UC SANTA BARBARA | EXTENSION
Professional and
Continuing Education

DATA SCIENCE

BOOTCAMP CURRICULUM

Data Science is one of those professions that are offered a profit margin in addition to a fixed salary from employers, reason being their work directly impacting the revenue and profit numbers. With the growth of digitalization and global acceptance of technology, it has become easier to gather data and draw consumer patterns. This has led to a huge rise in demand for result-oriented data scientists. Harvard Business Review titles Data Science as the sexiest job of the 21st century, while Bloomberg says Data Scientists are the new superheroes. With Data Science skills under your belt, here are some of the job roles you can look forward to fill:

- Data Analyst
- Data Engineer
- Data Scientist
- Business Insights Analyst
- Business Analyst
- Data Analytics Engineer

With salaries between **$60,000 to $140,000** according to PayScale.

At our bootcamp programs we offer the most industry relevant skills that are highly applicable as per the current market trend. From data manipulation techniques, to data visualization and insights building languages, our bootcamp is designed to make you a seasoned expert in Data Science. Some of the skills you'll learn include Transact-SQL, Excel, Power BI, Data Visualization, Python, R Programming.

WHO SHOULD ATTEND

Professionals at junior to mid-level careers with experience in data applications and having mathematical or statistical skills.*

**official Exam Vouchers not included in the Bootcamp Price*

COURSE STRUCTURE

Attend informative lectures, do hands-on labs (excluding fully self-paced versions). Apply your learning to real life projects. The goal is to give you a comprehensive learning experience and true insight into a "day in the life" of a cybersecurity specialist.

DISCUSSIONS BY INSTRUCTORS

Cohort-driven programs will include live instructor-led discussion throughout your self-paced guides you through the entire program and provides you opportunity to ask questions and get help. To take this a step further, you will have access to the instructors throughout the program through over mentoring and discussions forum. This way, help is always available for you to succeed.

LABS

You'll put whatever you learn into practice by doing hands-on labs. You will be provided access to virtual environments where you can practice what you learnt in a safe environment.

PROJECTS & CAPSTONE PROJECT

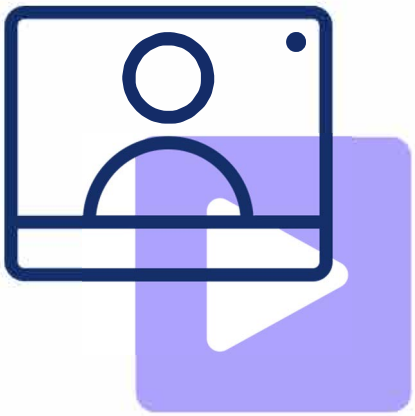
Your portfolio signals to employers that you are ready for primetime! You'll build a substantial portfolio of projects that demonstrate your abilities across a wide variety of technologies. Throughout the bootcamp you will be asked to do these projects.

Once finished with the bootcamp, you will work independently on set of final capstone projects. The skills you learn during this project will truly help you to prepare for your first interviews and jobs! The skills you need to complete this project will be everything you have learned from this bootcamp. We encourage students to come-up with their own Capstone projects, if you, you must meet certain objectives provided by your mentor.

*Please note that mentors are only available in cohort driven programs.

CAREER SUPPORT

You will have access to our career counselor (up to four, 30-minute sessions) who will help you with resume writing, linked profile, mock interviews and other ways to market yourself. We'll help you showcase your projects to potential employers and work with you to find you internships during the program.



MENTORING & DISCUSSIONS

Depending on your choice of program, mentors will give up to 4 quality hours every week in the form of LIVE sessions. Students can choose from either afternoon or evening sessions. Days and timings will be decided after initial kick-off session and consultation with the mentor.

All LIVE sessions will be recorded, and students will get access links of recorded sessions within 24 hours from the respective Academic Advisor.

Please note that certain programs may have fewer or no mentor support hours, please discuss with Admissions Advisor for more information if you prefer to attend scheduled weekly mentoring hours.

You'll have access to a dedicated bootcamp discussion forum to collaborate and seek help from industry experts and other students.

O&A Session* - Bring all your questions you may have and get the answers you're looking for.

Please read important information below on connecting with mentor.

ZOOM SESSIONS

You will be provided a specific link issued to the class for attending the weekly sessions 3 to 4 days prior to the Cohort start date. Using this link, you can connect to Zoom and interact with instructors. You can also use the following link to join by placing in your assigned Meeting ID.

https://www.zoom.us/join

Please note this is only applicable for cohort-driven programs.

COURSE OUTLINE

COURSE 1: INTRODUCTION TO DATA SCIENCE

The first course in series will introduce you to fundamentals of data and its analysis, statistics and machine learning basics

COURSE 2: ANALYZING AND VISUALIZING DATA WITH EXCEL

This course will build your skills around data analysis and visualization using the most widely accepted tool, Microsoft Excel. You'll learn data analysis, Excel data model, importing data into Excel from various sources, creating data tables, formatting measures using advanced DAX functions, visualizing data and using Excel with Power BI.

