

## Computing in Finance (June 2008)

This is a “how-to” course that concentrates on the use of Excel spreadsheets (FINA 582) or the Visual Basic for Applications programming language (FINA 690V) to cover the broad area of models in Finance from the very earliest (Portfolio Theory) to the very latest (Variance Gamma Option pricing). For each model we will follow the path from mathematical equations to spreadsheet model or VBA program code. Students have been assigned into the Excel or VBA classes based on the results from my questionnaire on Excel skills and their previous education.

Each week’s workshop will be based around Excel spreadsheets or VBA user-defined functions that will develop into a class library of numeric functions. We will cover nearly all the material in our Advanced Modelling in Finance using Excel and VBA book. In addition, we will use examples of additional material as practical exercises to be developed by students.

The planned list of subjects for the sessions is as follows:

1. Advanced Excel (FINA 582) or Introduction to VBA (FINA 690V)
2. European Options  
Black-Scholes (Chap 11)  
Quick Binomial  
Monte Carlo Simulation and Numerical Integration (Chap 12)  
Example on Variance Gamma option pricing
3. American Options  
Binomial Trees (Chap 10)  
Example on Ju-Zhong Pricing Approximation
4. Portfolio Optimisation and Asset Pricing  
Portfolio Optimisation (Chap 6)  
Asset Pricing (Chap 7)  
Example using LTCM (Jorion article)
5. Interest Rate Models  
Introduction to Bonds (Chap 14)  
Interest Rate Models (Chap 15)
6. Project Valuation  
Examples on Project Valuation using Eurotunnel
7. Introduction to VBA (FINA 582) or Advanced Excel (FINA 690V)
8. Examination

You would be foolish not to buy our textbook as it provides you with a range of completed spreadsheets and VBA code across a wide variety of topics in Finance that you cover during the rest of your degree

AMF = Advanced Modelling in Finance using Excel and VBA by Mary Jackson and Mike Staunton (Wiley, 2001)

Last year, there were 3 homework exercises (done in small groups) accounting for 30% of the grade and the individual exam accounting for the remaining 70% of the grade

It is sad but true for practical classes such as mine that the benefits from the course will be directly related to the time and effort that you spend improving your knowledge of Excel or VBA. I will do my very best to help you learn but you will have to do your share of the work too

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