Programme Specification

Data Science [UWE online]

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Section 1: Key Programme Details

Part A: Programme Information

Programme title: Data Science [UWE online]

Highest award: MSc Data Science

Interim award: PGCert Data Science

Interim award: PGDip Data Science

Awarding institution: UWE Bristol

Teaching institutions: UWE Bristol

Study abroad: No

Year abroad: No

Sandwich year: No

Credit recognition: No

School responsible for the programme: CATE School of Computing and Creative Technologies, College of Arts, Technology and Environment

Professional, statutory or regulatory bodies: Not applicable

Modes of delivery: Distance without attendance 2yrs

Entry requirements:

For implementation from: 01 July 2024

Programme code: INE112

Section 2: Programme Overview, Aims and Learning Outcomes

Part A: Programme Overview, Aims and Learning Outcomes

Overview: Data Science is a growing 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.

This online programme includes a set of existing relevant M-level modules which are currently taken by students on the on-campus MSc Data Science, and 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 from around the globe, staff, alumni and industrial / international partners.

UWE's online MSc Data Science 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.

Features of the programme:

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:

On successful completion of this programme graduates will achieve the following 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 across multiple functions and demonstrate an outcomes-driven mindset.

Assessment strategy: Alongside assessment of competence with fundamental concepts through online exams (particularly in modules focusing on data, coding and statistics), the programme's assessments are designed to track individual competency development through a focus on practical projects and the assessment of both process and product.

Delineation of problems and and experimental design will be assessed in the inference module and in the process and practice module (PO1).
The design and execution of statistical models, code and data structures are assessed as part of practical coursework and exams, with seen question used in some cases to give students adequate preparation time (PO2-4). Good ethical and legal practice will also be assessed explicitly in these modules (PO7).

Oral assessment in modules will be used to assess face to face communication of technical analyses (PO6). Elements of group working and continuous enhancement is built in to process assessment in the process and practice module (PO5, PO8).

All modules, and especially the process and practice module, will focus on real-world problems and datasets, with a requirement for students to demonstrate the ability to research , apply and share relevant techniques as they would in the workplace.

Through the use of the artefact-based research in the project module, students will have an opportunity to bring together new skills in statistics, data management and technical development, where there will the option to focus on a business problem from their own organisations or from those suggested by industrial partners and/or academic staff.

Student support: For the online programme, Skilled will provide dedicated Tier 1 student support that will be signposted in Blackboard and will enable a student to get a quick response to any issues they face. Academic enquiries will be directed to the tutors and/or UWE support staff whereas all pastoral (non-academic) support will be handled by the Skilled support team. The Skilled support team will use phone/email/Whatsapp/Chat to manage these enquiries through a ticketing system in Hubspot, the CRM. Skilled support staff will monitor the key engagement metrics in Blackboard, this data will be provided via Failure to Attend (FTA) and Failure to Participate (FTP) daily reports enabling proactive outreach to students who have not met minimum engagement criteria. Skilled support staff will be the initial point of contact for any student support enquiry and will determine the most effective path for resolution of the problem. All student interactions will be logged in Hubspot.

Part B: Programme Structure

Year 1
Students must take 90 credits from the modules in Year 1.

The order in which students take modules depends on their intake month.

Year 1 Compulsory Modules 1 (Part time)
Part time students must take 60 credits from the modules in Compulsory Modules 1 (Part time).

The order in which students take modules depends on their intake month.

Module Code	Module Title	Credit
UFCE9A-15-M	Data Management Fundamentals 2024-25	15
UFCEHG-15-M	Process and Practice in Data Science 2024-25	15
UFCE8V-15-M	Programming for Data Science 2024-25	15
UFCE8W-15-M	Statistical Inference 2024-25	15

Year 1 and Year 2 Compulsory Modules 2 (Part time)
Part time students must take 30 credits in year 1 and 30 credits in year credits from the modules in Compulsory modules 2 (Part time).

The order in which students take their modules depends on their intake month.

Module Code	Module Title	Credit
UFCE9B-15-M	Business Intelligence and Data Visualisation 2024-25	15
UFCE9M-15-M	Big Data 2024-25	15
UFCE9H-15-M	Cloud Computing 2024-25	15

UFCE9S-15-M	Machine Learning and Predictive Analytics 2024-25	15

Year 2
Students must take 60 credits from the modules in Year 2.

The order in which students take modules depends on their intake month.

Year 2 Compulsory Modules (Part Time)
Part time students must take 60 credits from the modules in Compulsory Modules (Part Time).

Module Code	Module Title	Credit
UFCE9T-60-M	CCT Masters Project 2025-26	60

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.