

## Data Science/Analytics Course Offerings

### **CSC 1 Internet History, Technology, and Security**

To thrive in today's digital world, you need to understand the system that powers it. This course, built in collaboration with Google, will explore the internet and show you how it works. This class focuses on hands-on learning of important topics like cybersecurity, networking, and programming. By the end, you'll be able to evaluate your options for a rewarding career in technology. At minimum, you'll be a much wiser network citizen. This online class has optional live sessions.

### **CSC II Programming for Everyone I**

This course, built in collaboration with Google, provides a gentle, but thorough, introduction to programming using Python. You will learn the core concepts and techniques needed to create programs and perform basic data analysis. By the end of this course, you'll be ready to pursue further study in computer science and unlock more advanced programming courses. This online class has optional live sessions.

### **CSC III Programming for Everyone II**

This course, built in collaboration with Google, follows on from Programming for Everyone I. In the first half of the course, you will learn how to leverage your Python skills to treat the internet as a source of data. The second half of the course will teach you the fundamentals of Structured Query Language (SQL) and database design. By the end of the course, you will improve your programming skills and learn how to build a range of applications. This online class has optional live sessions. Course level 100

### **CSM 1II Programming for Everyone II**

This course, built in collaboration with Google, will teach you how to understand and use data structures. Data structures are used by almost every program and application to store, access and modify the vast quantities of data that are needed by modern software. By the end of this course, you'll learn what data structures are and learn how to use them in the applications you build. This online course has optional live sessions. Course level 300

### **CSM IV Algorithms**

This course explores algorithms from a coding-focused perspective, using Python. Students will learn about the issues that arise in the design of algorithms for solving computational problems and will explore a number of standard algorithm design paradigms and their applicability. Students will also become familiar with concepts of runtime, recursion, implementation and evaluation. Course level 400

This course features a heavy emphasis on practical application of algorithms to common development and engineering challenges

### **DAM Foundations of Data Analytics I**

In an increasingly data-driven world, everyone should be able to understand the numbers that govern our lives. Whether or not you want to work as a data analyst, being "data literate" will help you in your

chosen field. In this course, you'll learn the core concepts of inference and data analysis by working with real data. By the end of the term, you'll be able to analyze large datasets and present your results. This online class has optional live sessions.

### **DAM II Foundations of Data Analytics II**

This course is intended as a continuation of Foundations of Data Analytics I. In this course, you'll learn how Data Analytics is applied within the workforce. Particular attention will be paid to the role of the Data Scientist or Analyst, machine learning and the applications of Big Data. By the end of the term, you will be able to design and execute a range of data-driven experiments. This online class has optional live sessions.

### **DAM III Principles and Techniques of Data Analytics I**

This course is based heavily on UC Berkeley's Data 100 class. Data Analytics combines data, computation and inferential thinking to solve challenging problems and understand their intricacies. This class explores key principles and techniques of data science and teaches students how to create informative data visualizations. It also explores particular concepts of Linear Algebra which are central to Data Science. Course level 300

### **DAM IV Principles and Techniques of Data Analytics I**

This course builds on Principles and Techniques of Data Analytics I to provide students with a more robust understanding of the tools of a Data Scientist. Data Analytics combines data, computation, and inferential thinking to solve challenging problems to understand the world better. This class explores key principles and techniques of data science, including quantitative critical thinking and algorithms for machine learning methods. It will also introduce students to the ways in which data analytics is deployed in healthcare, marketing, political science, criminal justice, and other fields. Course level 300

### **DAM V Data Analytics Practicum**

This course is a capstone project in which students are asked to work through a full data science workflow on a set of real data drawn from sports, politics, business or public health. This course exists to prepare students for the kind of work they will do on Data Science or Analytics teams, and as such, also features an emphasis on interviewing for jobs in the space and communicating results to stakeholders. Course level 400