# UNIVERSITY OF NORTHAMPTON

# MODULE SPECIFICATION

This document forms the definitive overview as to the nature and scope of this module and is used in the University’s quality assurance processes. The information in this document cannot be changed without approval (except for the Indicative Content).

[A glossary of key terms is available.](https://www.northampton.ac.uk/ilt/current-projects/defining-contact-time/types-of-student-contact-time/)

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| **FACULTY** | Faculty of Art, Science & Technology |
| **SUBJECT AREA** | Technology |
| **SUBJECT FIELD** | Computing |
| **MODULE TITLE** | Introduction to Artificial Intelligence |

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| **MODULE CODE** | CSY2082 |
| **LEVEL** | 5 |
| **CREDIT VALUE** | 20 |
| **MODULE LEADER** | Dr Mu Mu |

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| **DELIVERY MODE(S)** | Standard |
| **DELIVERY LOCATION(S)** | UON |

**PRE-REQUISITES:**

None

**CO-REQUISITES:**

None

**RESTRICTIONS:**

None

**SUPPLEMENTARY REGULATIONS**:

This module has supplementary regulations No

**MODULE OVERVIEW:**

The module introduces fundamentals of data science and machine learning. Students will gain understanding of ethical and legal considerations when analysing data and acquire skills to address bias. Students will practice using data processing, modelling and visualisation tools for problem solving of practical challenges and the development of AI-driven applications

**INDICATIVE CONTENT:**

* Data science basics
* Machine learning process and tools
* Regression
* Decision tree
* Support Vector Machines
* Random forest
* Clustering
* Data visualisation
* Fuzzy logic
* Search

**LEARNING OUTCOMES:**

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| **Module Learning Outcomes** |
| **On successful completion of the module, with guidance, students will be able to:** |
| **Subject-Specific Knowledge, Understanding & Application** |
| 1. Explain and use fundamental concepts and techniques of data analysis and artificial intelligence. |
| 1. Analyse machine learning datasets and identify significant information relevant to problem space. |
| 1. Identify potential ethical and legal issues in data collection, processing, modelling and inference process. |
| 1. Design, develop and evaluate a machine learning model for a use case scenario. |
| **Employability & Changemaker Skills** |
| 1. Identify and solve well-defined problems using data science tools |
| 1. Implement an ethically sound solution to a problem individually |

**Readers are referred to the Programme Specification document for the list of PSRB requirements met by this module.**

**TYPICAL LEARNING, TEACHING AND ASSESSMENT HOURS (for the module as delivered on-site at the University of Northampton):**

[View this table on how learning, teaching and assessment hours map to the KIS Categories.](https://www.northampton.ac.uk/ilt/current-projects/defining-contact-time/kis-guidance/)

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| **Learning and teaching information for this module when delivered off-site by UN partners is available from the partner institution’s NILE site (or equivalent). Any variation in study hours must be approved by the University of Northampton before students are enrolled, ensuring that study hours provision is always appropriate to support student achievement of the module learning outcomes.** |

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| **Learning, Teaching and Assessment activities** | **Study hours** |
| **Contact hours: (total)**  Comprising face-to-face and online contact hours as follows: | **48** |
| * **Face-to-face (total) -** this may include the following: * Face to face interactive small group session (generic space in groups of approx. 30 e.g. seminars/workshops/tutorials) * Specialist space (e.g. laboratories, studio space) * F2F (broadcast) Lectures  (e.g. guest speaker, cohort induction) | 36 |
| * **Online contact hours** **(total)**  (comprising online activities with mediated tutor input) | 12 |
| **Guided independent study hours**  **(including hours for assessment preparation)** | **152** |
| **Module Total** | **200** |

**ALIGNMENT OF LEARNING OUTCOMES AND ASSESSMENTS:**

**University of Northampton:**

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| **Assessment Activity** | | | **Learning Outcomes** | **Weighting (%)** |
| **Code** | **Assessment Type** | **Assessment Deliverables** |  |  |
| AS1 | Project report | A written report on literature research and a small project based on AI  2,000 words | a, c | 50% |
| AS2 | Project report | A written report on literature research, design, development and evaluation of a machine learning model.  2,000 words | b, c, d, e, f | 50% |

The assessment items listed above are graded and contribute to the overall module grade (assessment *of* learning). In addition, there are opportunities for formative assessment (assessment *for* learning), which are ungraded, to support students in achieving the module learning outcomes. These are NOT listed.

**APPROVAL/ REVIEW DATES:**

**Version: 1**

Date of approval: