Liverpool John Moores University

Title:	ADVANCED ANALYTICS
Status:	Definitive
Code:	**6126COMP** (121303)
Version Start Date:	01-08-2021
Owning School/Faculty:	Computer Science and Mathematics
Teaching School/Faculty:	Computer Science and Mathematics

Team	Leader
Wasiq Khan	Y
Janet Lunn	

Academic Level:	FHEQ6	**Credit Value:**	20	**Total Delivered Hours:**	55
Total Learning Hours:	200	**Private Study:**	145		

Delivery Options
Course typically offered: Semester 2

Component	Contact Hours
Lecture	22
Practical	33

Grading Basis: 40 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Report	AS1	Descriptive Modelling Task	50	
Report	AS2	Predictive Modelling Task	50	

Aims

To consolidate and extend prior learning and experience of data science by exploring predictive analytics through the application of machine learning to data sets.
To build experience in the process of an analytical exercise.

Learning Outcomes

After completing the module the student should be able to:

1 Formulate and construct an appropriate descriptive analytical modelling task
2 Formulate and construct an appropriate predictive analytical modelling task.

Learning Outcomes of Assessments

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

Descriptive Modelling Task	1
Predictive Modelling Task	2

Outline Syllabus

Overview of Predictive Analytics
Supervise vs Unsupervised Learning
Parametric vs Non-parametric Models
Review CRISP-DM
Data Understanding
Data preparation
Association Rules e.g. Market basket Analysis
Descriptive Modelling
Principal Component Analysis
Clustering Algorithms e.g. K-Means Algorithm
Interpreting Descriptive Models
Predictive Modelling
Decision tress
Logistic regression
K-nearest neighbours
Naïve Bayes
Linear Regression
Assessing Predictive models
Consideration of Ensemble Models

Learning Activities

Lectures will introduce the underpinning theories of advanced analytics, while practical sessions will implement those theories in a practical manner.

Notes

This is a practical module that generates effective analytical modelling experience, thus developing real hands-on experience of data science applications.