Module Descriptor

Title	Introduction To Data Science And Coding		
Session	2025/26	**Status**	
Code	BUSN 11153	**SCQF Level**	11
Credit Points	20	**ECTS (European Credit Transfer Scheme)**	
School	**Business and Creative Industries**		
Module Co-ordinator	Mehran Ullah		

Summary of Module

This module is designed to equip students with the necessary data science skills to excel in today's competitive business environment. By providing foundational knowledge and practical skills in data science, students will be able to tackle real-world challenges in supply chain management domain. The ability to leverage data is critical for success in logistics and supply chain management. This module aims to enhance students' skills in utilizing data science and machine learning techniques to optimize operations, minimize risk, improve forecasting, and gain a competitive advantage through data-driven insights

Module Delivery Method	**On-Campus[1]** ☒	**Hybrid[2]** ☒	**Online[3]** ☒	**Work -Based Learning[4]** ☐
Campuses for Module Delivery	☐ Ayr ☐ Dumfries	☐ Lanarkshire ☐ London ☒ Paisley	☒ Online / Distance Learning ☐ Other (specify)	

Terms for Module Delivery	Term 1	☒	Term 2	☒	Term 3	☒
Long-thin Delivery over more than one Term	Term 1 – Term 2	☐	Term 2 – Term 3	☐	Term 3 – Term 1	☐

[1] Where contact hours are synchronous/ live and take place fully on campus. Campus-based learning is focused on providing an interactive learning experience supported by a range of digitally-enabled asynchronous learning opportunities including learning materials, resources, and opportunities provided via the virtual learning environment. On-campus contact hours will be clearly articulated to students.

[2] The module includes a combination of synchronous/ live on-campus and online learning events. These will be supported by a range of digitally-enabled asynchronous learning opportunities including learning materials, resources, and opportunities provided via the virtual learning environment. On-campus and online contact hours will be clearly articulated to students.

[3] Where all learning is solely delivered by web-based or internet-based technologies and the participants can engage in all learning activities through these means. All required contact hours will be clearly articulated to students.

[4] Learning activities where the main location for the learning experience is in the workplace. All required contact hours, whether online or on campus, will be clearly articulated to students

Learning Outcomes	
L1	Develop Proficiency in appropriate programming language for Data Science and Machine Learning.
L2	Attain critical understanding, knowledge, skills, practices, and thinking in the area of Data Science.
L3	Attain critical understanding, knowledge, skills, practices, and thinking in the area of Machine Learning.
L4	Critical awareness of Leveraging Data Science and Machine Learning techniques for L&SCM Problems.
L5	

Employability Skills and Personal Development Planning (PDP) Skills	
SCQF Headings	**During completion of this module, there will be an opportunity to achieve core skills in:**
Knowledge and Understanding (K and U)	**SCQF 11** Overview of the data-driven approach in logistics and supply chain management. A broad understanding of principal theories, concepts, and principles in Data Science and Machine learning A critical and integrated knowledge of Data Science impacting supply chain performance. A critical and integrated knowledge of how Machine learning is used in supply chain Decision Making.
Practice: Applied Knowledge and Understanding	**SCQF 11** Apply Data Science and machine learning Algorithms in a programming language/software package Apply a range of principal professional skills, techniques, and practices associated with Data Science and Machine learning in real-world contexts. Utilize specialized skills, techniques, and practices from Data Science and Machine learning to address complex challenges in logistics and supply chain management.
Generic Cognitive skills	**SCQF 11** Applying critical analysis and evaluation to some issues in Data Science and Machine Learning Identification, conceptualization, and definition of new and abstract problems and issues in data science. Dealing with complex issues and making informed judgments in the absence of complete or consistent data/information.
Communication, ICT and Numeracy Skills	**SCQF 11** Communication with a range of audiences, peers, more senior colleagues, and specialists using appropriate methods in data science. Using a wide range of software and ICT applications to support and enhance learning.

	Critically evaluating a wide range of numerical and graphical data as appropriate. Use of programming language for Data Science and Machine learning
Autonomy, Accountability and Working with Others	**SCQF 11** Exercising a significant autonomy and initiative in studies taking responsibility for own work. Management of complex ethical and professional issues and making informed judgments on issues not addressed by current professional and/or ethical codes or practices in data science.

