

Module Title Applications Of Data Mining	Reference CM4001 SCQF SCQF Level 10 SCQF Points 15 ECTS Points 7.5 Created May 2002 Approved April 2005 Amended August 2007 Version No. 4
Keywords Data Mining, Machine Learning, Learning Tools, Evaluation of Learning	

This Version is No Longer Current

The latest version of this module is available [here](#)

Prerequisites for Module

CM2007 Interactive Object Oriented Programming or equivalent.

Corequisite Modules

None.

Precluded Modules

None.

Aims of Module

To provide students with an understanding of the main principles underlying Data Mining and Machine Learning techniques and the ability to apply current Data Mining and Machine Learning tools to real datasets.

Indicative Student Workload

<i>Contact Hours</i>	Full Time
Lectures	24
Laboratories	24
Assessment	10

Directed Study

Directed Study	30
Coursework Preparation	12

Private Study

Private Study	50
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Mode of Delivery

This is a lecture based course, supplemented with laboratory sessions, where a Java-based data mining toolkit is applied to varied learning tasks.

Assessment Plan

Learning Outcomes for Module

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

- 1.Explain the main concepts of Data Mining and Machine Learning and how these are applied in practice.
- 2.Select an appropriate data mining algorithm and apply it effectively to a given learning task.
- 3.Compare and contrast the approaches of data mining and machine learning algorithms.
- 4.Analyse output from data mining tools and evaluate learned results.

Indicative Module Content

Basic Data Mining concepts: training examples, learned concepts, noisy data, discretization. Basic learning approaches: decisions trees, classification rules, association rules, nearest neighbour methods, clustering. Advanced methods: combining learned results. Evaluation: data visualisation, approaches to testing, cross validation, overfitting, comparative experiments. Applications: data mining datasets, fielded applications, web and text

	Learning Outcomes Assessed
Component 1	1,2,3
Component 2	2,4

Component 2 - Coursework

Component 1 - This is a closed book examination.

Indicative Bibliography

- 1.WITTEN, I. H. and FRANK, E., 2005. Data Mining: Practical Machine Learning Tools and Techniques.2nd Ed. Morgan Kaufmann.
- 2.TAN,P.-N., STEINBACH,M. and KUMAR, V.,2005. Introduction to Data Mining. Addison Wesley.
- 3.KANTARDZIC, M.,2002. Data Mining: Concepts, Models, Methods and Algorithms. Wiley.
- 4.WEISS,S.W and INDURKHYA, N.,1997. Predictive Data Mining: A Practical Guide. Morgan Kaufmann.
- 5.MITCHELL, T.,1997. Machine Learning. McGraw Hill.

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