Module code	**DSC501**			**Level**	5
Module title	**Data Science Tools and Techniques**				
Status	Core				
Teaching Period	Spring				
Courses on which the module is taught	BA (Hons) Business and Data Science				
Prerequisite modules	None				
Notional learning hours	200	**Credit value**	20	**ECTS Credits**	10
Field trips?	Optional subject to industry events				
Additional costs	None				
Content notes	None				

1. Module description

Data science tools and techniques play a pivotal role in unlocking the true potential of data and driving impactful decision-making. Data science tools are used for analysing data, for creating aesthetic and interactive visualisations and for creating powerful predictive models. In this module, you will gain applied knowledge of descriptive and predictive analytics, and you'll start to appreciate emerging and established software platforms used to deploy data modelling techniques. The module has two broad aims. Firstly, it aims to expose you to common data analysis techniques and the statistical models that drive them. Secondly, it aims to give you practical skills in tools such as Power BI, SPSS and machine learning tools that are critical in the current digital environment. By successfully completing this module, you will gain crucial insights into the data science ecosystem, learn various tools and techniques, and understand how they can be harnessed in modern business settings.

2. Learning Outcomes

Upon successful completion of this module, you will be able to:

Collaboration (MLO1)

Collaborate and use appropriate networks to solve data analytics challenges

Decision-making (MLO4)

Analyse and reflect on different ideas, using data, to inform decision making

Digital Data and Tools (MLO6)

Analyse and use digital tools and data responsibly in business contexts

3. Learning and teaching methods, and reasonable adjustments

You will experience applied learning though practical usage of relevant software tools. Your sessions will be largely lab-based, providing critical exposure to relevant technologies. As such, the module takes an active-learning approach which places you at the centre of your own learning journey. Each week, you will engage in a variety of data-focused activities that get you to apply theoretical concepts in a practical way, acquire new information, share your ideas and perspectives, participate in discussions, collaborate with your peers, and reflect on your learning. Through this approach to learning, you'll develop new knowledge and skills and practice applying them to real-world workplace

situations in the form of case studies, workshops, and projects. These activities, along with formative assessments and feedback, will culminate in the summative assessment(s) which will showcase how you have met the learning outcomes of the module.

Learning hours			**200**
Directed learning			48
Workshops/ classes/ seminars/ lead events	Supervision	Studio time	Other
48			
Guided/Self-guided learning			152

Reasonable adjustments will depend on a Student Support Agreement and will acknowledge accrediting body requirements. In urgent or serious situations, reasonable adjustments might be required before the Student Wellbeing & Disability Team has been able to complete a full assessment. This will usually be where a student has a severe or urgent condition and either communicates this condition to a member of staff or their behaviour is suggestive of an adjustment need. Staff may put temporary reasonable adjustments in place to support the student. These adjustments must then be promptly communicated to the Student Wellbeing & Disability Team by the staff member who made the temporary adjustments. The Student Wellbeing & Disability team will capture and confirm appropriate reasonable adjustments (which may include changing the temporary adjustments, adding in other adjustments and outlining the period of time for which they apply) in a Student Support Agreement ('SSA').

4. Assessments and weighting, reasonable adjustment, and feedback methods

Assessment component 1: Presentation (Group Assessment 40%), Maximum of 15 minutes
Working as group, you will assess the current state of data analytics platforms, categorised by their type. You will formulate and present your findings, as a group, in a live in-class presentation or a pre-recorded video.

Allocation of marks for group work will be specified in the course assignment brief.

Assessment component 2: Report (60%), Maximum 2000 words or equivalent.

Working individually, you will write a report based on an applied assessment of three data analytics techniques, using the tools covered on the module. You are required to deploy the techniques covered and provide technical and business focused interpretations from samples of data from various business function areas.

Mapping of assessment tasks:

Assessment components	**MLO1**	**MLO4**	**MLO6**
Presentation (Group)	x		x
Report		x	x

The above assessment components are summative. Students will have the opportunity for formative assessment and feedback before each summative assessment.

5. Indicative resources

Introduction to Data Science: "Cracking the Code: Essential Techniques and Tools for Data Science", Mewis, R
How To Become A Data Scientist With ChatGPT: A Beginner's Guide to ChatGPT-Assisted Programming (Data Science with ChatGPT), Muhammad, R.
Tutorial: Get started creating in the Power BI service - Power BI | Microsoft Learn
SPSS tutorials | The Ultimate Guide to SPSS (spss-tutorials.com)
Learning Library | JMP
Machine Learning (w3schools.com)
PY4E - Python for Everybody

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