

## Liverpool John Moores University

Title: QUANTITATIVE METHODS  
Status: Definitive  
Code: **7732AE** (107299)  
Version Start Date: 01-08-2011

Owning School/Faculty: Liverpool Business School  
Teaching School/Faculty: Isle of Man International Business School

Team	Leader
Alex Watt	Y

**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
Exam	AS1	Examination	80.0	2.00
Test	AS2	Test - 50 minutes	10.0	
Test	AS3	Test - 50 minutes	10.0	

### Aims

- 1. To provide the mathematical and statistical underpinning for the study of banking, economics and finance.*
- 2. To enable students to use appropriate Excel and Eviews functions for the mathematics of banking and finance.*
- 3. To enable students to use Excel and appropriate software for statistical analysis.*

## Learning Outcomes

After completing the module the student should be able to:

- 1 Construct, analyse and solve mathematical models for banking and finance using Excel.
- 2 Use Eviews to produce graphs and summary statistics
- 3 Use Eviews to conduct basic statistical tests for differences between means and analysis of variance
- 4 Use Eviews for multiple regression analysis and correctly interpret the diagnostic statistic for testing for heteroscedasticity and auto-correlation
- 5 Write suitable reports based on statistical information and the statistical analysis of financial information
- 6 Interpret and critically evaluate statistical and/or mathematical modes used in specialist publications

## Learning Outcomes of Assessments

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

EXAM	1	2	3	4	5
TEST	1	5	6		
TEST	1	6			

## Outline Syllabus

*Linear Algebra*

*Non linear optimisation*

*Financial Mathematics*

*Summary Statistics*

*Hypothesis testing based on differences between means (t tests, F tests)*

*Regression analysis - correlation, simple and multiple regression*

*Tests for auto correlation and heteroscedasticity*

## Learning Activities

Lecturer will cover:

Mathematical and statistical topics. The use of appropriate functions in Eviews and Excel. Statistics software.

Tutorials will involve:

Mathematical modelling and the application of Excel and Eviews functions. Statistical analysis using appropriate software

## References

<b>Course Material</b>	Book
<b>Author</b>	Bradley T & Patton P
<b>Publishing Year</b>	2002
<b>Title</b>	Essential Mathematics for Business & Economics
<b>Subtitle</b>	
<b>Edition</b>	
<b>Publisher</b>	John Wiley & Sons
<b>ISBN</b>	0470844663

<b>Course Material</b>	Book
<b>Author</b>	Jacques I
<b>Publishing Year</b>	2002
<b>Title</b>	Mathematics for Economics and Business
<b>Subtitle</b>	
<b>Edition</b>	
<b>Publisher</b>	FT Prentice hall
<b>ISBN</b>	0273655647

<b>Course Material</b>	Book
<b>Author</b>	Gujarati D N
<b>Publishing Year</b>	1999
<b>Title</b>	Essentials of Econometrics
<b>Subtitle</b>	
<b>Edition</b>	
<b>Publisher</b>	FT Prentice Hall
<b>ISBN</b>	0071163069

<b>Course Material</b>	Book
<b>Author</b>	Gujarati DN
<b>Publishing Year</b>	2002
<b>Title</b>	Basic Econometrics
<b>Subtitle</b>	
<b>Edition</b>	4th
<b>Publisher</b>	McGraw
<b>ISBN</b>	0071123431

<b>Course Material</b>	Book
<b>Author</b>	Levine DM, Stephan D & Krehbiel TC
<b>Publishing Year</b>	2002
<b>Title</b>	Statistics for Managers: Using Microsoft Excel
<b>Subtitle</b>	
<b>Edition</b>	
<b>Publisher</b>	Prentice Hall
<b>ISBN</b>	0130290904

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<b>Course Material</b>	Book
<b>Author</b>	Eviews 4 User's Guide
<b>Publishing Year</b>	2000
<b>Title</b>	Quantitative Microsoftware
<b>Subtitle</b>	
<b>Edition</b>	
<b>Publisher</b>	New York
<b>ISBN</b>	

<b>Course Material</b>	Book
<b>Author</b>	Eviews 4 Command & Programming Reference
<b>Publishing Year</b>	2000
<b>Title</b>	Quantitative Microsoftware
<b>Subtitle</b>	
<b>Edition</b>	
<b>Publisher</b>	New York
<b>ISBN</b>	

<b>Course Material</b>	Book
<b>Author</b>	Recent issues of the following journals
<b>Publishing Year</b>	0
<b>Title</b>	Applied Financial Economics, Journal of Forecasting, Applied Economics Letters, Applied Economics
<b>Subtitle</b>	
<b>Edition</b>	
<b>Publisher</b>	
<b>ISBN</b>	

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## Notes

The module covers the mathematics necessary for the study of banking and finance, and an introduction to statistical software. Solutions to modules are to be achieved using mathematical methods and, where appropriate, Excel and/or Eviews. Statistical analysis is undertaken using Excel and Eviews.

The tests are designed to be diagnostic, and to provide formative feedback. The examination is the terminal summative assessment.