Liverpool John Moores University

Title:	DATA MINING KNOWLEDGE ACQUISITION
Status:	Definitive
Code:	**5557NCCG** (129520)
Version Start Date:	01-08-2021
Owning School/Faculty:	Computer Science and Mathematics
Teaching School/Faculty:	Nelson Campus

Team	Leader
Silvester Czanner	Y
Robert Askwith	

Academic Level:	FHEQ5	**Credit Value:**	20	**Total Delivered Hours:**	60
Total Learning Hours:	200	**Private Study:**	140		

Delivery Options
Course typically offered: S1, S2 and NS2 (S2 for Jan)

Component	Contact Hours
Lecture	60

Grading Basis: 40 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Practice	Exercis	Time-constrained Data Mining Exercise (4 hours)	30	
Report	Assignment	Assignment	70	

Aims

This module will introduce the theoretical foundation of data mining and knowledge acquisition together with practical experience of a range of related processes and techniques.

Learning Outcomes

After completing the module the student should be able to:

1 Discuss the historical and theoretical foundation of data mining, its scope, techniques, and processes
2 Investigate a range of data mining techniques to discover patterns and relationships in large data sets
3 Illustrate how a data mining algorithm performs text mining to identify relationships within text.
4 Evaluate a range of graph data mining techniques that recognise patterns and relationships in graph-based technologies.

Learning Outcomes of Assessments

The assessment item list is assessed via the learning outcomes listed:

Data Mining Exercise	2		
Assignment	1	3	4

Outline Syllabus

Data mining terminologies.

Scope of data mining: Classification, regression and clustering. Data mining algorithms: Classification algorithms, regression algorithms and clustering algorithms

Text mining. Overview to natural language processing. Document preparation and similarities. Clustering methods. Topic Modelling. Presentation methods of text

Patterns and relationships in data. Unstructured data and graph-based technologies. Networks and network analysis. Graph algorithms: graph pattern mining, graph classification, graph clustering, and so forth. Content mining, structure mining and usage mining. Graph data mining tools

Knowledge acquisition from data. Contruction of knowledge-based systems.

Learning Activities

Lectures

These will not normally be traditional didactic lectures in which the student plays little active part, but will be delivered in small groups of up to 20 students in which their interaction with their tutor is a key ingredient of their learning experience.

The material of this module requires the development of significant practical skill. This will be taught within the lecture time, making these sessions a blend of lecture and workshop time. The sessions will be timetabled in spaces with physical resources appropriate to the delivered content.

Students will receive approximately 30 hours of taught material, supported by in-class exercises and discussions designed to help student assimilate learning and to provide early informal feedback on their progress.

Practical Work

This module contains directed practical work that students will undertake under the supervision of teaching staff and/or technicians. Some elements of this practical work will form part of the assessment for this module.

Independent Study

Students are expected to undertake personal reading and research into topic areas that have been stimulated from the lectures and seminars. This reading will enhance their academic work and enable valid contribution to lectures and seminars.

VLE support

This will provide links to academic web-sites and on-line journals, facilitate group discussion outside of the classroom, access to outline lecture notes, and provide students with assessment details.

Notes

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