



Module Specification

Big Data and Generative Models

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Part 1: Information

Module title: Big Data and Generative Models

Module code: UFCEK5-30-2

Level: Level 5

For implementation from: 2026-27

UWE credit rating: 30

ECTS credit rating: 15

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: Module

Pre-requisites: None

Excluded combinations: None

Co-requisites: None

Continuing professional development: No

Professional, statutory or regulatory body requirements: None

Part 2: Description

Overview: In this module we will learn about concepts, theories, developments, and societal implications associated with data analytics, big data, and generative models. We will study knowledge discovery, analysis and assessment of data extracted from structured and unstructured big data sets as well as visualisation and communication of results.

Features: Not applicable

Educational aims: This module aims to provide an overview of the concepts, tools and techniques of data analytics, big data, and generative models.

Outline syllabus: An indicative content is as follows:

Big Data:

Storing Big Data

Analysing Data Characteristics

Overview of Big Data Stores

Selecting Big Data Store

Processing Big Data

Integrating Disparate Data Stores

Employing Hadoop MapReduce

Tools and Techniques to Analyse Big Data

Creating business value from extracted data

Recognising Patterns and Trends with queries

Creating business value from extracted data

Ethical, privacy and security issues

Ethical and societal implications of big data and generative models

Case studies/examples/scenarios

Generative Models:

Types of Generative Models

Real-World Use Cases of Generative Models

Benefits of Generative Models

Limitations of Generative Models

How to use Generative Models for Data Science

Data Exploration

Report Writing

Synthetic Data Generation

Part 3: Teaching and learning methods

Teaching and learning methods: This module gives the students the opportunity to extend, consolidate and apply the knowledge they have gained in this module and the prerequisite modules. The focus of the module is on the completion of an individual written assignment and a group-based project. Teaching and learning is largely driven by the requirements of the written and group-based project.

This module will be taught by a combination of lectures and tutorials in every weekly session. Students will receive learning material in advance of the weekly classes and will be expected to use the material to prepare for class. The class based sessions will therefore allow for increased interaction during lecture/tutorials in addition to raising potential knowledge exchange between students with industrial background and tutors.

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

MO1 Demonstrate an understanding of the fundamentals of Big Data, including data volume, variety, velocity, and veracity.

MO2 Apply various contemporary Big Data storage technologies to efficiently handle large-scale datasets.

MO3 Explore various tools, techniques and generative models for real world applications, data generation and to create business insights.

MO4 Analyse the ethical and societal implications of big data and generative models, addressing issues such as privacy, bias, and transparency.

Hours to be allocated: 300

Contact hours:

Independent study/self-guided study = 228 hours

Face-to-face learning = 72 hours

Reading list: The reading list for this module can be accessed at [readinglists.uwe.ac.uk](https://rl.talis.com/3/uwe/lists/73453748-2E02-7EEE-AFEF-EB9571AEAEBB.html?lang=en-GB&login=1) via the following link <https://rl.talis.com/3/uwe/lists/73453748-2E02-7EEE-AFEF-EB9571AEAEBB.html?lang=en-GB&login=1>

Part 4: Assessment

Assessment strategy: Overall, there will be two assessments over two teaching blocks.

TB1 Assessment: (Individual-based written assignment) 50%

The written assignment must be completed individually by students on a research problem related to the module.

TB2 Assessment: (Group-based Project) 50%

All students will be assigned into unique groups for the project assignment. The project assignment must be completed as a group based on a project problem related to the module. The assessment will be based on the group-based project work submitted by each group.

The resit assessment will have the same format as the first sit assessment.

Assessment tasks:

Written Assignment (First Sit)

Description: Individual written assignment (2000 - 3000 words)

Weighting: 50 %

Final assessment: No

Group work: No

Learning outcomes tested: MO1, MO2

Project (First Sit)

Description: Group project (2000 - 3000 words)

Weighting: 50 %

Final assessment: Yes

Group work: Yes

Learning outcomes tested: MO3, MO4

Written Assignment (Resit)

Description: Individual written assignment (2000 - 3000 words)

Weighting: 50 %

Final assessment: No

Group work: No

Learning outcomes tested: MO1, MO2

Project (Resit)

Description: Individual project (2000 - 3000 words)

Weighting: 50 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO3, MO4

Part 5: Contributes towards

This module contributes towards the following programmes of study:

Data Science [Frenchay] BSc (Hons) 2025-26