

Liverpool John Moores University

Title: DATA ANALYTICS
Status: Definitive
Code: **4548NCCG** (129510)
Version Start Date: 01-08-2021

Owning School/Faculty: Computer Science and Mathematics
Teaching School/Faculty: Nelson Campus

Team	Leader
Robert Askwith	Y
Silvester Czanner	

Academic Level: FHEQ4 **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
Report	Assignment	Assignment	100	

Competency	NCC Group Pass/Fail
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Aims

This module will introduce the theoretical foundation of data analytics and a range of data analytic processes and techniques to provide hands-on experience for enhancing students' skills.

Learning Outcomes

After completing the module the student should be able to:

- 1 Discuss the theoretical foundation of data analytics that determine decision making processes in management or business environments.
- 2 Apply a range of descriptive analytic techniques to convert data into actionable insight using a range of statistical techniques.
- 3 Investigate a range of predictive analytic techniques to discover new knowledge for forecasting future events.
- 4 Demonstrate prescriptive analytic methods for finding the best course of action for a situation.

Learning Outcomes of Assessments

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

Assignment	1	3	4
NCC Group Pass/Fail		2	

Outline Syllabus

Data analytics terminologies. Types of data analytics. Descriptive data analytics, predictive data analytics and prescriptive data analytics. Exploratory data analysis (EDA): Variable identification, univariate and bi-variate analysis, missing values treatment, etc . Data visualisation: Graphs, charts, plots.

Descriptive statistics: central tendency, position and dispersion. Probability distribution: Cumulate distribution, discrete distribution, continuous distribution. Sampling and estimation. Statistical inferences: Models and assumptions

Regression analytics: Linear regression, multiple linear regression and logistic regression. Forecasting techniques: Qualitative, average approach, naïve approach, time series methods, causal relationships.

Optimisation: Classical optimisation, linear programming techniques, nonlinear programming techniques, dynamic programming.

Decision analysis: Models, justifiable decisions and defensible decisions.

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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