

PROGRAMME APPROVAL FORM
SECTION 1 – THE PROGRAMME SPECIFICATION

1. Programme title and designation				Financial Mathematics	
2. Final award					
Award	Title	Credit Value	ECTS equivalent	Any special criteria	
MSc	Financial Mathematics	180	90	The normal lower limit for a condoned failure (40% for level 7) does not apply to compulsory and optional Mathematics modules; there is no lower limit to the mark for a Mathematics module which can be condoned. A student must have attempted an assessment before any mark will be condoned and can have the fail condoned if, in the judgement of the examiners, they have satisfied the learning outcomes of the programme in respect of that module.	
3. Nested awards					
Award	Title	Credit Value	ECTS equivalent	Any special criteria	
N/A	N/A	N/A	N/A	N/A	
4. Exit awards					
Award	Title	Credit Value	ECTS equivalent	Any special criteria	
Postgraduate Diploma	Financial Mathematics	120	60	N/A	
Postgraduate Certificate	Financial Mathematics	60	30	N/A	
5. Level in the qualifications framework			M		
6. Attendance					
			Full-time	Part-time	Distance learning
Mode of attendance			X	X	N/A
Minimum length of programme			1 year	2 years	N/A
Maximum length of programme			4 year	6 years	N/A
7. Awarding institution/body			King's College London		
8. Teaching institution			King's College London		

PAF Originally Approved: 26 June 2007
 PAF modified by ASQ re: exit awards: 7th May 2010
 PAF finalised for 2010/11: 18 October 2010
 PAF modified by ASQ for 2011/12: 28th February 2011
 PAF modified re: condonement: 5 September 2011
 PAF finalised for 2011/12: 5 September 2011

9. Proposing department	Mathematics
10. Programme organiser and contact details	Professor Damiano Brigo Tel 020 7848 2855 Email: damiano.brigo@kcl.ac.uk
11. UCAS code (if appropriate)	N/A
12. Relevant QAA subject benchmark/ professional and statutory body guidelines	N/A
13. Date of production of specification	Updated January 2007 for CF
14. Date of programme review	2014/15 academic session

16. Educational aims of the programme

- To develop a knowledge and understanding of financial mathematics
- To prepare students for undertaking research in financial mathematics, or to pursue a career in the financial sector making use of techniques of financial mathematics
- To enable students to think logically and objectively about financial problems
- To learn to formulate financial problems in terms of mathematics and solve them.

17. Educational objectives of the programme/programme outcomes

The programme provides opportunities for students to develop and demonstrate knowledge and understanding and skills in the following areas:

Knowledge and understanding

The programme provides a **knowledge and understanding** of the following:

1. Financial markets, derivatives pricing, interest rate theory, exotic options, portfolio risk management, credit risk management, and other aspects of modern finance.
2. The necessary mathematical background required in connection with the above subjects, including applied probability theory and stochastics, stochastic analysis, distribution theory, martingale theory, as well as other areas of mathematics.
3. Relevant professional and ethical responsibilities

These are achieved through the following **teaching/learning methods and strategies**:

These are acquired through the lectures and tutorials that are given, the project undertaken, and attendance at advanced seminars.

Assessment:

Assessment for all taught modules except 7CCMFM12 is by written examination. The project 7CCMFM50 is assessed on the basis of the submitted thesis. The taught module 7CCMFM12 will be assessed by a written examination and assignments set during the semester.

Skills and other attributes

Intellectual skills:

1. To formulate mathematical models of financial problems and solve them.
2. Reason logically about complex financial problems.
3. Develop a fluency in applying the

These are achieved through the following **teaching/learning methods and strategies**:

Intellectual skills are developed through the lectures and the work the students are required to carry out in order to understand the material and solve the

PAF Originally Approved: 26 June 2007

PAF modified by ASQ re: exit awards: 7th May 2010

PAF finalised for 2010/11: 18 October 2010

PAF modified by ASQ for 2011/12: 28th February 2011

PAF modified re: condonement: 5 September 2011

PAF finalised for 2011/12: 5 September 2011

techniques of mathematical finance to a great variety of problems in finance.

