



## **Module Specification**

### **Process and Practice in Data Science**

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## Part 1: Information

**Module title:** Process and Practice in Data Science

**Module code:** UFCEHG-15-M

**Level:** Level 7

**For implementation from:** 2023-24

**UWE credit rating:** 15

**ECTS credit rating:** 7.5

**College:** College of Arts, Technology and Environment

**School:** CATE School of Computing and Creative Technologies

**Partner institutions:** None

**Field:** Computer Science and Creative Technologies

**Module type:** Standard

**Pre-requisites:** None

**Excluded combinations:** None

**Co-requisites:** None

**Continuing professional development:** No

**Professional, statutory or regulatory body requirements:** None

## Part 2: Description

**Overview:** This module introduces proven practical frameworks for designing and managing data science projects, alongside tools and methods for innovation, personal development and the ethical evaluation of algorithmic and data-driven solutions.

**Features:** Not applicable

**Educational aims:** This module is designed to provide an essential professional toolkit for the practising data scientist, covering emerging topics, project planning and control, key ethical issues and the cultivation of an innovation / enterprise mindset.

**Outline syllabus:** \* Data science landscape: Contemporary and emerging tools and methods; team roles; links to business / organisational goals and strategy.

\* Professional and Employability attributes: Upskilling & reskilling; creativity; domain knowledge; portfolio building; communicating success and learning from failure.

\* Data science lifecycle processes: Cross-Industry Standard Process for Data Mining (CRISP-DM); Team Data Science Process (TDSP);

\* Agile project management: Suitability to data science; philosophy and principles; tools and methods;

\* Enterprise and innovation: Personal / organisational attributes; Innovation; design thinking ; user experience design;

\* Ethics: Philosophy and practice; fairness and bias in data science and machine learning.

### **Part 3: Teaching and learning methods**

**Teaching and learning methods:** The module, presented via our online virtual learning environment, consists of a clearly signposted, easy-to-navigate student journey through carefully chosen learning materials which are designed to engage and challenge students as they work towards achieving the module learning outcomes. Content may be in a range of formats, including clear well-written text, diagrams, animations, video and interactive video, activities, quizzes, asynchronous discussions, coding and interpretation exercises.

Students will be provided with as many opportunities as possible to ‘perform their understanding’ rather than just reading or watching video to passively acquire knowledge. This may be in the form of simple tasks, activities or quizzes that students can engage with in the online environment, or larger pieces of work that may require additional thought. Whatever their nature, such tasks will be authentic (connected to the real world) and directly relevant to the programme learning outcomes.

The online environment also provides important opportunities to encourage students to work with, and learn from, their peers. The careful use of structured online discussion forums helps to foster an active learning community and enable students to share their responses to key questions, and to discuss, and even challenge, each other’s ideas.

All learning materials are produced and presented in a way that ensures that they are appropriate for as diverse an audience as possible. We follow W3C accessibility standards and ensure that all content can be used with all popular screen-readers, offering alternative formats where possible. In general, we aim to avoid using language, idioms, images or other devices which root the content in any particular culture or creed that instead adequately reflect the diversity of the student audience.

In general, modules are designed with a number of key learning principles in mind that align closely with those of the university.

Short recorded lectures will introduce topics and highlight important concepts at a high level.

Student self-learning, preparation and discussion will provide more in- depth examination and contextualization of the topics.

Short quizzes will round off each unit to enable students to evaluate their understanding.

**Module Learning outcomes:** On successful completion of this module students will achieve the following learning outcomes.

**MO1** Explain contemporary developments in data science and imagine likely future professional challenges.

**MO2** Plan data science projects using lifecycle process models and appropriate agile management tools and methods, then evaluate and communicate results.

**MO3** Prioritise and justify professional responsibilities and practice relating to openness, accountability, fairness and ethical conduct.

**MO4** Select and apply appropriate design, innovation and enterprise frameworks and practices to ensure viable, sustainable and beneficial data-driven outcomes.

**Hours to be allocated:** 150

**Contact hours:**

Independent study/self-guided study = 126 hours

E-learning/online learning = 24 hours

**Reading list:** The reading list for this module can be accessed at [readinglists.uwe.ac.uk](https://rl.talis.com/3/uwe/lists/BE02EB42-45BD-CDF3-F306-29EA5F4DCAFE.html) via the following link <https://rl.talis.com/3/uwe/lists/BE02EB42-45BD-CDF3-F306-29EA5F4DCAFE.html>

## Part 4: Assessment

**Assessment strategy:** Assessment will be through a combination of formative unit tests and the summative presentation of a project pitch combining and synthesising the module topics. Students will be required to demonstrate their ability to design a project based around a key emerging method or tool, incorporating plans for process and project control, iterative scheduling and continuous review.

**Assessment tasks:**

**Presentation (First Sit)**

Description: A live or recorded presentation of a project plan, with question and answers (30 mins).

Weighting: 100 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO1, MO2, MO3, MO4

**Presentation (Resit)**

Description: A live or recorded presentation of a project plan, with question and answers (30 mins).

Weighting: 100 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO1, MO2, MO3, MO4

**Part 5: Contributes towards**

This module contributes towards the following programmes of study:

Data Science [UWE Online] MSc 2023-24