LOUGHBOROUGH UNIVERSITY

Programme Specification

Mathematical Processes in Finance

Please note: This specification provides a concise summary of the main features of the programme and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if full advantage is taken of the learning opportunities that are provided. More detailed information on the learning outcomes, content and teaching, learning and assessment methods of each module can be found in Module Specifications and other programme documentation and online at http://www.lboro.ac.uk/ The accuracy of the information in this document is reviewed by the University and may be checked by the Quality Assurance Agency for Higher Education.	

Awarding body/institution;	Loughborough University
Teaching institution (if different);	
Details of accreditation by a professional/statutory body;	
Name of the final award;	MSc
Programme title;	Mathematical Processes in Finance,
UCAS code;	
Date at which the programme specification was written or revised.	March 2008

1. Aims of the programme:

To introduce students to the theoretical background of measure and integration theory, martingales and stochastic processes, and their applications in finance, derivatives industry, option pricing and hedging.

To develop students' understanding in a particular area of interest by undertaking a research based project.

To prepare graduates with strong mathematical skills, necessary computational techniques and the finance background necessary for employment in areas of the financial sector such as banks, hedge funds and insurance companies or for research careers in relevant subject areas.

2. Relevant subject benchmark statements and other external and internal reference points used to inform programme outcomes:

The Benchmark Statement for Mathematics, Statistics and Operational Research (MSOR)
Framework for Higher Education Qualifications
Loughborough University Learning and Teaching Strategy
School Assessment Policy and Assessment Strategy

Annual and Periodic Programme Review
External Examiner's Reports
School Industrial Steering Committee
Staff/Student Committees
School staff specialisms

3. Intended Learning Outcomes

Knowledge and Understanding:
On successful completion of this programme, students should be able to demonstrate knowledge and understanding of

> the mathematical techniques that can be employed to model the kinds of stochastic processes that arise in financial markets

> a range of analytical, numerical and qualitative techniques that are relevant to problems which arise in the financial sector

Teaching, learning and assessment strategies to enable outcomes to be achieved and demonstrated:

Modules are delivered using an appropriate combination of lectures, tutorials, seminars, guided reading and group working. Assessment is via a combination of written examinations and coursework. Coursework takes many different forms. (e.g. written assignments, verbal presentation) and is an important part of the assessment. In the case of the project module assessment is via viva voce and dissertation.

The differing formats and scope of the coursework are designed to encourage students to value the practice of doing mathematics as a way of learning mathematics.

Compulsory taught modules of 45 credits together with a further 45 optional credits in related mathematics and economics modules form the core of the MSc programme and are delivered by a variety of means e.g. formal lectures and tutorials, small group leaning activities, guided reading.

The School uses a questionnaire to seek feedback from all students on each module. The returns are analysed by the Department's Teaching and Learning Committee to identify problems and examples of best practice. Feedback is also obtained informally through the Programme Tutor and from the Staff/Student Committee.

Skills and other attributes:

a. Subject-specific cognitive skills:
On successful completion of this programme, students should be able to

> express certain problems which arise in the financial sector in mathematical terms

> identify appropriate mathematical techniques that can be applied to such problems.

Teaching, learning and assessment strategies to enable outcomes to be achieved and demonstrated:

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These skills are taught through a combination of lectures and tutorials in an appropriate combination of modules.
They are demonstrated in the assessments of each module via an appropriate combination of examinations and coursework.

b. Subject-specific practical skills:
On successful completion of this programme students should be able to

use a range of mathematical techniques to obtain quantitative and qualitative information about financial processes.

Teaching, learning and assessment strategies to enable outcomes to be achieved and demonstrated:

These skills are taught through a combination of lectures and tutorials in an appropriate combination of modules.
They are demonstrated in the assessments of each module via an appropriate combination of examinations and coursework, and particularly in the final project module.

c. Key/transferable skills:
On successful completion of this programme, students should

Possess general study skills, including the ability to learn independently using a variety of media

Have good time management and organisational skills

Be logical and analytical, and possess skills in IT, communication, presentation and problem solving

Teaching, learning and assessment strategies to enable outcomes to be achieved and demonstrated:

The modules provide a variety of learning experiences, including formal lectures, tutorials, guided reading, small group learning activities and project work. Coursework deadlines and the assessment scheme are designed to encourage good time management and personal organisation. Additionally the courseworks and the project module provide the opportunity for students to enhance their written communication and presentational skills and to be assessed on these.

4. Programme structures and requirements, levels, modules, credits and awards:

The programme is a one year full time course of study. The programme is divided into units of study called modules and students study 4 x 15 credit taught modules in each of the two semesters from October to June including 3 core mathematical finance modules. Successful students then progress to study a 60 credit project from July to September.

Full details can be found in the Programme Regulations at

http://??????

5. Criteria for admission to the programme:

Applicants should meet the criteria laid down in Appendix 1 of the University's Regulation XXI. In addition the qualification offered should be in a subject which contains a high mathematical content.

6. Information about assessment regulations:

Students study modules weighted at 180 credits. The project module is weighted at 60 credits. All other modules are weighted at 15 credits. Credit in a module is achieved by obtaining 50% or more in that module's assessment.

To proceed to the Project module, students must have achieved a minimum of 90 credits after the first two semesters.

To be awarded MSc a student must obtain at least 150 credits and achieve module marks of at least 40% in the remaining modules of weight 30 credits. The Postgraduate Diploma and the Postgraduate Certificate are available as described in the University's Regulation XXI.

7. What makes the programme distinctive.

This MSc programme is a specialist one-year programme which aims to train professional mathematicians in the main techniques that are required to solve the kinds of problems that arise in the financial sector. It aims to prepare them either for direct employment in this sector, or for further research on these problems.

It includes a solid foundation in the core mathematical techniques that are required in this field, with the option to study other topics in the economics of finance. It also includes a substantial project that may either be taken in industry or the department.

All members of the department who teach on these programmes are highly active in research in relevant areas of Mathematics. This expertise is thoroughly reflected in their content of each module.

8. Particular support for learning:

Full details are available online at
http://www.lboro.ac.uk/admin/ar/templates/notes/lps/

9. Methods for evaluating and improving the quality and standards of learning:

Further details are available online at

http://www.lboro.ac.uk/admin/ar/templates/notes/lps/