

# University of the West of Scotland

## Module Descriptor

Session: 2023/24

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**Title of Module: Data Mining and Business Intelligence**

|                             |   |                          |  |
|-----------------------------|---|--------------------------|--|
| <b>Code: COMP11122</b>      | <b>SCQF Level: 11</b><br>(Scottish Credit and Qualifications Framework) | <b>Credit Points: 20</b> | <b>ECTS: 10</b><br>(European Credit Transfer Scheme) |
| <b>School:</b>              | School of Computing, Engineering and Physical Sciences                  |                          |  |
| <b>Module Co-ordinator:</b> | Graeme A McRobbie   |                          |  |

### Summary of Module

Most modern businesses are equipped with online transaction processing (OLTP) systems capable of efficiently supporting traditional business applications such as customer ordering and stock control. Once the transactional data has served its primary purpose, the data can be re-used to provide valuable business intelligence to corporate decision-makers.

Business intelligence enables businesses to work smarter not just harder through analysis of their data assets. This module considers how BI has evolved to become a core business function and the various facets of business intelligence (BI). In recent years, business intelligence (BI) has become so critical that dedicated technologies have emerged to meet this development.

This module looks at the range of technologies associated with business intelligence from traditional querying/reporting to more advanced data mining. The relationship between these technologies in forming a typical BI environment and the type of decision-support provided by each is discussed. This module also includes consideration of methodologies and techniques associated with the developing business intelligence applications. This module introduces (or mostly likely revises descriptive statistics) to ensure students have sufficient statistical knowledge to enable basic data exploration and interpretation.

Practical sessions provide students with an opportunity to use a traditional and popular BI tool (e.g. MS Excel) to explore a data set and to interpret and present the results to a business audience.

- The intended audience for this module are students that are already knowledgeable about the fundamentals of data management and for those interested in how data stored in databases can be transformed into business intelligence for corporate decision-makers
- This module will work to develop a number of the key 'I am UWS' Graduate Attributes to make those who complete this module: Universal (Critical Thinker, Ethically-minded, Research-minded), Work Ready (Problem-Solver, Effective Communicator, Ambitious) and Successful (Autonomous, Resilient, Driven)

### Module Delivery Method

| Face-To-Face | Blended | Fully Online | HybridC | HybridO | Work-based Learning |
|--------------|---------|--------------|---------|---------|---------------------|
|              |         |              |         | ✓       |                     |

#### Face-To-Face

Term used to describe the traditional classroom environment where the students and the lecturer meet synchronously in the same room for the whole provision.

#### Blended

A mode of delivery of a module or a programme that involves online and face-to-face delivery of learning, teaching and assessment activities, student support and feedback. A programme may be considered "blended" if it includes a combination of face-to-face, online and blended modules. If an online programme has any compulsory face-to-face and campus elements it must be described as blended with clearly articulated delivery information to manage student expectations

#### Fully Online

Instruction that is solely delivered by web-based or internet-based technologies. This term is used to describe the previously used terms distance learning and e learning.

**HybridC**

Online with mandatory face-to-face learning on Campus

**HybridO**

Online with optional face-to-face learning on Campus

**Work-based Learning**

Learning activities where the main location for the learning experience is in the workplace.

**Campus(es) for Module Delivery**The module will **normally** be offered on the following campuses / or by Distance/Online Learning: (Provided viable student numbers permit)

| Paisley: | Ayr: | Dumfries: | Lanarkshire: | London: | Distance/Online Learning: | Other: |
|----------|------|-----------|--------------|---------|---------------------------|--------|
| ✓        |      |           |              | ✓       |                           |        |

**Term(s) for Module Delivery**

(Provided viable student numbers permit).

|        |   |        |   |        |   |
|--------|---|--------|---|--------|---|
| Term 1 | ✓ | Term 2 | ✓ | Term 3 | ✓ |
|--------|---|--------|---|--------|---|

**Learning Outcomes: (maximum of 5 statements)**

On successful completion of this module the student will be able to:

L1. Demonstrate knowledge and a critical understanding of the concepts, technologies, and issues associated with business intelligence

L2. Demonstrate knowledge and a critical understanding of the steps and techniques associated with data exploration

L3. Use a range of routine and specialist skills and techniques to design and implement an application capable of providing business intelligence for a given case study

**Employability Skills and Personal Development Planning (PDP) Skills**

|   |   |
|---|---|
| <b>SCQF Headings</b>                          | During completion of this module, there will be an opportunity to achieve core skills in:   |
| Knowledge and Understanding (K and U)         | SCQF Level 11.<br>A critical understanding of the principal theories, concepts and principles associated with business intelligence (BI). A critical understanding of the principal theories, concepts and services associated with BI technologies. Extensive, detailed and critical knowledge and understanding Kimball's Business Dimensional Lifecycle and the associated techniques such as dimensionality modelling |
| Practice: Applied Knowledge and Understanding | SCQF Level 11.<br>Use a range of the principal professional skills, techniques, practices and/or materials associated the design and implementation of BI applications  |
| Generic Cognitive skills                      | SCQF Level 11.<br>Apply critical analysis, evaluation and synthesis to forefront issues and routine problems (including those associated with the security and privacy of data) associated with the development and use of BI applications in a business environment  |

