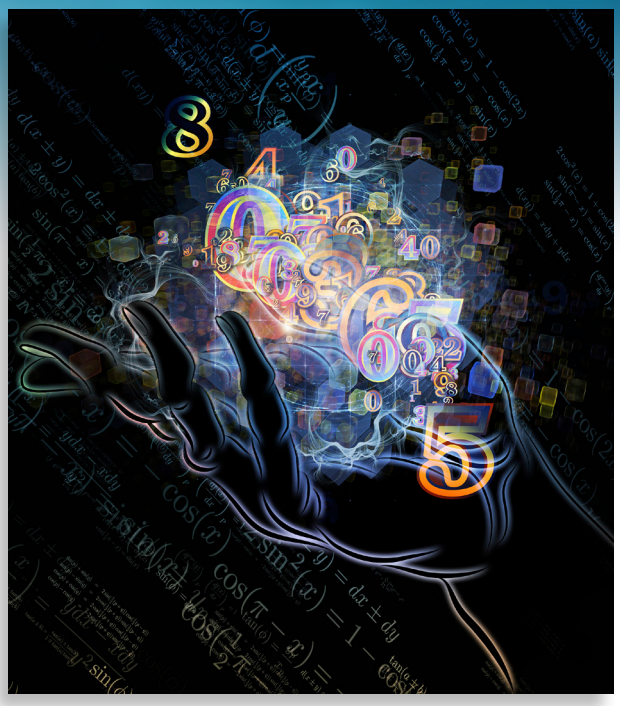
PROFESSIONAL DEVELOPMENT

University Extended Education
California State University, Fullerton

Certificate in
DATA SCIENCE



Becoming a Data Scientist

Our Certificate in Data Science is an *accelerated online* program designed to help you start your career as a data science professional.

Suitable for a range of analysts, scientists and engineers, our program curriculum is delivered through hands-on practices, real-world case demonstrations and project development.

The program provides both the fundamentals in statistics and computer sciences, as well as tools, techniques and practical experience in applied statistical analysis, modeling, machine learning and computational data sciences.

The program concludes with a capstone consulting course in which you gain hands-on experience solving real-world problems.

The Certificate in Data Science consists of five required courses totaling 99 hours of lecture and discussion. 9.9 Continuing Education Units will be awarded to the certificate graduate.

Upon completion of the certificate program, graduates will be able to:

- Articulate how today's organizations are using data to gain strategic business advantage
- Understand the complete data analytics project lifecycle
- Understand the tools companies are using to acquire, store, and process data
- Apply the various statistical analysis and modeling tools
- Apply appropriate analytic techniques and tools to analyze big data
- Frame/reframe business challenges and translate them into analytical framework
- Present data results to managers and non-technical audiences using data visualization

Who Should Attend?

- Data analysts who wish to move beyond using basic analysis tools.
- Computer scientists and statisticians who wish to take a lead role in data science projects.
- Graduates with degrees in math, statistics, computer engineering and natural sciences who wish to enter the data science field.
- Professional analysts (e.g. financial analysts, business analysts, systems analysts) who wish to advance their skills in data science.
- Managers who wish to utilize data science to enhance business performance.

Eligibility

The Data Science Certificate is open to anyone who meets one or both of the following program prerequisites:

1. Bachelor's degree or higher in Computer Science, Applied Statistics, Math, Engineering, Physics, Biological and Natural Sciences or related fields
2. At least 3 years of working experience in data analysis, business analytics, business intelligence, programming or software engineering

Register today at extension.fullerton.edu/professionaldevelopment or 657.278.2611
For more information, contact Makeda Seyoum: 657.278.8392, mseyoum@fullerton.edu
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Certificate in DATA SCIENCE

THE CLASSES

Foundational Data Science I

(21 Hours / 2.1 CEUs)

