MODULE DESCRIPTOR

Module Title

Data Mining

Reference	CMM510	Version	8
Created	February 2018	SCQF Level	SCQF 11
Approved	April 2005	SCQF Points	15
Amended	March 2018	ECTS Points	7.5

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.

Learning Outcomes for Module

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

1	Discuss, compare and contrast the advantages and disadvantages of applying a specific data mining technique to a given learning task.
2	Use a toolkit to develop a data mining application tailored to a given learning task and evaluate the results obtained.
3	Effectively interpret the results of learning through an understanding of the strengths and limitations of data mining technology and the selection of an appropriate evaluation technique.
4	Demonstrate knowledge of the state-of-the-art in data mining and an awareness of current areas of research.
5	Apply and, where necessary, adapt an appropriate data mining technique to a given problem.

Indicative Module Content

Basic data mining concepts. Implementation of fundamental learning approaches. Rules involving relations; incorporating domain knowledge in learning. Advanced techniques for evaluating learned concepts. Calculation of confidence intervals for predictive performance. Comparison of data mining schemes. Paired t-test. Minimum Description Length principle and its application to clustering. Attribute selection. Combining learned results. Applications.

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.