Liverpool John Moores University

Title:	MULTIVARIATE ANALYSIS
Status:	Definitive
Code:	**6002STATS** (103329)
Version Start Date:	01-08-2011
Owning School/Faculty:	Computing and Mathematical Sciences
Teaching School/Faculty:	Computing and Mathematical Sciences

Team	Leader
Peter Harris	Y

Academic Level:	FHEQ6	**Credit Value:**	12.00	**Total Delivered Hours:**	38.00
Total Learning Hours:	120	**Private Study:**	82		

Delivery Options
Course typically offered: Semester 1

Component	Contact Hours
Lecture	14.000
Practical	10.000
Tutorial	12.000

Grading Basis: 40 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Report	AS1	One (Minitab-based) coursework.	25.0	
Exam	AS2	Examination	75.0	2.00

Aims

To enable the student to explore the structure of multidimensional data sets.

To enable the student to carry out 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 set of multivariate.
2 Recognize situations in which a multivariate approach is required and carry out the appropriate inferential procedures.
3 Classify future multivariate observations into one of a number of known populations.
4 Report their conclusions in an appropriate manner.

Learning Outcomes of Assessments

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

Minitab	1	2		
Exam	1	2	3	4

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 of Minitab for data exploration, parameter estimation and significance testing.

Learning Activities

Lectures, tutorials, laboratory sessions, directed reading, coursework preparation and revision for examinations.

References

Course Material	Book
Author	Cox, T.F.
Publishing Year	2005
Title	An Introduction to Multivariate Data Analysis
Subtitle	
Edition	
Publisher	Hodder Arnold
ISBN	0304760842

Course Material	Book
Author	Krzanowski, W.J.
Publishing Year	2000
Title	Principles of Multivariate Analysis

Subtitle	
Edition	Revised Edition
Publisher	Oxford University Press
ISBN	0198507089

Course Material	Book
Author	Johnson, R. A., and Wichern, D. W.
Publishing Year	2001
Title	Applied Multivariate Statistical Analysis
Subtitle	
Edition	5th Edition
Publisher	Prentice Hall Inc
ISBN	0130925535

Notes

Multivariate data consist of observations taken on several variables from each experimental unit. The special problems associated with data of this type will be covered in this module.