COURSE 3: ANALYZING AND VISUALIZING DATA WITH POWER BI

You will dive deeper in using Power BI to analyze and visualize data. Based on eight modules, you'll cover desktop data transformation, desktop modelling, desktop visualization, Power BI service, connecting and collaborating with Excel, direct connectivity, developer API and mobile application.

COURSE 4: ANALYTICS STORYTELLING FOR IMPACT

This course will start off with helping you understand the power of storytelling in data science. You'll be taught to craft, carve and land your analytics story to provide analysis that can be understood by stakeholders without having technical knowledge about data and how it is used to craft useful insights.

PROJECT 01: EXPLORATORY DATA ANALYSIS

This course will teach you responsive layout designs using media queries, CSS modules and high-fidelity designs, sass/less and pre-processing, and web app testing for browsers and device. To make sure you take 100 percent learning, there will be labs at the end of each module.

COURSE 5: ETHICS AND LAW IN DATA ANALYTICS

This course will teach you the ethical use of data, laws related to data and its use, legalities in businesses and data as well as business and data privacy. You will also get a taste of artificial intelligence and future opportunities in data and AI.

COURSE 6: QUERYING DATA WITH TRANSACT SQL

This course consists of 11 modules and with labs at the end of each. It is purely a practical based course getting you hands-on with Transact SQL. You'll learn querying tables with SELECT and joins, use functions, subqueries, table expressions, modifying data, error handling and much more inside Transact SQL.

COURSE 7: INTRODUCTION TO PYTHON FOR DATA SCIENCE

Starting off with Python basics, you'll be taken through lists in Python, functions and packages, Numpy, plotting with Matplotlib, and control flow and pandas. All of these lectures will be supported with labs to give you thorough practical learning.

Project 02: Data Querying and Cleaning

Course 8: Data Science Research Methods: Python Edition

A thorough course that will help you learn research methods with reference to Python. You'll cover research process, planning for analysis, research claims, measurement, and correlational and experimental design. Within each of these topics, you'll have subtopics that will you develop in-depth knowledge of research with Python.

Project 03: Data Science Research Methods

Course 9: Essential Math for Machine Learning: Python Edition

To ace in Machin learning you need to be an expert in the concepts of math that will complete your skill to use Python. This course involves equations, graphs, functions, derivatives, calculus foundation, vectors, matrices, statistics and probability. Each chapter will have an assessment at the end to test your knowledge.

Course 10: Principles of Machine Learning: Python Edition

The course will provide an introduction to Machine Learning and will explain exploratory data analysis for regression and classification. You'll learn to clean and prepare data for analysis, will be introduced to supervised and unsupervised learning, learn principles and techniques for improving Models and Machin Learning algorithms.

PROJECT 04: MACHINE LEARNING

COURSE 11: DEVELOPING BIG DATA SOLUTIONS WITH AZURE MACHINE LEARNING

Learn to develop big data solutions with Azure ML by getting started with Azure Machine Learning studio and working with big data sources. Learn to operationalize ML models and use Azure ML in big data solutions. The course will have four labs. Lab one will have you started in Azure ML, second lab will cover building predictive models in Azure, third will strengthen your skills to publish predictive web services and fourth will have you practice building predictive big data solutions.

COURSE 12: ANALYZING BIG DATA WITH MICROSOFT R

With Microsoft R you'll learn to read and prepare data, examine and visualize data, clustering and modelling, and deploying and scaling big data. All the chapters will have labs at the end to help you practice the knowledge and get hand-on training on Microsoft R.

COURSE 13: IMPLEMENTING PREDICTIVE ANALYTICS WITH SPARK IN AZURE HDINSIGHT

Another course, another skill. This course is all about Spark, yet another language to use within Azure HDInsight. The course will start by introducing data science with Spark and will get you started in ML with Spark. You will evaluate and optimize ML models and learn about recommenders and unsupervised models.

FINAL CAPSTONE PROJECT: DATA SCIENCE BOOTCAMP

COURSE 14: INTRODUCTION TO R FOR DATA SCIENCE

Learn the basics, vectors, matrices, factors, lists, data frames and graphics, with each topic having subtopics and labs to help attain practical skills. A final lab at the end will help you prepare and become an expert in R programming language.

COURSE 15: ESSENTIAL MATH FOR MACHINE LEARNING: R EDITION

Similar topics will be covered as in course 9 but these will be focused on the programming language R.

COURSE 16: DATA SCIENCE RESEARCH METHODS: R EDITION

You will learn data science research methods with similar topics as in course 8, but the research methods will be focused on programming language R.

COURSE 17: PRINCIPLES OF MACHINE LEARNING: R EDITION

All the topics will be similar as in course 10, with focus on the programming language R.

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