EMTM 653: Computational Finance, Spring 2012  
SYLLABUS  
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Quantitative methods have become fundamental tools in the analysis and planning of financial operations. This development is due to: the emergence of a whole range of new and complex financial instruments, innovations in securitization, the increased globalization of the financial markets, the proliferation of information technology. In the context of the current financial crisis, thorough understanding of derivative pricing is an invaluable asset.

In this course, models for hedging and pricing derivatives are developed, implemented, and tested. In addition, asset allocation and multi-period portfolio planning models are discussed. The models typically require the tools of statistics, optimization and simulation, and they are implemented in spreadsheets or a high-level modeling environment such as MATLAB.

Readings will be provided on selected issues of quantitative and computational finance as dealt with in this class. The grade will be based on homework assignments and a take-home final exam. The homework will count for 60% of the course grade, there will be five homework assignments. The final exam makes up 40% of the final grade.

Students may work on the homeworks in groups of three or less. Details about the final exam will be discussed during the term. This course is quantitative and will require extensive computer use. The course is intended for students who have a strong interest in finance. The course is also an excellent basis for other quantitative classes such as real options valuation (EMTM 505).