Prerequisites: Bachelor's degree or higher in Computer Science, Applied Statistics, Math, Engineering, Physics, Biological and Natural Sciences or related fields; and /or at least 3 years of working experience in data analysis, business analytics, business intelligence, programming or software engineering. While a data scientist does not need to be an expert in every industry, it is expected that a data scientist has a solid understanding of the languages of multiple scientific and mathematical disciplines. Data scientists also need to understand the roles these factors play in analytic initiatives. Part I of the Foundational Data Science class provides a solid understanding of data science by presenting various concepts, methodologies, and competencies that a data scientist must possess in order to be successful. In addition, it is a boot-camp style course covering all the foundational statistics and mathematical concepts that a successful data scientist needs to master. The course also provides an opportunity for students to evaluate their proficiency in these important areas and close-the-gap in any deficiencies before utilizing these concepts in application.

Foundational Data Science II

(24 Hours / 2.4 CEUs)

Prerequisite: Foundational Data Science I or approval of the Program Manager. Continuing from the previous course, part II of Foundational Data Science is a boot-camp style course covering all the foundational computer science concepts that a successful data scientist needs to know. It also provides an opportunity for students to evaluate their proficiency in these key areas and close-the-gap in any deficiencies before utilizing these concepts in application.

Statistical Analysis, Modeling and Data Mining

(24 Hours / 2.4 CEUs)

Prerequisites: Foundational Data Science I and II or approval of the Program Manager. Understanding data, correlation, multivariate regression, modeling and all aspects of massaging data for use in predictive and prescriptive modeling is the backbone knowledge of revealing business intelligence. Without a high level of analytical and statistical knowledge, all the data collection and presentation is meaningless. This course is designed to provide students with a breadth of knowledge, skills, and tools essential in statistical analysis, modeling and data mining.

Computational Data Sciences and Machine Learning

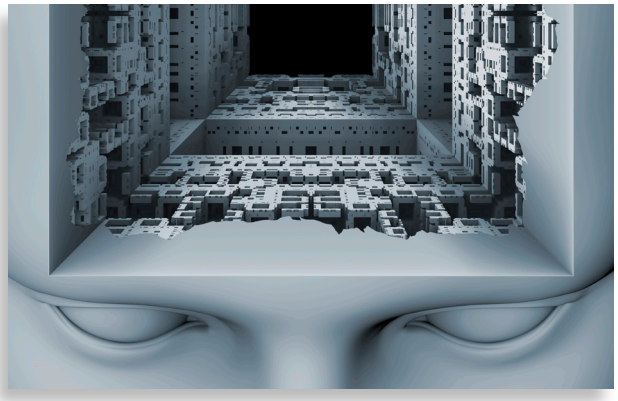
(24 Hours / 2.4 CEUs)

Prerequisites: Statistical Analysis, Modeling and Data Mining or approval of the Program Manager. The familiarity and ability to use various programming languages such as Hadoop, Python, SQL, Hive, and Pig are core essentials for data scientists. Programming itself and computer science in general, is the very foundation of data gathering and piecing it together. This course prepares students in the foundational skills to better determine the appropriate software packages or modules to run analysis with. The course also ensures thorough understanding of data sources (how they are gathered, stored, and retrieved,) and the ability to manipulate "big data" stores using emerging technologies. At the end of the course, students will be comfortable with using various "Big Data" technologies and programming languages.

Capstone – Applied Data Science Project

(24 Hours / 2.4 CEUs)

Prerequisite: successful completion of all four previous courses in this Certificate or approval of the Program Manager. The course is designed to pull together concepts learned from previous courses and apply techniques in real-world scenarios. Students will have the unique opportunity to work on real data to solve a practical problem. By the end of the project students will have experienced the entire data science project lifecycle: attack the business problem with data by reframing the problem, establish experimental tests of data-drive hypotheses, generate meaningful findings, communicate and present them in a clear and effective manner. Students will also be introduced to the art of Data Visualization, and will be able to apply those techniques as part of their project presentation.



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