

MODULE DESCRIPTOR

Module Title

Machine Learning			
Reference	CM3151	Version	1
Created	November 2023	SCQF Level	SCQF 9
Approved	August 2017	SCQF Points	15
Amended	July 2022	ECTS Points	7.5

Aims of Module

Provide students with the necessary technical skills and underlying knowledge that enable them to apply and evaluate different data analytics and machine learning algorithms.

Learning Outcomes for Module

On completion of this module, students are expected to be able to:

- 1 Demonstrate an understanding of the main components in a data driven system
- 2 Make judgements on the application and evaluation of different machine learning algorithms.
- 3 Formulate solutions to source data and extract knowledge.
- 4 Discuss the application of different visualisation methods to communicate results.

Indicative Module Content

Data Analytics: visualisation, pre-processing, text, categorical data, numerical, vision problem. Machine Learning: Classification, Regression, Decision Trees, Ensemble Learning , Kernel Methods. Results: Markdown, Reproducible Results, Interactive Documents.

Module Delivery

Key concepts are introduced and illustrated through lectures and directed reading. The understanding of students is tested and further enhanced through interactive tutorials. In the laboratories, the student will progress through a sequence of exercises to develop sufficient knowledge and skills in the subject.

Indicative Student Workload

	Full Time	Part Time
Contact Hours	30	N/A
Non-Contact Hours	120	N/A
Placement/Work-Based Learning Experience [Notional] Hours	N/A	N/A
TOTAL	150	N/A
<i>Actual Placement hours for professional, statutory or regulatory body</i>		

ASSESSMENT PLAN

If a major/minor model is used and box is ticked, % weightings below are indicative only.

Component 1

Type: Coursework Weighting: 100% Outcomes Assessed: 1, 2, 3, 4
 Description: This component consists of coursework assignment assessing the modules learning outcomes.

MODULE PERFORMANCE DESCRIPTOR**Explanatory Text**

The calculation of the overall grade for this module is based on 100% weighing of C1. An overall minimum grade D is required to pass the module.

Module Grade	Minimum Requirements to achieve Module Grade:
A	The student needs to achieve an A in C1.
B	The student needs to achieve an B in C1.
C	The student needs to achieve an C in C1.
D	The student needs to achieve an D in C1.
E	The student needs to achieve an E in C1.
F	The student needs to achieve an F in C1.
NS	Non-submission of work by published deadline or non-attendance for examination

Module Requirements

Prerequisites for Module	Knowledge of programming and maths would be beneficial.
Corequisites for module	None.
Precluded Modules	None.

INDICATIVE BIBLIOGRAPHY

- 1 BRETT, L., 2015. Machine Learning with R. Packt Publishing
- 2 Aurelien Geron 2019, Hands-on Machine Learning with Scikit-Learn, Keras, and TensorFlow: Concepts, Tools, and Techniques to Build Intelligent Systems
- 3 Jung, Alexander. Machine learning : the basics. 2022. Springer