Prerequisites	**Module Code**	**Module Title**
	Other	
Co-requisites	**Module Code**	**Module Title**

Learning and Teaching	
In line with current learning and teaching principles, a 20-credit module includes 200 learning hours, normally including a minimum of 36 contact hours and maximum of 48 contact hours. The delivery strategy will focus on a student-centric and directed learning approach. This methodology will provide the foundation on which the students learning will be built through the face-to-face workshops. The workshops will have no more than 40 students. Prior to attending these workshops sessions, students will engage in preparatory work, setting the stage for in-depth exploration and contextualization within various scenarios. The workshops will be enquiry based with structure and unstructured activities. The students will be expected to take responsibility for their direction of learning.	
Learning Activities During completion of this module, the learning activities undertaken to achieve the module learning outcomes are stated below:	**Student Learning Hours** (Note: Learning hours include both contact hours and hours spent on other learning activities)
Laboratory / Practical Demonstration / Workshop	48
Independent Study	152
Please select	
Please select	
Please select	
Please select	
TOTAL	200

Indicative Resources
The following materials form essential underpinning for the module content and ultimately for the learning outcomes: Chirag Shah, "A Hands-On Introduction to Data Science," Cambridge University Press, 2020. Bishop, Christopher M., "Pattern recognition and machine learning," Springer, 2006

EMC Education Services, "Data Analytics Lifecycle: Data Science and Big Data Analytics: Discovering, Analyzing, Visualizing and Presenting Data", John Wiley & Sons, 2015
(N.B. Although reading lists should include current publications, students are advised (particularly for material marked with an asterisk*) to wait until the start of session for confirmation of the most up-to-date material)

Attendance and Engagement Requirements
In line with the Student Attendance and Engagement Procedure, Students are academically engaged if they are regularly attending and participating in timetabled on-campus and online teaching sessions, asynchronous online learning activities, course-related learning resources, and complete assessments and submit these on time. **For the purposes of this module, academic engagement equates to the following:** Student must attend and actively participate in every scheduled Face-to face and online sessions. Students must undertake directed reading and preparation before coming to each workshop sessions including any asynchronous activities.

Equality and Diversity
The University's Equality, Diversity and Human Rights Procedure can be accessed at the following link: UWS Equality, Diversity and Human Rights Code. At the University of the West of Scotland (UWS), our commitment to equality, diversity is integral to fostering an inclusive and supportive environment for all students. Our policy underpins every aspect of student engagement, ensuring UWS to be a fair and equitable place of learning. We strive to address and champion all dimensions of equality and diversity thus creating an institution that values and respects the unique contributions of each individual. To meet the diverse needs of our student body, we are dedicated to adapting learning experiences and module assessments where required. This personalised approach ensures that all students can succeed, regardless of their background or circumstances. By embracing and promoting these principles, we aim to cultivate a learning community where everyone feels valued, supported, and empowered to achieve their full potential.
(N.B. Every effort will be made by the University to accommodate any equality and diversity issues brought to the attention of the School)

Supplemental Information

Divisional Programme Board	**Marketing, Innovation, Tourism Events**
Overall Assessment Results	☐ **Pass / Fail** ☒ **Graded**
Module Eligible for Compensation	☐ **Yes** ☒ **No** **If this module is eligible for compensation, there may be cases where compensation is not permitted due to programme accreditation requirements. Please check the associated programme specification for details.**
School Assessment Board	MITE
Moderator	Elena Pershina
External Examiner	Andrew Thorn
Accreditation Details	None

Module Appears in CPD catalogue	☐ **Yes** ☒ **No**
Changes / Version Number	1

Assessment (also refer to Assessment Outcomes Grids below)
Assessment 1
Portfolio of written work
Assessment 2
Assessment 3
(N.B. (i) Assessment Outcomes Grids for the module (one for each component) can be found below which clearly demonstrate how the learning outcomes of the module will be assessed. (ii) An indicative schedule listing approximate times within the academic calendar when assessment is likely to feature will be provided within the Student Module Handbook.)

Component 1							
Assessment Type	**LO1**	**LO2**	**LO3**	**LO4**	**LO5**	**Weighting of Assessment Element (%)**	**Timetabled Contact Hours**
	☒	☒	☒	☒	☐	100%	

Component 2							
Assessment Type	**LO1**	**LO2**	**LO3**	**LO4**	**LO5**	**Weighting of Assessment Element (%)**	**Timetabled Contact Hours**
	☐	☐	☐	☐	☐		

Component 3							
Assessment Type	**LO1**	**LO2**	**LO3**	**LO4**	**LO5**	**Weighting of Assessment Element (%)**	**Timetabled Contact Hours**
	☐	☐	☐	☐	☐		
Combined total for all components						100%	hours

Change Control

What	**When**	**Who**