

Summary Information

Module Code	7021DATSCI
Formal Module Title	Machine Learning and Data Mining
Owning School	Astrophysics Research Institute
Career	Postgraduate Taught
Credits	20
Academic level	FHEQ Level 7
Grading Schema	50

Teaching Responsibility

LJMU Schools involved in Delivery
Computer Science and Mathematics

Learning Methods

Learning Method Type	Hours
Lecture	20
Practical	30
Seminar	10

Module Offering(s)

Display Name	Location	Start Month	Duration Number Duration Unit
JAN-CTY	CTY	January	12 Weeks

Aims and Outcomes

Aims	The module aims to develop skills in machine learning and data mining, using methods from computational learning theory and artificial intelligence to extract previously unknown relationships from large data sets.
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After completing the module the student should be able to:

Learning Outcomes

Code	Number	Description
MLO1	1	Synthesise machine learning and data mining methods to extract previously unknown relationships in data.
MLO2	2	Evaluate suitable machine learning and data mining methods based on the type of data and problem to be addressed.
MLO3	3	Critically analyse the effectiveness of different machine learning and data mining methods.

Module Content

Outline Syllabus	1. Introduction 2. Supervised learning 3. Artificial neural networks 4. Support vector machines and kernel methods 5. Tree-based methods and ensemble learning 6. Deep learning 7. Unsupervised learning 8. Advanced topics in machine learning and data mining
Module Overview	This module aims to develop skills in data mining, using methods from computational learning theory and artificial intelligence to extract previously unknown relationships from large data sets.
Additional Information	

Assessments

Assignment Category	Assessment Name	Weight	Exam/Test Length (hours)	Module Learning Outcome Mapping
Report	Report based on data mining	50	0	MLO1, MLO2, MLO3
Centralised Exam	Examination	50	3	MLO1, MLO2, MLO3

Module Contacts

Module Leader

Contact Name	Applies to all offerings	Offerings
Ivan Olier-Caparroso	Yes	N/A

Partner Module Team

Contact Name	Applies to all offerings	Offerings
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