



Level 5 Diploma in Data Analytics (950) 177 Credits



Unit: Introduction to Data Science	Guided Learning Hours: 300
Exam Paper No.: 3	Number of Credits: 30
Prerequisites: Basic online technology knowledge and ability to work on own initiative	Corequisites: Big data techniques and technologies.
<p>Aim: In today's data-driven world, data science has emerged as a hot commodity. Data science is the study of large quantities of data, which can reveal insights that help organizations make strategic choices. This data comes from a range of sources; social media, security cameras, web, email etc. The purpose of this course is to explore what data science is; why it one of the fastest-growing, challenging, and high-paying jobs of the decade.</p> <p>Leaners will learn application of data science in sectors such as healthcare, banking/finance, marketing and governments.</p>	
Required Materials: Recommended Learning Resources.	Supplementary Materials: Lecture notes and tutor extra reading recommendations.
Special Requirements: This is a hands-on unit, hence practical use of computers is essential. Requires intensive lab work outside of class time.	
<p>Intended Learning Outcomes:</p> <ol style="list-style-type: none"> Understand the importance of data science for business and the different data sources. Understand tools, techniques and concepts that enable organisations leverage data to produce solutions that solve problems. Understand terms like big data, data mining, data ware house and data <i>munging</i>; including tools and processes used. Understand the relationships between machine learning, deep learning, big data, neural networks and data mining. Understand the implementation of data science in business for productivity, growth and innovation. 	<p>Assessment Criteria:</p> <ol style="list-style-type: none"> Describe data science. Explain data science implementation/applications. Explore data algorithms. Define big data. Describe how data science is the way we work, use and understand the world. Describe data science tools. Explain data science machine learning. Give examples of how data science provides innovative solutions to solve business problems. Describe differences between statistics and data science. Describe big data. Describe elements and principles of the Vs of big data. Describe how big data drives digital transformation. Describe data mining process. Describe big data analytics. Describe machine learning. Describe deep learning. Describe the importance of Artificial Intelligence (AI) techniques in deriving data insight. Describe regression. Describe data quality tools. Describe quantitative research.

	5.3 Describe qualitative data analysis.
	5.4 Describe big data in different industries such as transport or banking.
	5.5 Define exploratory data analysis.

Methods of Evaluation: A 2½-hour written examination paper with five essay questions, each carrying 20 marks. Candidates are required to answer all questions. Candidates also undertake coursework/projects in Introduction to Data Science.

Recommended Learning Resources: Introduction to Data Science

Text Books	<ul style="list-style-type: none"> Data Science by John D Kelleher, Brendan Tierney. ISBN-13 : 978-0262535434 Data Science Fundamentals and Practical Approaches by Dr. Gypsy Nandi, Dr. Rupam Kumar Sharma. ISBN-13 : 978-9389845662 Data Science for Business by Foster Provost, Tom Fawcett, Benjamin Lange.
Study Manuals 	BCE produced study packs
CD ROM 	Power-point slides
Software 	N/A

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