Liverpool John Moores University

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Title:	QUANTITATIVE METHODS
Status:	Definitive but changes made
Code:	**7505AE** (103464)
Version Start Date:	01-08-2011

Owning School/Faculty:	Liverpool Business School
Teaching School/Faculty:	Dublin Business School

Team	emplid	Leader
Robert McClelland		

Academic Level:	FHEQ7	**Credit Value:**	15.00	**Total Delivered Hours:**	42.00
Total Learning Hours:	150	**Private Study:**	108		

Delivery Options

Course typically offered: Runs Twice - S1 & S2

Component	Contact Hours
Lecture	20.000
Tutorial	20.000

Grading Basis: 40 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Essay	AS1	To test the student's ability to use statistical software to solve mathematical problems.	20.0	
Exam	AS2	To test the student's ability to apply knowledge, comprehension and problem solving abilities to the analysis of financial statements.	80.0	2.00

Aims

To provide students with a critical understanding of the main mathematical, and basic statistical techniques that underpin finance and investment models and their

application in practice.

To provide students with the necessary mathematical and basic statistical skills to understand the mathematics and statistics used in other modules of the programme.

To provide students with the tools necessary to undertake statistical tests.

Learning Outcomes

After completing the module the student should be able to:

1	Construct, analyse and solve mathematical models using appropriate software.
2	Demonstrate an understanding of current and new models and methodologies employed in research.
3	Use statistical software to conduct basic statistical tests for differences between means and analysis of variance.
4	Use statistical software for multiple regression analysis and correctly interpret the diagnostic statistic for testing hetroscedasticity and auto-correlation.
5	Critically analyse and evaluate statistical and/or mathematical models used in specialist publications.
6	Interpret and present reports based on statistical information and the statistical analysis of financial information.

Learning Outcomes of Assessments

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

essay	1	2	3	4	5	6
Exam	1	2	3	4	5	6

Outline Syllabus

Mathematical Review

Mathematical review: series expansions, quadratic, exponential, hyperbolic and logarithmic functions, total and partial differential calculus, Lagrange multipliers, and integration. Matrix algebra and the calculus of quadratic forms.

Probability and Sampling

Probability distributions, random variables and stochastic processes. Sampling theory and estimation theory. Hypothesis tests.

Financial Mathematics

Financial mathematics: compounding, discounting, net present value, internal rate of return, perpetuities and annuities.

Regression Analysis

Simple linear regression, multiple regression and hypothesis testing, least square estimates, the correlation coefficient, the fitted line, tests on slope and intercept and prediction. Approaches to modelling. Test for auto-correlation and hetroscedasticity.

Learning Activities

Lecture will cover mathematical and statistical topics and the use of appropriate functions in SPSS and Excel statistical software.

Tutorials will involve mathematical modelling and the application of Excel and SPSS functions and statistical analysis using appropriate software.

References

Course Material	Book
Author	Curwin, J, and Slater, R.
Publishing Year	2007
Title	Quantitative Methods for Business Decisions
Subtitle	
Edition	
Publisher	Cengage
ISBN	1844805743

Course Material	Book
Author	Asteriou, D., Hall, S.
Publishing Year	2007
Title	Applied Econometrics
Subtitle	
Edition	
Publisher	Palgrave Macmillan
ISBN	0-230-50640

Course Material	Book
Author	Brooks, C.
Publishing Year	2002
Title	Introductory Econometrics for Finance
Subtitle	
Edition	
Publisher	Cambridge University Press
ISBN	

Course Material	Book
Author	Bradley, T.

Publishing Year	2008
Title	Essential Mathematics for Business and Economics
Subtitle	
Edition	
Publisher	Wiley
ISBN	0470018569

Course Material	Book
Author	Jacques, I.
Publishing Year	2006
Title	Applied Econometrics
Subtitle	
Edition	
Publisher	FT Prentice Hall
ISBN	0273701958

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