Programme Specification

Data Science [NepalBrit]

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Section 1: Key Programme Details

Part A: Programme Information

Programme title: Data Science [NepalBrit]

Highest award: MSc Data Science

Interim award: PGCert Data Science

Interim award: PGDip Data Science

Awarding institution: UWE Bristol

Affiliated institutions: The British College Nepal

Teaching institutions: The British College Nepal

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: Full-time

Entry requirements:

For implementation from: 01 September 2022

Programme code: IND112

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.

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.

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 cooperatively and collaboratively across functions and teams and show leadership and an outcomes-driven mindset.

Assessment strategy: Alongside assessment of competence with fundamental concepts through exams (particularly in the core modules focusing on data, coding and statistics), the programme's assessments are designed to track individual and team-based 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 the group project (PO1)
The design and execution of statistical models, code and data structures are

assessed as part of practical coursework and exam, 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 the group project and the core statistics model will be used to assess face to face communication of technical analyses (PO6). Group working and continuous enhancement is built in to process assessment in the interdisciplinary group module (PO5, PO8).

All modules, and especially the group project, 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 artifact-based research projects in the group project and dissertation, students will have an opportunity to bring together new skills in statistics, data management and technical development in capstone projects, where there will the option to focus on a business problem from their own organizations or from those suggested by industrial partners.

Student support: Espresso Programming and Espresso Maths are regular drop-in sessions where students can work on individual problems with staff members.

Part B: Programme Structure

Year 1
The student must take 180 credits from the modules in Year 1.

Year 1 Compulsory modules
The student must take 150 credits from the modules in Compulsory Modules.

Module Code	Module Title	Credit
UFCF9Y-60-M	CSCT Masters Project 2023-24	60

UFCFLR-15-M	Data Management Fundamentals 2023-24	15
UFCFWQ-45-M	Interdisciplinary Group Project 2023-24	45
UFCFVQ-15-M	Programming for Data Science 2023-24	15
UFMFHR-15-M	Statistical Inference 2023-24	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 2023-24	15
UFCF8H-15-M	Big Data 2023-24	15
UFCFKR-15-M	Business Intelligence and Data Visualisation 2023-24	15
UFCFKJ-15-M	Cloud Computing 2023-24	15
UFCFEY-15-M	Data and Information Governance 2023-24	15
UFCE8J-15-M	Designing the User Experience 2023-24	15
UFCFGD-15-M	Knowledge Management 2023-24	15
UFCFLJ-15-M	Linked, Open Data and the Internet of Things 2023-24	15
UFCFMJ-15-M	Machine Learning and Predictive Analytics 2023-24	15
UFCFJJ-15-M	Social Media and Web Science 2023-24	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.

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.