

BFM114 QUANTITATIVE METHODS FOR FINANCE

Academic Year 2013/14

Number of Aston Credits:	15
Number of ECTS Credits:	7.5

Staff Member Responsible for the Module:

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Pre-requisites for the Module:

Students must be registered on the MSc in Finance and Investments or MSc in Investment Analysis.

Mode of Attendance:

On Campus

Module Objectives and Learning Outcomes:

This module provides an understanding of the main mathematical, statistical and econometric techniques that underpin finance and investment models and their application in practice. Initially, mathematical methods will be reviewed, and this will be followed by coverage of statistical methods required for a good understanding of Econometrics. The module, indeed, will continue by providing a comprehensive introduction to Econometrics. Econometric applications to problems in finance and investment, by means of real-world data, are used to begin to demonstrate the econometric techniques and models and to equip students for their dissertation.

Programme level learning outcomes:

Knowledge and understanding

A1 Main decision making areas in finance and investments

A3 Mathematical and statistical techniques used in finance and investments

A4 Security, market, institution and regulatory knowledge.

A5 International dimensions of finance

A6 Risk management techniques

Professional/subject specific skills

C2 Apply main mathematical and statistical techniques in finance and investments analysis and research

Intellectual skills

B1 Problem solving and application.

B2 Critical analysis and evaluation.

Transferable/key skills

D3 Time management

D4 IT skills

D5 Listening skills

D6 Information retrieval

D7 Data collection and collation

Module level learning outcomes:

On completing the module, students should be able to:

- > Apply calculus and approximation techniques to financial problems.
- > Use statistical techniques to analyse financial variable distributions.
- > Explain and use relevant sampling theory and estimation theory.
- > Explain the assumptions underlying regression analysis and their implications for econometric modelling.
- > Apply univariate and multivariate regression analysis.
- > Undertake an empirical project to test the existence of significant relationships between financial variables.



Module Content:

- Week 1:** Statistical Concepts
- Week 2:** Probability
- Week 3:** Common Probability Distributions
- Week 4:** Sampling and Estimation
- Week 5:** Hypothesis Testing
- Week 6:** Correlation and Regression
- Week 7:** Multiple Regression
- Week 8:** Eviews Applications
- Week 9:** Revision
- Week 10:** Revision
- Week 11:** Examination

Corporate Connections:

The module will draw on the experience of investment professionals whenever possible.

International Dimensions:

In the presence of global financial markets, the study of finance and investments naturally transcends national boundaries. Quantitative methods are applicable regardless of setting and this module will involve the analysis of financial variables from a variety of countries.

Contribution of Research:

This module will draw on the wealth of experience and work of the module coordinator in modelling financial market variables.



Ethics, Responsibility and Sustainability:

As a module that focuses on quantitative methods, the above issues do not feature in the module.

Method of Teaching:

Classroom-based teaching and learning will comprise both lectures and practical classes totalling of 3 hours per week. The lectures will be the initial mode of delivery of the knowledge required to achieve the learning outcomes. The practical classes will provide an opportunity to put into practice the knowledge acquired in the lectures and prepare for the assessed work. In addition to formal class contact hours, students are expected to follow the suggested learning hours guide in allocating time for private study.

Method of Assessment and Feedback:

This module will be assessed by a 2 hour closed-book exam.

Learning Hours:

Pre-reading	25
Contact Hours	27
Further Private Study	48
Direct Reading	50
Total	150

The following readings are subject to change. Students should not therefore purchase textbooks prior to commencing their course. If students wish to undertake background reading before starting the course, many of the chapters/readings are available in electronic form via on-line library catalogues and other resources

Pre-reading:

Chapter 3:

DeFusco, R. A., McLeavey, D. W., Pinto, J. E., Runkle, D. E. (2007) Quantitative Investment Analysis (CFA Institute Investment Series). Wiley, Second Edition



DeFusco, R. A., McLeavey, D. W., Pinto, J. E., Runkle, D. E. (2007) Quantitative Investment Analysis: Workbook (CFA Institute Investment Series). Wiley, Second Edition

Essential Reading:

The core text for this module are:

DeFusco, R. A., McLeavey, D. W., Pinto, J. E., Runkle, D. E. (2007) Quantitative Investment Analysis (CFA Institute Investment Series). Wiley, Second Edition

DeFusco, R. A., McLeavey, D. W., Pinto, J. E., Runkle, D. E. (2007) Quantitative Investment Analysis: Workbook (CFA Institute Investment Series). Wiley, Second Edition

Indicative Bibliography:

Useful supplementary texts are:

Bowerman, B. L., O'Connell, R. T. and Murphree, E. S. (2011) Business Statistics in practice, 6th Edition

Watsham, T., and Parramore, K. (2007), Quantitative Methods in Finance, Thomson Learning, 1st Edition.

Gujarati, D. (2003), Basic Econometrics, McGraw-Hill, 4th Edition.

Brooks, C. (2008), Introductory Econometrics for Finance, Cambridge University Press, 2nd Edition.

Other useful books:

Maddala, G. (2006), Introduction to Econometrics, MacMillan, 3rd Edition.

Anthony M., and Biggs, N. (2008), Mathematics for Economics and Finance, Cambridge University Press, 1st Edition.

Copeland, T., and Weston, J. (1988), Financial Theory and Corporate Policy, Addison-Wesley, 3rd Edition (esp., chapters 2, 4, 5, 6, 7).

Hill R.C., Griffiths W., and Judge, G. (2001), Using Eviews for Undergraduate Econometrics, Wiley & Sons, 2nd Edition.