4. Be self-directed in solving problems and understanding new material.

set problems. The questions asked by the students and answers given by the lecturer during the lectures play an important role.

Assessment:
Analysis and problem solving skills 1-4 are assessed through unseen written work, examination and the written project.

Practical skills:

1. Learn advanced mathematics from lectures and reading literature.
2. Write notes on courses studied.
3. Plan and undertake a project and write up the understanding gained of the chosen topic.

These are achieved through the following **teaching/learning methods and strategies:**

The practical skills are developed through the lectures and project work. In particular, in the process of understanding of the material required to correctly answer the examination questions.

Assessment:
The practical skills are assessed as a by-product of the examination and the grading of the written project.

Generic/transferable skills:

1. Apply mathematical skills to problems.
2. Use information technology and library resources.
3. Manage time and plan work load.
4. Learn independently with a spirit of actual enquiry.
5. Communicate effectively.
6. Calculate reliably.
7. Effective note-taking.
8. Computer skills
9. Presentation skills

These are achieved through the following **teaching/learning methods and strategies:**

Skills 1, 3, 4, 6 and 7 are essential by-products of learning the material given in the lectures and solving the set problems. Skills 2, 5, 8 and 9 are particularly acquired during the project work.

Assessment:
These skills are effectively assessed by the examination and grading of the written project.

18. Statement of how the programme has been informed by the relevant subject benchmark statement(s)/professional, regulatory and statutory body guidelines

There are no specific benchmark statements for this programme. However, the proposal is fully in line with current thinking concerning MSc in the Framework for Higher Education

19. Programme structure and award requirements

(a) numbers of introductory, core, compulsory and optional modules to be taken in each year of the programme with related credit values

Full time

Students must take eight 15 credit modules during the year of the programme including the three compulsory modules: 7CCMFM01, 02 and 07.

Part time

Students must take eight 15 credit modules overall, including four 15 credit modules per year, including the three compulsory modules: 7CCMFM01, 02 and 07.

- All taught modules are worth 15 credits.
- The project, worth 60 credits, is core for MSc.

Students may be permitted to take additional modules up to a maximum value of 30 credits with academic approval.

(b) range of credit levels permitted within the programme

7, students may be permitted to take level 6 modules with academic approval

(c) maximum number of credits permitted at the lowest level

30 at level 6

(d) minimum number of credits required at the highest level

150 at level 7

(e) progression and award requirements (if different from the standard)

Full time: To progress to the project: 105 credits passed or 90 credits passed together with 30 at condoned fail level

Part time: To progress from year 1 to year 2: At least 45 credits passed

Part time: To progress to the project: 105 credits passed or 90 credits passed together with 30 at condoned fail level

(f) maximum number of credits permitted with a condoned fail (core modules excluded)

30 credits. The normal lower limit for a condoned failure (40% for level 7) does not apply to compulsory and optional Mathematics modules; there is no lower limit to the mark for a Mathematics module which can be condoned. A student must have attempted an assessment before any mark will be condoned and can have the fail condoned if, in the judgement of the examiners, they have satisfied the learning outcomes of the programme in respect of that module.

In all cases, the condoning of failed marks will be at the discretion of the programme examination board and in accordance with the College regulations, excepting the above

(g) other relevant information to explain the programme structure

Students may be permitted to take modules from other Departments within King's or intercollegiate mathematics modules with academic approval.

Programme Structure

Title	Credit level	Credit value	Status (I, Cr, Cp, O) for each type of programme			Progression			Assessment
			Single	Joint	Major/minor	Single	Joint	Major/minor	
7CCMFM01 Applied Probability and Statistics	7	15	Cp			No			Exam
7CCMFM02 Risk-Neutral Valuation	7	15	Cp			No			Exam
7CCMFM03 Financial Markets	7	15	O			No			Exam
7CCMFM04 Stochastic Analysis	7	15	O			No			Exam
7CCMFM05 Distribution Theory	7	15	O			No			Exam
7CCMFM06 Numerical and Computational Methods in Finance	7	15	O			No			Exam
7CCMFM07 Interest Rate and Foreign Exchange Dynamics	7	15	Cp			No			Exam
7CCMFM08 Exotic Derivatives	7	15	O			No			Exam
7CCMFM09 Portfolio Risk Management	7	15	O			No			Exam
7CCMFM10 Credit Risk Management	7	15	O			No			Exam
7CCMFM12 Computational Financial Mathematics	7	15	O			No			Exam
7CCMFM50 Project	7	60	Cr			Yes			Submitted thesis.
In addition up to two modules at level 7 (Masters level) relevant to Financial Mathematics from any MSc programme running in the University of London or Imperial College with the approval of the programme director.#									
All other level 7 modules in Mathematics (by approval)	7	15,30	O			No			
All other level 6 modules in Mathematics (by approval)	6	15,30	O			No			

