

MODULE DESCRIPTOR

Module Title

Data Mining Techniques

Reference	CMM010	Version	1
Created	May 2022	SCQF Level	SCQF 11
Approved	June 2022	SCQF Points	15
Amended		ECTS Points	7.5

Aims of Module

To provide students with the skills to undertake Data Mining projects using current Data Mining tools and techniques.

Learning Outcomes for Module

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

- 1 Compare and contrast the use of different data mining techniques for given learning tasks.
- 2 Apply and adapt appropriate data mining techniques to a given problem.
- 3 Carry out a data mining project following a data mining methodology while considering the legal, ethical and security implications of the project.
- 4 Critically evaluate and interpret the results of data mining through the selection of appropriate evaluation techniques.

Indicative Module Content

Data mining concepts. Data mining methodology (e.g., CRISP-DM). Data mining tasks, techniques, and algorithms. Evaluation and bias. Legal, ethical and security issues. Case studies.

Module Delivery

This is a lecture-based course, supplemented with laboratory sessions, where a data mining toolkit is applied to varied learning tasks and tutorials where additional understanding is gained through practical exercises which supplement the lectures.

Indicative Student Workload

	Full Time	Part Time
Contact Hours	30	30
Non-Contact Hours	120	120
Placement/Work-Based Learning Experience [Notional] Hours	N/A	N/A
TOTAL	150	150
<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:	Practical Exam	Weighting:	100%	Outcomes Assessed:	1, 2, 3, 4
Description:	This practical exam will consist of a practical application and evaluation of data mining techniques to a given problem.				

MODULE PERFORMANCE DESCRIPTOR**Explanatory Text**

To achieve a pass in this module requires a minimum of grade D in Assessment Component 1

Module Grade	Minimum Requirements to achieve Module Grade:
A	A in Component 1
B	B in Component 1
C	C in Component 1
D	D in Component 1
E	E in Component 1
F	F in Component 1
NS	Non-submission of work by published deadline or non-attendance for examination

Module Requirements

Prerequisites for Module	None.
Corequisites for module	None.
Precluded Modules	None.

INDICATIVE BIBLIOGRAPHY

- | | |
|---|--|
| 1 | WITTEN, I.H. et al., 2017. Data Mining: Practical Machine Learning Tools and Techniques. 4th ed. Amsterdam, Netherlands: Morgan Kaufmann. |
| 2 | NETTLETON, D., 2014. Commercial Data Mining: Processing, Analysis and Modeling for Predictive Analytics Projects. Amsterdam, Netherlands: Morgan Kaufmann. |
| 3 | MOHAMMED, J.Z. and WAGNER, M., 2014. Data Mining and Analysis: Fundamental Concepts and Algorithms. Cambridge: Cambridge University Press. |
| 4 | ZAO, Y., 2013. R and Data Mining. Examples and Case Studies. Amsterdam, Netherlands: Academic Press. |
| 5 | OLSON, DL. (2019), Descriptive Data Mining, 2nd Edition. Springer Nature. |
| 6 | JAMES, G. WITTEN, D. HASTIE, T. TIBSHIRANI, R. (2021) An Introduction to Statistical Learning : with Applications in R. Springer |