|  |  |
|--|--|
| Communication, ICT and Numeracy Skills           | SCQF Level 11.<br>Use a range of routine and specialised skills to establish the requirements for BI applications. Critically analyse, interpret, and evaluate case study data and graphs to achieve goals and targets associated with the delivery of business intelligence |
| Autonomy, Accountability and Working with others | SCQF Level 11.<br>Take responsibility for own work and/or significant responsibility for the work of others and for a range of resources in undertaking the necessary activities to complete the module coursework   |

|                        |  |                      |
|------------------------|--|----------------------|
| <b>Pre-requisites:</b> | Before undertaking this module the student should have undertaken the following: |                      |
|                        | <b>Module Code:</b>  | <b>Module Title:</b> |
|                        | <b>Other:</b>  |                      |
| <b>Co-requisites</b>   | <b>Module Code:</b>  | <b>Module Title:</b> |

\* Indicates that module descriptor is not published.

| <b>Learning and Teaching</b>  |  |
|---|--|
| This module is delivered through live and pre-recorded 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. Lab (PC)-based classes complement the lectures by providing an environment to support the learning of the more practical-based aspects of the syllabus. |  |
| <b>Learning Activities</b><br>During completion of this module, the learning activities undertaken to achieve the module learning outcomes are stated below:  | <b>Student Learning Hours</b><br>(Normally totalling 200 hours):<br>(Note: Learning hours include both contact hours and hours spent on other learning activities) |
| Lecture/Core Content Delivery   | 20   |
| Tutorial/Synchronous Support Activity   | 8  |
| Laboratory/Practical Demonstration/Workshop   | 20   |
| Independent Study   | 152  |
|   | 200 Hours Total  |

|  |
|--|
| <b>**Indicative Resources: (eg. Core text, journals, internet access)</b>  |
| The following materials form essential underpinning for the module content and ultimately for the learning outcomes:<br>Database Systems: A Practical Approach to the Design, Implementation and Management by Thomas Connolly and Carolyn Begg. Addison Wesley Publishing Company * |
| (**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)   |

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|---|
| <b>Engagement Requirements</b>  |
| In line with the Academic Engagement Procedure, Students are defined as academically engaged if they are regularly engaged with timetabled teaching sessions, course-related learning resources including those in the Library and on the relevant learning platform, and complete assessments and submit these on time. Please refer to the Academic Engagement Procedure at the following link: <a href="#">Academic engagement procedure</a> |

## Supplemental Information

|                                       |                                |
|---------------------------------------|--------------------------------|
| <b>Programme Board</b>                |                                |
| <b>Assessment Results (Pass/Fail)</b> | No                             |
| <b>Subject Panel</b>                  | Applied and Business Computing |
| <b>Moderator</b>                      | tbc                            |
| <b>External Examiner</b>              | tbc                            |
| <b>Accreditation Details</b>          | pending                        |
| <b>Changes/Version Number</b>         | 1                              |

### Assessment: (also refer to Assessment Outcomes Grids below)

Formative assessment is available using on-line practice tests (on Aula) - that allow students to test their progress and understanding of the syllabus. The first summative component of assessment is a class test worth 10% (individual) and this takes place approximately halfway through the module and the third summative component of assessment is towards the end of the module and this class test is worth 40% (individual). The results for these two summative assessments are combined to give a total worth 50%

Formative assessment is available through completion of the practical labs - that allow students to test their progress and understanding of the practical aspects of the syllabus. The second summative assessment is lab-based, group work coursework worth 50% which is undertaken in the second half of the module

(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 Handbook.)

### Assessment Outcome Grids (Footnote A.)

#### Component 1

| Assessment Type (Footnote B.) | Learning Outcome (1) | Learning Outcome (2) | Learning Outcome (3) | Weighting (%) of Assessment Element | Timetabled Contact Hours |
|-------------------------------|----------------------|----------------------|----------------------|-------------------------------------|--------------------------|
| Class test (written)          | ✓                    |                      |                      | 50                                  | 0                        |

#### Component 2

| Assessment Type (Footnote B.)            | Learning Outcome (1) | Learning Outcome (2) | Learning Outcome (3) | Weighting (%) of Assessment Element | Timetabled Contact Hours |
|--|----------------------|----------------------|----------------------|-------------------------------------|--------------------------|
| Dissertation/ Project report/ Thesis     | ✓                    | ✓                    | ✓                    | 50                                  | 0                        |
| <b>Combined Total For All Components</b> |                      |                      |                      | 100%                                | 0 hours                  |

#### Footnotes

A. Referred to within Assessment Section above

B. Identified in the Learning Outcome Section above

#### Note(s):

- More than one assessment method can be used to assess individual learning outcomes.
- Schools are responsible for determining student contact hours. Please refer to University Policy on contact hours (extract contained within section 10 of the Module Descriptor guidance note).

This will normally be variable across Schools, dependent on Programmes &/or Professional requirements.

## **Equality and Diversity**

### **UWS Equality and Diversity Policy**

(N.B. Every effort will be made by the University to accommodate any equality and diversity issues brought to the attention of the School)