Programme Specification for

Financial Mathematics

1. Programme title	MSc Financial Mathematics
2. Awarding institution	Middlesex University
3. Teaching institution	Middlesex University
4. Details of accreditation by professional/statutory/regulatory body	N/A
5. Final qualification	MSc/PGDip Financial Mathematics
6. Year of validation **Year of amendment**	
7. Language of study	English
8. Mode of study	Full-time

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9. Criteria for admission to the programme

An Honours degree normally classified 2.2 or above, or equivalent, with a significant mathematical element in its curriculum.

Successful applicants must have competence in English language. For international applicants whose first language is not English the requirement is that they have IELTS 6.5 (with minimum 6.0 in all four components) or TOEFL internet based 87 (with at least 21 in listening
& writing, 22 in speaking and 23 in reading).

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10. Aims of the programme

The programme aims to:
- develop awareness and understanding, at an advanced level, of financial mathematics concepts and techniques to enable them to understand and analyse financial data;
- develop an advanced knowledge of stochastic analysis and applied probability, mathematical modelling and analysis in order to solve problems in finance;
  - develop the mathematical and financial skills needed to quantify and manage risk in the modern finance, investment and insurance

industries.

11. Programme outcomes

A. Knowledge and understanding	Teaching/learning methods
On completion of this programme the successful student will have knowledge and understanding of :	Students gain knowledge and understanding through a combination of lectures, directed reading and guided independent study, including use of online resources, case studies, guest/visiting speakers, group work, coursework, critical reflection, facilitated discussion, workshops and the project.
A1 the workings of a range of financial instruments; A2 various types of financial data; A3 theories and methods for portfolio selection and optimisation and their relative merits; A4 core concepts and theories of asset pricing and their relative merits; A5 a range of methods for measuring risk; A6 research methods and techniques.	**Assessment methods** Students' knowledge and understanding are assessed by individual and group coursework, seen exams and tests, and the project.

B. Cognitive (thinking) skills	Teaching/learning methods
On completion of this programme the successful student will be able to:	Students learn cognitive skills through seminar discussion and debate, and independent study including the use of online resources supported by guidance from tutors.
B1 explain and evaluate methods for portfolio management; B2 explain and critically compare competing methods for asset pricing; B3 use advanced methods of stochastic analysis and applied probability to quantify and manage risk; B4 critically interpret and evaluate financial data; B5 effectively organise, structure and produce a project at an advanced level.	**Assessment methods** Students' cognitive skills are assessed by individual and group coursework, and by the project.

C. Practical skills	Teaching/learning methods
On completion of the programme the successful student will be able to:	Students learn practical skills through workshops, reinforced and extended through seminar

C1 source and critique financial data from a range of different sources including electronic databases; C2 analyse financial data using both programming and computer packages; C3 use a variety of advanced models for portfolio management; C4 use stochastic calculus to analyse asset prices; C5 measure and evaluate risk in a variety of settings.	presentations and discussion, individual and group work, and independent study . **Assessment methods** Students' practical skills are assessed by individual and group coursework, and by the project.
D. Graduate skills On completion of this programme the successful student will be able to:	**Teaching/learning methods** Students acquire graduate skills through: **Assessment methods** Students' graduate skills are assessed by:

12. Programme structure (levels, modules, credits and progression requirements)

12. 1 Overall structure of the programme

12.2 Levels and modules

Level 7

COMPULSORY	OPTIONAL	PROGRESSION REQUIREMENTS

Students must take all of the following: MSO4110 MSO4112 MSO4160 MSO4180 MSO4311 MSO4991	Students must also choose one from the following: FIN4480* MSO4351 MSO4522	Successful completion of all compulsory modules. Students must pass 120 credits to progress to the project

12.3 Non-compensatable modules (note statement in 12.2 regarding FHEQ levels)

Module level	Module code
NA	

13. Curriculum map

See attached.

14. Information about assessment regulations

Middlesex University Assessment Regulations apply to this programme, without exception.

15. Placement opportunities, requirements and support (if applicable)

16. Future careers (if applicable)

Graduates of the programme will be equipped for careers in financial product development, pricing, risk analysis and management, investment decision making, portfolio selection and optimisation, in investment banking, financial consulting, auditing, risk management and government

17. Particular support for learning (if applicable)

Specialise software and database resources
- Induction and orientation programme
- English Language Support and Numeracy support offered by the Learner Development Unit
- Access to student counsellors

Virtual Learning Environment

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18. JACS code (or other relevant coding system)	G130 70%/ N300 30%
19. Relevant QAA subject benchmark group(s)	Mathematics, Statistics and Operational Research

20. Reference points

QAA Guidelines for programme specifications
- QAA Qualifications Framework
- Middlesex University Regulations
- Middlesex University Learning Framework – Programme
- Design Guidance, 2012

21. Other information

Please note programme specifications provide a concise summary of the main features of the programme and the learning outcomes that a typical student might reasonably be expected to achieve if s/he takes full advantage of the learning opportunities that are provided. More detailed information about the programme can be found in the rest of your programme handbook and the university regulations.

Appendix 2: Curriculum Map
Curriculum map for *MSc Financial Mathematics*

This section shows the highest level at which programme outcomes are to be achieved by all graduates, and maps programme learning outcomes against the modules in which they are assessed.

Programme learning outcomes

Knowledge and understanding	A1	the workings of a range of financial instruments
	A2	various types of financial data
	A3	theories and methods for portfolio selection and optimisation
	A4	core concepts and theories of asset pricing
	A5	a range of methods for measuring risk
	A6	research methods and techniques
Cognitive skills	B1	explain and evaluate methods for portfolio management
	B2	explain and critically compare competing methods for asset pricing
	B3	use advanced methods of stochastic analysis and applied probability to quantify and
	B4	critically interpret and evaluate financial data
	B5	effectively organise, structure and produce a project at an advanced level

Practical skills	C1	source financial data from a range of different sources including electronic databases
	C2	analyse financial data using both programming and computer packages
	C3	use a variety of models for portfolio management
	C4	use stochastic calculus to analyse asset prices
	C5	measure and evaluate risk in a variety of settings

Programme outcomes															
A1	A2	A3	A4	A5	A6	B1	B2	B3	B4	B5	C1	C2	C3	C4	C5
Highest level achieved by all graduates															
7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7

Module Title	Module Code by Level	Programme outcomes															
		A1	A2	A3	A4	A5	A6	B1	B2	B3	B4	B5	C1	C2	C3	C4	C5
Core																	
Portfolios and risk	MSO4160	✓	✓	✓		✓		✓		✓	✓				✓		✓
Risk measurement	MSO4110					✓				✓							✓
Pricing and stochastic calculus	MSO4112				✓				✓							✓	

Financial data and computing	MSO4180	✓	✓				✓	✓		✓		✓	✓	✓			
Probability and stochastic processes	MSO4311			✓	✓	✓			✓							✓	
Project	MSO4991	✓	✓				✓			✓	✓	✓					
Options																	
International risk management	FIN4480*	✓		✓		✓			✓					✓			✓
Time series and forecasting	MSO4351								✓			✓	✓				
Game and decision theories	MSO4522												✓				