Module Descriptor

Title	Data Visualisation And Business Intelligence		
Session	2026/27	**Status**	
Code	LNDN11140	**SCQF Level**	11
Credit Points	20	**ECTS (European Credit Transfer Scheme)**	10
School	**Business and Creative Industries**		
Module Co-ordinator	A Egbulonu		

Summary of Module

This module equips postgraduate students to turn data into decision ready intelligence that directly informs finance and business decisions. It sits at the heart of the MSc by bridging the gap between raw data and board level insight, giving learners the confidence to ask the right questions, build the right evidence, and communicate conclusions that drive better outcomes. It also equips students with advanced skills in data acquisition, cleaning, analysis, and visualisation to support decision making.

Students master robust data acquisition and preparation, with strong attention to data governance, ethics, and GDPR so that insights are not only powerful but also trustworthy. The analytical core develops modern data mining using industry relevant tools such as R, Python, and Power BI. Visualisation is taught as a communication discipline. Students design clear and accessible charts and dashboards, craft concise narratives, and present evidence that separates signal from noise. The emphasis is on audience awareness, ethical presentation, and accessibility so that findings persuade as well as inform.

By the end of the module, students should be able to deliver complete analytical products that withstand technical scrutiny and support actions in organisations. They should be able to produce fully documented notebooks, interactive visuals, and concise BI reports, while collaborate effectively on projects. In line with the 'I am UWS' Graduate Attributes, the module builds critical and research minded thinking, ethical awareness, effective communication, problem solving, autonomy, and resilience, preparing students to contribute with impact from day one.

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	☐

Learning Outcomes	
L1	Critically evaluate the principles, tools, and methodologies of data visualisation and business intelligence within financial and organisational contexts.
L2	Acquire, clean, and integrate multi-source financial/economic data; build reproducible analysis pipelines in tools such as R, Power BI and Tableau
L3	Train, validate, and interpret models; evaluate with suitable metrics and diagnostics.
L4	Design effective visualisations and explain uncertainty, assumptions, and limitations to technical and non-technical audiences.
L5	Deliver BI artefacts adhering to ethics, data protection, and accessibility.

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** Demonstrate a critical and comprehensive understanding of the theories, concepts, and principles underpinning data mining, visualisation, and business intelligence; critically appraise data mining techniques and select appropriate methods for financial and business problems; evaluate model validity, robustness, interpretability, and fairness using suitable diagnostics and out-of-sample testing; design and justify visual analytics that clearly communicate uncertainty, assumptions, and limitations to managerial audiences; and situate analytical practice within contemporary BI architectures, data

[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

	governance, and ethics to ensure reproducible, trustworthy, and decision-ready evidence.
Practice: Applied Knowledge and Understanding	**SCQF 11** Apply a broad range of professional skills and techniques to design and implement business-intelligence applications that are reproducible, robust, and decision-ready, including the ability to use industry relevant data analytics tools.
Generic Cognitive skills	**SCQF 11** Exercise critical analysis, evaluation, and synthesis to address frontier and routine challenges in the design, deployment, and governance of business intelligence applications in organisational settings, explicitly including data security, privacy, bias, and compliance, while justifying methodological choices, reconciling conflicting evidence, and formulating defensible, ethical recommendations under uncertainty.
Communication, ICT and Numeracy Skills	**SCQF 11** Use a range of communication, ICT and numeracy skills to identify and document stakeholder requirements for business intelligence applications, translate them into clear analytical and visual specifications, and present findings through accessible reports, dashboards and data stories that inform managerial decisions. Critically analyse, interpret and evaluate case study datasets, tables and graphs using appropriate digital tools and statistical reasoning, quantify uncertainty, and align evidence based recommendations with agreed goals and performance targets.
Autonomy, Accountability and Working with Others	**SCQF 11** Take personal accountability for planning and delivering your own work, and, where appropriate, take substantive responsibility for coordinating others and managing time, data, and technical resources. Work independently and collaboratively to set realistic milestones, monitor progress, uphold ethical and quality standards, and produce coursework to a professional standard.

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. This module is delivered through live lectures. Lectures are supplemented with tutorials for smaller groups of students to allow for the re-examination of the more complex aspects of the syllabus. Workshops during the tutorial sessions complement the lectures by providing an environment to support the learning of the more practical-based aspects of the syllabus

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)
Lecture / Core Content Delivery	15
Tutorial / Synchronous Support Activity	21
Independent Study	164
n/a	
n/a	
n/a	
TOTAL	200

Indicative Resources

The following materials form essential underpinning for the module content and ultimately for the learning outcomes:

Core reading :

- Sharda, R., Delen, D., & Turban, E. Business Intelligence and Analytics: Systems for Decision Support. Pearson.
- Tan, P.-N., Steinbach, M., & Kumar, V. Introduction to Data Mining (2nd ed.). Pearson.
- Evans, J. R. Business Analytics (latest ed.). Pearson.
- Knaflic, C. (2015). Storytelling with Data. Wiley.

Recommended:

- Healy, K. (2018). Data Visualization: A Practical Introduction. Princeton.
- Rahlf, T. (2019). Data Visualisation with R. Springer.
- James, G., Witten, D., Hastie, T., & Tibshirani, R. (2021). An Introduction to Statistical Learning (2e). Springer.
- Wickham, H. & Grolemund, G. (2017). R for Data Science. O'Reilly.
- McKinney, W. (2022). Python for Data Analysis (3e). O'Reilly.
- Connolly, T. & Begg, C. (7th ed.). Database Systems: A Practical Approach to Design, Implementation, and Management. Pearson.
- Newbold, P., Carlson, W., & Thorne, B. (latest ed.). Statistics for Business and Economics. Pearson.

(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:
The School of Business andCreative Industries considers attendance and engagement to mean a commitment to attending, and engaging in, timetabled sessions. You will scan your attendance via the scanners each time you are on-campus and you will login to the VLE several times per week.

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. Aligned with the University's commitment to equality and diversity, this module supports equality of opportunity for students from all backgrounds and learning needs. Using the VLE, material will be presented electronically in formats that allow flexible access and manipulation of content. This module complies with University regulations and guidance on inclusive learning and teaching practice. This module has practical teaching sessions and as such you are advised to speak to the Module Co-ordinator to ensure that specialist assistive equipment, support provision and adjustment to assessment practice can be put in place, in accordance with the University's policies and regulations.
(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	**Accounting Finance Law**
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	Accounting Finance and Law
Moderator	A Abubakar
External Examiner	J Carrahar
Accreditation Details	NA
Module Appears in CPD catalogue	☐ **Yes** ☒ **No**
Changes / Version Number	1.0

Assessment (also refer to Assessment Outcomes Grids below)
Assessment 1
The first summative assessment is a class test covering the material from Weeks 1–5, and will carry a weighting of 50%. Graded work will be released to students in line with UWS policy, with timely feedback and feed-forward to support improvement on subsequent tasks in the module.
Assessment 2
The second summative assessment is an analytical project, weighted at 50%, with submission towards the end of the term. In accordance with UWS assessment policy, marks will be released following ratification by the Examination Board.

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**
Class Test	☒	☒	☐	☐	☐	50	

Component 2							
Assessment Type	**LO1**	**LO2**	**LO3**	**LO4**	**LO5**	**Weighting of Assessment Element (%)**	**Timetabled Contact Hours**
Analytical Project	☒	☒	☒	☒	☒	50	

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**