Liverpool John Moores University

Title:	MULTIVARIATE ANALYSIS
Status:	Definitive
Code:	**6108STATS** (128817)
Version Start Date:	01-08-2021
Owning School/Faculty:	Computer Science and Mathematics
Teaching School/Faculty:	Computer Science and Mathematics

Team	Leader
Ivo Siekmann	Y

Academic Level:	FHEQ6	**Credit Value:**	10	**Total Delivered Hours:**	28
Total Learning Hours:	100	**Private Study:**	72		

Delivery Options
Course typically offered: Semester 2

Component	Contact Hours
Lecture	14
Practical	14

Grading Basis: 40 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Test	AS1	In-class test	100	1

Aims

To enable the student to explore the structure of multidimensional data sets. To introduce the student to inferential procedures using multivariate data.

Learning Outcomes

After completing the module the student should be able to:

1	Carry out an exploratory numerical and graphical analysis of a multivariate data set.
2	Recognize situations in which a multivariate approach is required and carry out the appropriate inferential procedures.
3	Present the results of a multivariate data analysis in a brief report.

Learning Outcomes of Assessments

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

In-class test	1	2	3

Outline Syllabus

Graphical display and numerical summary of multivariate data. Investigation of the dependence among variables.
Discrimination and prediction. Error rate estimation.
Hypothesis construction and testing. Use of simultaneous confidence intervals.
Principal Components Analysis.
Use appropriate software for data exploration, visualisation, parameter estimation and significance testing.

Learning Activities

Lectures cover the statistical foundation of multivariate analysis.

Practicals introduce to the practical application of multivariate methods to real-world data sets using statistical software packages.

Notes

This final year module advances beyond univariate statistical methods to the analysis of data sets with multiple dependent variables (multivariate data).

The assessment will be individual and tutor assessed.

How does the Module relate to the Programme overall?

The module introduces to both the theory of analysing multivariate data sets based on the multivariate normal distribution as well as the practical application of multivariate methods to real-world data sets using modern statistical software.