#For this purpose, modules with 20 to 24 hours of teaching will normally carry 15 credits and modules with 40 to 48 hours of teaching will normally carry 30 credits. Modules with 25 to 29 hours of teaching will be considered as the case arises.

20. Marking criteria

The marking scheme for this programme follows the College generic criteria and additionally those in the School of Natural and Mathematical Sciences

PAF Originally Approved: 26 June 2007

PAF modified by ASQ re: exit awards: 7th May 2010

PAF finalised for 2010/11: 18 October 2010

PAF modified by ASQ for 2011/12: 28th February 2011

PAF modified re: condonement: 5 September 2011

PAF finalised for 2011/12: 5 September 2011

PROGRAMME APPROVAL FORM
SECTION 2 – SUPPLEMENTARY INFORMATION

Not all of the information in this section will be relevant for all programmes and for some programmes this section will not be relevant at all

1. Programme name

MSc in Financial Mathematics

2. If the programme is a joint award with an institution outwith the University of London has the necessary approval been sought from Academic Board?

Yes

☐

No

☐

Not applicable

X

Please attach a copy of the request to Academic Board

3. In cases of joint honours programmes please provide a rationale for the particular subject combination, either educational or academic

4. If the programme involves time outside the College longer than a term, please indicate how the time will be spent, the length of time out and whether it is a compulsory or optional part of the programme

Year abroad

☐

Year in employment

☐

Placement

☐

Other (please specify)

☐

Time spent

Compulsory/optional

5. Please provide a rationale for any such time outside the College, other than that which is a requirement of a professional, regulatory or statutory body

6. Please give details if the programme requires validation or accreditation by a professional, regulatory or statutory body

N/A

7. In cases where parts or all of the programme (other than those in box 4 above) are delivered either away from one of the College campuses and/or by a body or bodies external to the College please provide the following details

Name and address of the off-campus location and/or external body

PAF Received: 10 April 2007

PAF Amended by QA&AA: 17 April 2007

PAF Approved by QA&AA: 26 June 2007

PAF modified by ASQ re: exit awards: 7th May 2010

PAF modified by ASQ for 2011/12: 28th February 2011

University College London,
Queen Mary University of London
Royal Holloway College,
Birkbeck College,
London School of Economics (all of which are colleges of London University),
Imperial College.

Percentage/amount of the programme delivered off-campus or by external body

The vast majority of students take all their modules at King's. However, subject to the approval of the relevant Programme Director permission may be granted to students to take modules at other colleges of the University of London (as specified above) or at Imperial College; in practice students exercising this option will take not *normally* more than 30 credits outside King's.

Nature of the involvement of external body

All the colleges listed above are major colleges of London University or of equally high standing and run their own Mathematics programmes.

Description of the learning resources available at the off-campus location

They offer the same high quality resources as are available at King's.

What mechanisms will be put in place to ensure the ongoing monitoring of the delivery of the programme, to include monitoring of learning resources off-site or by the external body?

All the colleges which are listed above have their own procedures for ensuring that a high quality programme is delivered. The programme director liaises with colleagues teaching relevant modules at other colleges (as listed above) regarding programme content and assessment methods. The lecturers concerned may also attend the MSc in Financial Mathematics board meetings. Marks obtained by MSc in Financial Mathematics students at other London colleges (as listed above) are moderated by the visiting examiners at these colleges.

Please attach the report of the visit to the off-campus location

N/A