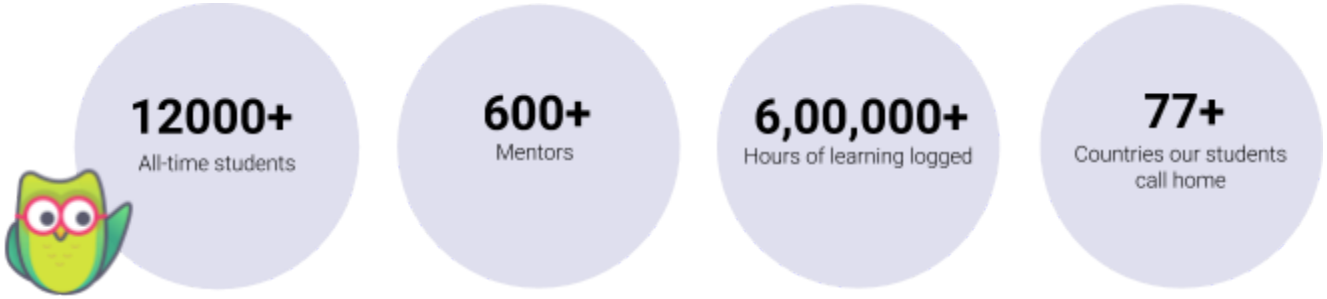
Springboard

Introduction

Data Science is one of the fastest growing fields of this decade. By 2025, the Data Science analytics sector in India is estimated to grow eightfold, reaching $16 billion. According to LinkedIn, data scientist jobs have 37% hiring growth over the last three years. Data Science is one of the highest paying technical jobs today. Learning Data Science is perhaps the best career investment you can make right now!



Springboard in numbers



Prerequisites

You must hold a bachelor's degree in engineering, mathematics and statistics or any other relevant field from an accredited institution. You should have atleast foundational knowledge of probability & statistics. You should have some coding experience.

Admission Process

1. Submit your application

Fill out our application form to get started. There is no application fee. It takes about 5-7 minutes. You should expect a call from our admissions team within 1 business day.

2. Attempt the Skills Survey

If it's a fit, we'll send you a challenge to test your statistics and programming knowledge. This will help us know if you will be successful in the course.

3. Reserve your spot

If you pass the challenge, we will send you a registration link. You will need to pay INR 25,000 to confirm your spot in the cohort and choose the payment plan for the balance payment.
There are two options to pay: Upfront and no-cost EMI(0% interest rate). Choose the start date and payment plan that works for you (we can help!).

4. Join the program

You'll be one of the fewer than 20% of applicants who secured a spot in the Data Science Career Track with Online Classrooms. Congratulations!

How it works

1. Cost and schedule: The course costs **INR 2,65,000 and runs for 9 months**. We also have zero interest EMI plans and financing options. It is fully **online**, and allows you to study anywhere and anytime you want. You'll have **30 1-1 personalised calls** with your mentor during the course duration, and continued access to your Springboard account and online community after you graduate.

2. Enrollment: Once your application is accepted, we'll send you a custom link to make the payment and enroll.

3. Mentor-matching process: Once you enroll, you'll be asked to fill out a profile in which you'll write a short bio about yourself, your availability during the week, and the skills you want to develop. Your Student Advisor will use this information to match you with a mentor who suits your specific needs.

4. Curriculums curated by experts: Diverse perspectives lead to better learning outcomes. Our **500+ hour** expert-curated curriculum is curated by data science experts from **Dell, Cisco, and Pindrop Security** - from the best sources on the web (tutorials, videos, podcasts, papers, articles, and some optional books), and updated to reflect new industry trends and hiring needs.

5. Online Classrooms: You will go through over **30 hours** of interactive and activity based live learning sessions conducted online by experts spread over the course period.

6. Practice concepts through projects: A lot of your time will be spent working on hands-on projects and applying what you're learning. Working with your mentor, you will get experience with real business problems and datasets.

7. Career Services: You will get career resources as part of the curriculum, as well as 1-on-1 video calls with a career coach, where you will cover resume review, mock interviews and salary negotiation tips and more

8. Graduating from the course: You will exhibit your data science skills through your **Capstone Projects** which will be approved by your mentor. Once you complete all other assignments, you will receive a certificate which describes your learning. **You can even add this to your LinkedIn profile!**

Online Classroom Session Details

Springboard's Data Science Career Track - Online Classrooms is our most intensive course to date -- with a **500+ hour curriculum** designed around **20 mini-projects** and **3 portfolio worthy capstone projects**. You'll learn advanced data science topics through over **30** hours of **live online interactive video sessions (virtual classroom environment)** led by expert data scientists, get regular **1-on-1 sessions** with mentors and career coaches, **mock interviews** and **dedicated community managers** to help you succeed. The duration of each live session will be approximately **2 Hours**. Live lectures will follow an interactive and activity driven format and will have **coding sessions**, **live online case studies**, **quizzes**, **live Q&A, industry insights** etc.

