Module Descriptor

Title	Applied Data Science with Gen AI		
Session	2026-2027	**Status**	**Approved**
Code	BUSN11153	**SCQF Level**	**SCQF 11**
Credit Points	20	**ECTS (European Credit Transfer Scheme)**	
School	**Business and Creative Industries**		
Module Co-ordinator	Mehran Ullah		

Summary of Module

This experiential, hands on module equips you with the skills to harness data science through the practical use of Generative AI. Delivered entirely through interactive, guided computer lab sessions, the module enables you to learn by doing, working directly with cutting edge AI tools to explore data, generate insights, and solve real world business problems. You will engage with the full data science workflow—including data preparation, cleaning, augmentation, feature engineering, model development, and visualisation—using AI as an active and critically evaluated collaborative partner. The module builds practical proficiency in prompt engineering and the essential skill of critically evaluating AI generated outputs. Designed to meet growing industry demand for professionals who can guide, validate, and interpret AI systems, the module requires no prior coding or software engineering experience. A basic ability to operate a computer for everyday tasks is the only prerequisite; all data science and AI skills are developed in class through structured, supported activities.

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)	

[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

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	☐

Learning Outcomes	
L1	Develop a critical understanding of the theories, concepts, and principles of data science, together with a critical awareness of current issues in the field.
L2	Demonstrate a critical understanding of core data science techniques including data manipulation, analysis, and visualisation using contemporary tools and libraries.
L3	Critically apply appropriate data science techniques to support decision-making in business and supply chain environments.
L4	Apply advanced prompt engineering techniques to direct Generative AI tools effectively for data preparation, cleaning, analysis, and visualisation tasks.
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 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 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 20 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 attending and participating in all timetabled programme activities including on-campus and online teaching sessions, asynchronous online learning activities, placement, work-based elements, 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	TBC
External Examiner	Andrew Thorn
Accreditation Details	None
Module Appears in CPD catalogue	☐ **Yes** ☒ **No**
Changes / Version Number	2

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**
Portfolio	☒	☒	☒	☒	☐	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
• Module Title Update: The module title has been changed from "Introduction to Data Science and Coding" to "Applied Data Science with Gen AI" to reflect a revised pedagogical emphasis on Generative Artificial Intelligence and its application within data driven workflows, rather than traditional coding instruction. • Module Summary Revision: The module summary has been fully updated to align with the new focus on AI assisted data science processes. The revision removes the previous coding prerequisite and highlights the increased emphasis on interactive, practice based computer lab sessions. • Learning Outcomes Rewrite: All learning outcomes have been rewritten to ensure full alignment with the updated module content, reflecting the integration of Generative AI tools and applied data science methodologies.	March 2026	Mehran Ullah