# Data Analytics Major

The Bachelor of Science in Data Analytics provides students with a strong foundation in data science, statistical analysis, and business intelligence techniques. Through a rigorous curriculum, students gain proficiency in key programming languages such as Python and R, along with industry-standard tools like SQL, Power BI, and cloud computing technologies. The program also introduces students to advanced topics in machine learning, artificial intelligence, and data visualization, preparing them for real-world challenges in the growing field of data analytics.

Designed with career readiness in mind, students have the opportunity to earn professional certifications such as the Microsoft Power BI Data Analyst Professional Certificate, Google Data Analytics Certificate, Scrum Master-Agile Certificate, and the optional COSC AI Practitioner Certificate while completing their degree.

All major requirements must be completed with a grade of 'C' or higher. This major requires a minimum of 48 credits; 12 credits in the major must be taken at Charter Oak.

*In order to earn a Bachelor's degree at Charter Oak, all Major, General Education, Liberal Arts and Electives, Upper Level credit, and academic residency requirements must be met. Total credits earned must be a minimum of 120 credits.*

## Major Requirements

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| ITE 115: Program Logic and Design with Python | 3 cr |
| ITE 211: Data Structures and Algorithms | 3 cr |
| ITE 215: Software Development Methodologies and Languages | 3 cr |
| Principles of Data Science | 3 cr |
| Introduction to Artificial Intelligence and Generative AI | 3 cr |
| Introduction to Machine Learning | 3 cr |
| Introduction to Databases & SQL Programming | 3 cr |
| Data Preparation & Processing | 3 cr |
| ITE 203: Introduction to R Programming | 3 cr |
| Data Analysis with Python | 3 cr |
| Data Analysis Techniques | 3 cr |
| Data Modeling with Power BI | 3 cr |
| Data Visualization with Power BI | 3 cr |
| Agile Development and Management | 3 cr |
| Cloud Foundations | 3 cr |
| *Data Analytics Capstone | 3 cr |

*Courses must be taken at Charter Oak.

## Program

## Learning Outcomes

Students who graduate with a major in Data Analytics will be able to:

- demonstrate foundational knowledge of data science concepts, including data types, statistical measures, database structures, and data analysis techniques;
- apply programming languages and industry-standard tools to perform comprehensive data cleaning, manipulation, analysis, and visualization tasks;
- analyze large datasets to uncover patterns, trends, and relationships, ensuring data quality and integrity for accurate insight;
- design and implement data analytics solutions, integrating agile methodologies for iterative and collaborative project development;
- develop and train machine learning models, optimizing them for predictive accuracy in real-world applications;
- evaluate and apply artificial intelligence techniques and generative models to solve complex analytical problems; and
- synthesize knowledge of data science, programming, and analytical methods to produce actionable insights that inform decision-making across industries.