The live sessions will help you with:

- ✓ Hands-on application
- ✓ Real time doubt resolution
- ✓ Better interaction with experts and peers
- ✓ Better success rates during technical interviews

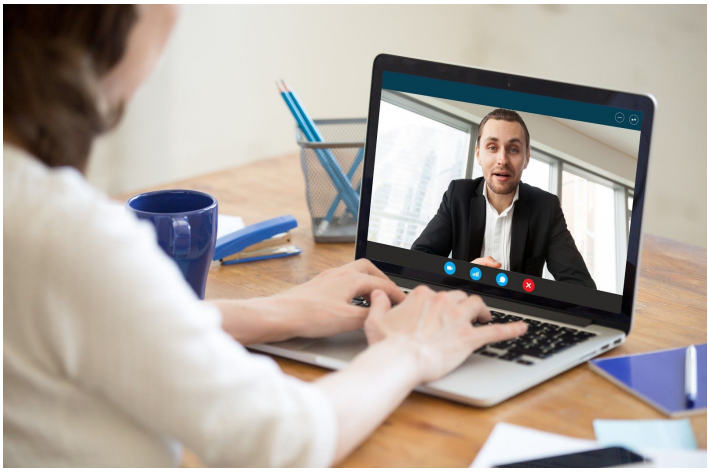
Office Hours

You'll join other students for office hours every week as we discuss a variety of topics with a leading data scientist. You can utilize this time to get a better understanding of what other students are working on, ask questions about data science, and learn more about getting into the industry!

Why is mentorship important?

Mentors hold students accountable, help them grow, and impart real-world knowledge and advice. **Research shows that having a mentor makes you 5 times more likely to get promoted and more likely to get a raise.**

Our mentors are experienced, professional Data Scientists who are motivated by a desire to give back to their communities. We select them based on a combination of professional experience, educational background, skills-based competencies, and a portfolio of work. More importantly, we look for empathetic individuals with top-notch communication abilities, and an intrinsic love of teaching.



Some of our mentors

Karthik R
Dy. GM Data Sciences

Mahindra Rise.

Mathangi Sri
Head of Data Science

PhonePe

Farhat Habib
Director, Data Science

INMOBI

Dipanjan Sarkar
Data Scientist

redhat.

Career services

While you work through the course, you'll get **15 personalized 1:1 career coaching calls**, offered at specific points as you complete the career curriculum to address your specific situation.

- ✓ Job search strategy call and LinkedIn profile review
- ✓ Effective Networking
- ✓ Check in call on identifying companies and job titles
- ✓ Resume review call
- ✓ Mock behavioral interview
- ✓ 2 mock technical interviews
- ✓ Negotiation practice call

How our job guarantee works

We work with you to supplement your learning efforts to ensure a successful job search after completion. If you meet our criteria, we guarantee that you will be offered a job in a data science or analytics field within 6 months of graduating from the course, or your tuition fee back. More details of the job guarantee are available here.

Units – What you'll learn

Each unit of this course will cover a key data science concept and the skills associated with that concept. The units feature a combination of materials: projects, lectures, theory, coding exercises, reading/viewing exercises, and career-related coursework. The recommended time allocation is based on a total of 500 hours of work, and can be scaled according to student needs.

The Data Science Method

The course centers around the Data Science Method. This method involves six steps:

1. **Problem Identification** - this step involves identifying the correct problem to solve and setting goals for your project.
    - You'll learn how to create a SMART problem statement and form hypotheses about the problem.

2. **Data Wrangling** - this step involves the collection, organization, and definition of a dataset or datasets.
    - You'll learn how to compile data, build local file structures, create data profiles, resolve formatting issues, and more.

3. **Exploratory Data Analysis** - this step involves creating plots and charts to understand the relationship between data and the features of that data
    - You'll learn how to create data visualizations in Python and use statistics to identify patterns.

4. **Pre-processing and Training Data Development** - this step involves standardizing and training your dataset.
    - You'll learn how to remove out-of-value ranges and create testing and training subsets of your data.

5. **Modeling** - this involves selecting, training and deploying a model to make predictive insights.
    - You'll learn industry-standard algorithms to build models

6. **Documentation** - this involves documenting the work you've done and sharing your findings.
    - You'll learn how to create a project report and present your findings.

Each of these steps is examined in detail in one or more units of the course. You'll learn about each step and apply your new knowledge to hands-on work related to each of your three capstone projects.

In addition to the steps of the Data Science Method, you will also find units dedicated to the following topics:

The Python Data Science Stack

Python has become the lingua franca of data science. In this section of the course, you'll learn to program in Python, how to follow best coding practices, and start using an ecosystem of useful and powerful Python-based tools.

Topics covered:

1. Python data types, foundations, and standard libraries
2. pandas
3. Visualization tools in Python like matplotlib and Seaborn

SQL and Databases

In this section of the course, you'll learn how to leverage Structured Query Language (SQL) to query relational database management systems. In other words, you'll use queries to understand the data contained in databases.

