In order to provide students with a route to high quality careers in the financial industry and to provide the financial sector with a stream of highly trained specialists in Quantitative Finance, we introduce in 2007 a Master of Financial Mathematics Program located in the Department of Statistics of the School of Mathematics and Statistics at the University of New South Wales (UNSW) in Sydney, Australia. The program offers intensive, high-level training in principles of financial modelling and its mathematical foundations, statistical techniques, risk assessment, and computational techniques of financial mathematics.

The program is unique in its in-depth analysis of financial modelling issues. This is achieved through a well-balanced combination of advanced mathematical techniques of stochastic analysis, numerical methods and sophisticated statistical techniques. Drawing on the resources of the Departments of Statistics and Applied Mathematics at the School of Mathematics and Statistics, we offer the most advanced program in Financial Mathematics in Australia.

The history of enrolments into the relevant courses shows that such a challenging program will be attractive to numerous students from Australia and from overseas. Similar programs, combining advanced mathematical theory, numerical methods and statistics of financial markets, exist at top universities, such as the Carnegie Mellon University, Courant Institute at New York University, Columbia University, Imperial College, and King's College London.

Careers

The program is oriented towards graduates with a degree in an area with a significant quantitative component (such as Science, Engineering, Finance) who wish to develop their knowledge and skills in mathematical, statistical and computational methods applied to modern finance. It is an appropriate program for graduates who wish to work as quantitative financial analysts with investment banks, hedge funds, insurance companies, consulting firms, and other financial institutions. The program is ambitious and oriented towards highly motivated students with a strong quantitative background.

Learning Outcomes

The program focuses on the following skills:

- A sound grasp of the key concepts and methodologies of modern financial theory and related mathematical techniques.
- Ability to apply the principles of finance, combined with knowledge of statistics and probability theory, to such topics as: modelling of market phenomena, computing prices of financial products, measuring and controlling financial risk.
- Use of computer software, such as MATLAB, R, SPLUS and SAS, to perform computation of prices and hedges and statistical analysis of financial data.
- Application of the knowledge and skills acquired to real-life problems arising in financial markets.
Admissions

- A 3-year undergraduate degree equivalent to a Bachelor's degree in a discipline with significant mathematical component

OR

- A 3-year undergraduate degree equivalent to a Bachelor’s degree in a discipline related to Finance and with substantial experience in application of mathematical methods in Finance.

Exemption and/or advanced standing may be approved by a program authority for a course already completed as part of another award at UNSW or another tertiary institution.

Transfer Rules

After Session 1 students may choose not to graduate from the Master of Financial Mathematics and instead apply to transfer to either the Graduate Diploma in Statistics or Master of Statistics Program provided the rules of admission into those degrees are satisfied. Students who initially satisfied the criteria for the Master of Financial Mathematics Program but enrolled into the Graduate Diploma in Statistics or Master of Statistics Program may transfer to the Master of Financial Mathematics Program after Session 1. The Program Authority may approve transfer of credit for students who wish to transfer to the Master of Financial Mathematics Program from either the Graduate Diploma in Statistics or Master of Statistics.

The program consists of ten courses, each of 6 Units of Credit, and a project of 12 Units of Credit.

COMPULSORY COURSES

- MATH5835 Stochastic Processes
- MATH5965 Discrete Time Financial Modelling
- MATH5975 Introduction to Stochastic Analysis
- MATH5816 Continuous Time Financial Modelling
- MATH5335 Computational Methods for Finance
- MATH5985 Term Structure Modelling
- MATH5925 Project in Financial Mathematics

ELECTIVE COURSES

- ACTL5302 Risk and Capital Management
- ACTL5303 Asset-Liability Management
- MATH5165 Optimization
- MATH5806 Applied Regression Analysis
- MATH5815 Experimental Design
- MATH5825 Measure, Probability and Convergence
- MATH5845 Time Series
- MATH5855 Multivariate Analysis
- MATH5885 Longitudinal Data Analysis
- MATH5895 Non-parametric Methods
- MATH5905 Statistical Inference
- MATH5945 Categorical Data Analysis
- MATH5960 Bayesian Inference and Computation
- MATH5995 Special Topics in Financial Mathematics

For further details contact: A/Prof. Marek Rutkowski
e-mail: M.Rutkowski@unsw.edu.au

For admissions contact: Dr Spiro Penev
e-mail: S.Penev@unsw.edu.au