

Bachelor in Data Science

Intake capacity: 60 students

90 percent of data in the world today has been created in the last 2 years alone. Some estimate that data production will be 44 times greater in 2020 than it was a few years ago. Others estimate that approximately 2.5 quintillion bytes of data is being generated every day. Global demand for data science and computing expertise exceeds supply, with predictions of a major shortage of analysts for at least the next 10 years. For graduates in Data Science, this presents a high potential employment opportunity.

Bachelor of Data Science (BDS) is a 3-year course designed to prepare graduates who can conduct data-driven investigations, and conduct visual and advanced analytics by acquiring and managing data of all types. Through this course, graduates will develop an in-depth understanding of data science and the techniques for analysis of quantitative and qualitative data to arrive at solutions. They will be able to identify patterns, predict trends and analyses data from sectors such as manufacturing, banking and finance, retail, and healthcare.

The academic track of the program is made of a blend of core and advanced specialist subjects. Our curriculum is built on the principle that subjects get more and more specialized as you progress through the program. A unique feature of the program is the requirement to undertake, in the final year, applied analytics capstone projects that give students practical, hands-on experience in identifying and interpreting actionable information from raw data, and using them to make informed, mathematically valid decisions.

The subjects undertaken in the first year of the program build a strong, general foundation in data science, mathematics as well as computer science.

In Year 2, mathematical and analytical topics are explored in considerable depth, and students are exposed to topics such as Data Integration, Calculus, Data Structures, Programming, Machine Learning, and Matrix Algebra and Applications.

Advanced learning continues in Year 3 through topics like Simulation Modelling, Data Mining, Social Web Analytics, Advanced Web Analytics, and Big Data Processing Techniques and Platforms.

First year of the program
Discrete Mathematics
Mathematical Statistics
Introduction to Computer Programming
Introduction to Databases
Linear Algebra
Calculus
Introduction to Data Science
Statistical Data Analysis
Second year of the program
Machine Learning
Advanced Calculus
Algorithms and Data Structures
Data Integration and Warehousing

Visual Analytics (or Explorative data analysis)
Matrix Algebra and Applications
Programming for Analytics
Consumer Behaviour and Marketing Research
Third year of the program
Simulation Modelling
Data Mining
Object Relational and NoSQL Databases
Data Science Capstone Project I
Social Web Analytics (or Web, Internet of Things, and Social Media Mining)
Advanced Analytics (Stream, Sensor and Spatio-temporal Analysis)
Big Data Processing Techniques and Platforms
Data Science Capstone Project II