



## **Programme Specification**

### **Data Science [Sep][FT][GCET][1yr]**

Version: 2021-22, v2.0, 01 Jun 2021

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## Section 1: Key Programme Details

### Part A: Programme Information

**Programme title:** Data Science [Sep][FT][GCET][1yr]

**Highest award:** MSc Data Science [Sep][FT][GCET][1yr]

**Interim award:** PGCert Data Science [Sep][FT][GCET][1yr]

**Interim award:** PGDip Data Science [Sep][FT][GCET][1yr]

**Awarding institution:** UWE Bristol

**Affiliated institutions:** Global College of Engineering and Technology (GCET)

**Teaching institutions:** Global College of Engineering and Technology (GCET)

**Study abroad:** No

**Year abroad:** No

**Sandwich year:** No

**Credit recognition:** No

**Department responsible for the programme:** FET Dept of Computer Sci & Creative Tech, Faculty of Environment & Technology

**Contributing departments:** Not applicable

**Professional, statutory or regulatory bodies:** Not applicable

**Apprenticeship:** Not applicable

**Mode of delivery:** Full-time

**Entry requirements:** For the current entry requirements see the UWE public website

**For implementation from:** 01 September 2020

**Programme code:** INC112-OCT-FT-GE-INB112

## Section 2: Programme Overview, Aims and Learning Outcomes

### Part A: Programme Overview, Aims and Learning Outcomes

**Overview:** Data Science is a new discipline requiring data handling skills combined with statistics and programming. In addition, it is vital to have knowledge of the kind of domain-specific issues where data-informed decision making and process improvements are needed.

The programme includes a new set of core modules plus new options - with both Computer Science (CSCT) and Engineering, Design and Mathematics (EDM) inputs - but also integrates existing relevant M-level modules which have seen successful uptake from CPD applicants as short courses and which align well with staff research interests.

A key aspiration for the MSc Data Science is the fostering of collaboration and a learning community of students, staff, alumni and industrial / international partners.

UWE's MSc will be distinctive in leveraging departmental and inter-faculty links to align teaching (including case studies and datasets ) with sustainable development goals in environment, energy, health and resource management.

**Educational Aims:** To enable graduates to progress to senior and leading data science-related roles (such as Data Scientist, Data Engineer, Data Analyst) in their organisation with scope and ability to develop organisational data-related capabilities, strategies and operations;

To develop resourceful, creative and independent thinkers able to adapt and respond to changing requirements, capabilities and opportunities in the data science space;

To foster confidence in working with data and managing associated concerns across multiple dimensions of data literacy;

Through data-oriented interventions, to enable graduates to impact on organisational efficiency and productivity as well as societal challenges such as those relating to the built and natural environment, health, agriculture and energy.

### **Programme Learning Outcomes:**

#### **Programme Learning Outcomes**

- PO1. Be able to construct questions and hypotheses relating to organisational objectives and to identify experiments or gather data bearing on these
- PO2. Using techniques such as statistical inference, machine learning, text and data analytics, to develop descriptive, predictive and prescriptive models and analyses adhering to good statistical practice.
- PO3. Select, employ and evaluate platforms, tools and data storage and management technologies and to build data pipelines and production-ready analytic products.
- PO4. Use scripting languages and good coding practice together with relational and NoSQL data querying (including data transformation and integration of diverse sources) to design, prototype and develop data science solutions
- PO5. Continually evaluate and improve models and systems to ensure they meet requirements and objectives
- PO6. Communicate the outcome of analyses to multiple stakeholders through verbal and multimedia reporting
- PO7. Embody legal, ethical and societal desiderata through highly informed and reflexive practice
- PO8. Work cooperatively and collaboratively across functions and teams and show leadership and an outcomes-driven mindset.

### **Part B: Programme Structure**

#### **Year 1**

#### **Year 1 Compulsory modules**

<b>Module Code</b>	<b>Module Title</b>	<b>Credit</b>
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UFCFLR-15-M	Data Management Fundamentals 2021-22	15
UBLLY7-60-M	Dissertation 2021-22	60
UFCFWQ-45-M	Interdisciplinary Group Project 2021-22	45
UFCFVQ-15-M	Programming for Data Science 2021-22	15
UFMFHR-15-M	Statistical Inference 2021-22	15

### Year 1 Optional modules

The student must take 30 credits from the modules in Optional modules.

Students will be informed of possible option combinations when making choices.

Module Code	Module Title	Credit
UFMFJR-15-M	Advanced Statistics 2021-22	15
UFCF8H-15-M	Big Data 2021-22	15
UFCFKR-15-M	Business Intelligence and Data Visualisation 2021-22	15
UFCFKJ-15-M	Cloud Computing 2021-22	15
UFCE8J-15-M	Designing the User Experience 2021-22	15
UFCFLJ-15-M	Linked, Open Data and the Internet of Things 2021-22	15
UFCFMJ-15-M	Machine Learning and Predictive Analytics 2021-22	15
UFCFJJ-15-M	Social Media and Web Science 2021-22	15

### Part C: Higher Education Achievement Record (HEAR) Synopsis

Graduates will exhibit analytical skills in problem framing and project design, data manipulation and retrieval, statistics and coding for data analysis. They will be able

to develop and evaluate models, use established tools and methods, and effectively communicate their results to stakeholders. They will be able to work in a multifunctional team and manage a full development lifecycle.

#### **Part D: External Reference Points and Benchmarks**

Programme development has been part-funded under the Institute of Coding (IoC), and OfS funded project where UWE is part of a consortium of 33 universities and over 100 employers developing accessible technology education courses, training and events.

Part of the IoC project is to develop new programme certification and accreditation, and UWE's involvement will help to ensure that the MSc will be eligible for this. Although not yet fully developed, it is expected that programme accreditation will be linked to new data competencies under Level 7 of SFIA (Skills Framework for the Information Age).

We are also participating in a project activity on shared curriculum tools and content for data science.

Programme design and curriculum has also been influenced by the EU-Horizon 2020 EDISON Data Science Framework (Data Science Competence Framework , Data Science Body of Knowledge and Model Curriculum )

#### **Part E: Regulations**

Approved to University Regulations and Procedures