Topics covered:

1. The landscape of SQL and databases
2. Writing queries in SQL
3. Working with relational databases in Python

Statistical Inference

Statistics is the mathematical foundation of data science. Within statistics, inferential statistics is a set of techniques that helps us identify significant trends and characteristics of a data set. Not only is it useful to explore the data and tell a good story, it also paves the way for deeper analysis and actual predictive modeling. In this module, we cover several important inferential statistics techniques in detail.

Topics covered:

1. Theory of inferential statistics
2. Statistical significance
3. Parameter estimation
4. Hypothesis testing
5. Correlation and regression
6. Exploratory data analysis

Machine Learning

Machine learning combines aspects of computer science and statistics to extract useful insights and predictions from data. Machine learning is what lets us make useful predictions and recommendations, or automatically find groups and categories in complex data sets.

In this section of the course, you'll learn and use the major supervised and unsupervised machine learning algorithms. You'll learn when to use these algorithms, the assumptions they incorporate, the tradeoffs they involve, and the various metrics you can use to evaluate how well your algorithm performs.

Topics covered:

1. The landscape of machine learning
2. Supervised learning and the most popular algorithms, including linear and logistic regression, support vector machines, decision trees, clustering, time series and forecasting, ensemble learning with random forests and gradient boosting
3. Unsupervised learning and the most commonly used clustering techniques, including k-means clustering, agglomerative hierarchical clustering, Euclidean & Manhattan distances, cosine similarity, and principal components analysis
4. Machine learning model evaluation and optimization

Advanced Machine Learning, Big Data and Deployment

In this section, we will prepare you to take on versatile data science roles across a wide variety of business domains and geographical locations. You'll build on the foundational

skills you learned in the core units and tackle more advanced topics like working with Big Data and software engineering best practices.

Topics covered:

1. Advanced time series analysis
2. Machine learning topics *(please note that you will be asked to choose to learn one of the topics listed below. The other topics will be optional)*
    a. Natural Language Processing (NLP)
    b. Image processing
    c. Recommendations systems
    d. Network analysis
3. Data science at scale, including:
    a. Hadoop
    b. Spark and PySpark
    c. Neural networks
4. Machine learning in the cloud
5. Software engineering for data scientists

Data Storytelling
If there's one thing that most data scientists would have loved to know before they entered the field, it's that data science is not just about the math, the algorithms and the analysis, it's also about telling a good story. In real life, data scientists don't work in a vacuum - there's always a client, internal or external, waiting on the results of their work.

A data story is a powerful way to present insights to your clients, combining visualizations and text into a narrative. But storytelling is an art, and needs creativity. This section will try to get your creative juices flowing by suggesting some interesting questions you can ask of your dataset, and will cover a few plotting techniques you can use to reveal insights.

---

6. Career Resources (35+ hours)

You'll receive career material at strategic points both in the curriculum as well as via calls with our career support coaches. We'll help you create a tailored job search strategy based on your background and goals, teach you how to evaluate companies and roles,

show you how to effectively get and ace interviews, and explain how to negotiate an above-market salary.

Topics covered:

1. Anatomy of a tech company
2. Job search strategies that top candidates use
3. How to build your network and effectively use it to land interviews
4. Create a high-quality resume, LinkedIn profile and cover letter
5. Interview coaching and practice, including mock interviews for both technical and non-technical topics
6. Negotiation success tips
7. Practice interview questions for each technical topic
8. Algorithms and data structures to ace your coding interviews

---

Capstone Projects: Building a Data Science Portfolio

120+ hours

Capstone projects are a great way for you to practice the skills you'll need during your first data science job and demonstrate your knowledge and experience to potential employers. While working through this course, you'll complete **three capstone projects** to showcase your talents.

Guided Capstone (Capstone One) 23 + hours

Your first capstone project comes up fairly early in the course. For this project, you'll be given a lightweight introduction to each step of the Data Science Method. You'll then be guided through each of those steps with helpful tips and instructions. This first capstone is designed to build your foundational understanding of each of these important steps, while also giving you an opportunity to practice each step before applying your knowledge to your second capstone.

Capstone Two 50+ hours

Your second capstone project follows the same Data Science Method steps as the first capstone, but this time with less guidance. You'll be asked to:

- Come up with a project idea and proposal
- Find and wrangle data
- Use exploratory data analysis techniques to understand that data
- Pre-process and create a training dataset
- Build a working model
- Document and present your work

Each of these steps will be their own submission and are interwoven throughout the core units of the course.

Capstone Three 50+ hours

For your third capstone, you'll again work through each step of the Data Science Method.

You'll be asked to develop your third capstone around one of the topics including, time series analysis, image processing, or natural language processing. You can choose to use machine learning algorithms you learned in the core units and apply them to Big Data using at-scale approaches like Spark or through the use of a cloud machine learning platform. Implementing data science methods on these advanced platforms is one way to demonstrate your advanced data science knowledge — we encourage you to do this if you choose not to use a dataset that includes more advanced formats like images.

Not sure if your background is a fit?

Write to us at admissions.in@springboard.com. Prashant, Director of Admissions will help you think through the decision.

Questions about Springboard?

Email us at **admissions.in@springboard.com** with any questions.