

## MODULE DESCRIPTOR

### Module Title

Information Retrieval

Reference	CM4144	Version	1
Created	January 2024	SCQF Level	SCQF 10
Approved	April 2024	SCQF Points	15
Amended		ECTS Points	7.5

### Aims of Module

To provide students with a comprehensive understanding of the main principles and practices underlying the retrieval, extraction and mining of text and other data using advanced analytical techniques, including recommender systems, to make business decisions.

### Learning Outcomes for Module

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

- 1 Examine the main concepts involved in information retrieval.
- 2 Develop intelligent information retrieval systems.
- 3 Test the effectiveness of information retrieval systems.
- 4 Execute state-of-the-art techniques for web mining and natural language processing.
- 5 Develop a recommender system for a given purpose.

### Indicative Module Content

Information collection: crawling and document pre-processing. Information retrieval: document Indexing, similarity metrics and clustering. Web Analytics. Comparative analysis of information retrieval and visualisation methods. Text extraction, tokenisation, stemming, bag-of-words, n-gram, statistical language models, vector representations and topic models. Word sense disambiguation, phrase and named entity recognition, POS tagging, shallow parsing, syntax and dependency parsing. Document similarity, clustering and classification, information extraction, sentiment analysis using lexicon-based techniques. Case studies on text classification, topic modelling applied to news articles, intelligent search and browse, social media mining. Personalisation, recommendation, user modelling, and interactive smart information systems.

### Module Delivery

Lectures are used to deliver the main principles and techniques. Computing laboratories will be used to acquire and practise practical skills and reinforce knowledge from the lectures.

**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:	Practical Exam	Weighting:	100%	Outcomes Assessed:	1, 2, 3, 4, 5
Description:	A practical exam assessing knowledge and practical skills in information retrieval techniques and evaluation of their results.				

**MODULE PERFORMANCE DESCRIPTOR****Explanatory Text**

The calculation of the overall grade for this module is based on 100% weighting of Component 1. To pass the module students should achieve grade D or better.

Module Grade	Minimum Requirements to achieve Module Grade:
<b>A</b>	The student must achieve an A in C1.
<b>B</b>	The student must achieve a B in C1.
<b>C</b>	The student must achieve a C in C1.
<b>D</b>	The student must achieve a D in C1.
<b>E</b>	The student must achieve an E in C1.
<b>F</b>	The student must achieve an F in C1.
<b>NS</b>	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 Web information retrieval. Ceri, Stefano, 2013
- 2 Designing the search experience : the information architecture of discovery. Russell-Rose, Tony.; Tate, Tyler. 2013
- 3 Information Retrieval Searching in the 21st Century. Goker, Ayse and Davies, John. 2009
- 4 Artificial intelligence a modern approach. Russell, Stuart J. , Norvig, Peter, 2014.
- 5 Recommendation and search in social networks. Ulusoy, Ozgur, Tansel, Abdullah Uz, Arkun, Erol, 2015.