

Quantitative Methods of Financial Analysis
MSc in Finance and Banking
Athens University of Economics & Business
Instructor: Prof. Antonis Demos

Aims and objectives:

The aim of the course is to introduce students to quantitative methods with emphasis on their application to decision taking. The scope of the lectures is to familiarize the students with the basic theoretical principles and the models applied to Finance. The course also includes lab applications with real economic and financial data. The practical significance of this course is of great importance, as the statistical and econometric analysis is necessary to create Portfolios, to the rational decisions making, in the Banking Sector, in the Capital and Money markets, to assess Portfolio performance, etc.

Completing the course, the students will be able to quantify a given problem, to find the appropriate method to solve it, to consider alternative models or estimating procedures, and to employ the results of this quantitative analysis on decision making for the financial markets and banking sector. The main applications of the financial markets are the assessment of funds and portfolios, of credit risk, and the behaviour of interest and exchange rates

Course outline and reading list

1. **Hypothesis Testing and Economic Applications**
(Hypotheses on the mean, normal and non-normal population, and variance)
2. **Simple and Multiple Regression**
(Least Squares, Accuracy of Least Squares, Statistical Properties, adding and deleting variables.)
3. **Hypothesis Testing in the Linear Regression**
(t test, F test, coefficient of determination, partial regression)
4. **Economic and Financial Applications of Simple and Multiple Regression**
(Emphasis on the Capital and Arbitrage Asset Pricing models)
5. **Diagnostic Tests and Model Assessment and Adjustment**
(Autocorrelation. Heteroskedasticity. Economic significance of Heteroskedasticity on Portfolios and Funds. Multicollinearity. Dummy variables)
6. **Non-linear Methods**
(Maximum Likelihood. GMM)
7. **Introduction to Time Series**
(Emphasis on GARCH and VAR models)
8. **Qualitative Dependent Variables**
(Logit and Probit models.)

Text Books:

Heij, C., P. de Boer, P.H. Frances, T. Kloek and H.K. van Dijk, “Econometric Methods with Applications in Business and Economics”, Oxford University Press.

Hill, R.C., W.E. Griffiths and G.C. Lim, “Principles of Econometrics” 4th Edition, J. Wiley and Sons.

Asteriou. D. and S.G. Hall, “Applied Econometrics; A Modern Approach”, 2nd Edition, Palgrave MacMillan.

Vogelvang, B., “Econometrics; Theory and Applications with EViews”, Pearson Education.