Mathematical, Physical and Life Sciences Division

Approved at the Academic Audit Committee meeting of 18 February 2014

MSc in Mathematical & Computational Finance

Restructuring of the MSc to extend the syllabus with material not previously available, to allow students to choose between two optional streams of courses, and to make some changes to the methods of assessment.

With effect from 1 October 2014

In Examination Regulations 2013, make the following changes to p.742, line 18 – p.743, line 30.

Mathematical and Computational Finance

1. The Divisional Board of Mathematical, Physical and Life Sciences shall appoint for the supervision of the course a supervisory committee, which shall have the power to approve lectures and other instruction. The committee shall appoint a course organiser who will be responsible for ensuring that the programme is set up and the decisions of the committee are carried out.
2. The course organiser shall arrange for the appointment of a supervisor for each candidate.
3. Each candidate shall follow a course of study in Mathematical and Computational Finance for at least three terms and for a substantial part of the intervening vacations.
4. The examination will consist of the following parts:

   (i) Two written examinations, and one take-home project, which each of two hours duration. The written examinations will cover the Michaelmas Term core courses in mathematical methods and numerical analysis, based on the schedule below. Two of the examinations will be based on Michaelmas Term courses and will be held before the start of Hilary Full Term, the date and time to be specified by the Examiners. Two of the examinations will be based on Hilary Term courses and will be held before the start of Trinity Full Term, the date and time to be specified by the Examiners. The written examinations will be organised within the department.
Candidates will be assessed on either the 'Modelling' Stream (covering Hilary Term modelling courses) or the ‘Data Driven’ Stream (covering Hilary Term data driven courses). The 'Modelling' Stream will be assessed by a written examination. The 'Data Driven' Stream will be assessed by a written examination and a computer based practical examination. Further details will be specified in the Course Handbook on the Course Website. Examinations will be organised within the Department. Two options chosen from a list that will be published by the start of Michaelmas Full Term each year in the Course Handbook. Unless otherwise stated each option will be assessed by a written mini-project. Completed mini-projects shall be submitted electronically. Submission shall be in accordance with both the details given on the Course Website and with the deadlines which the examiners shall determine and notify candidates of. In exceptional cases where a candidate is unable to submit work electronically, he or she must apply to the Standing Committee for permission to submit the work in paper form to the Examiners, c/o the Academic Administrator for Mathematical Finance, Mathematical Institute. Such applications must reach the Mathematical Institute not less than two weeks before the deadline for submitting the work.

Candidates will be assessed on a ‘Tools’ Stream (covering Hilary Term courses on tools). The ‘Tools’ Stream will be assessed by a written examination. Further details will be specified in the Course Handbook on the Course Website. The examination will be organised within the Department.

One course in Quantitative Risk Management which will assessed by a take-home project.

Two courses in Financial Computing with C++ which will be assessed by two practical examinations arranged within the Department. One practical examination will normally be held in, or shortly after, Hilary Term; one practical examination will normally be held in, or shortly after, Trinity Term. The details will be specified in the Course Handbook on the Course Website by the Examiners.

A dissertation of between twenty-five and forty pages on a topic approved by the examiners.

Candidates must submit a proposal for a dissertation, with the support of their supervisor, to the Chair of Examiners, M.Sc. in Mathematical and Computational Finance, c/o the Course Administrator, M.Sc. in Mathematical and Computational Finance, Mathematical Institute, 24-29 St Giles’, Oxford, by a date to be specified by the Examiners.

More detail on these requirements will be set out each year in the Course Handbook on the Course Website.

Take-home projects shall be submitted electronically. Submission shall be in accordance with both the details given in the Course Handbook on the Course Website and with the deadlines which the examiners shall determine and notify candidates of. In exceptional cases where a candidate is unable to submit work electronically, he or she must apply to the Standing Committee for permission to submit the work in paper form to the Examiners, c/o the Academic Administrator for
Mathematical Finance, Mathematical Institute. Such applications must reach the Mathematical Institute not less than two weeks before the deadline for submitting the work.

6. Three copies of the dissertation must be delivered not later than noon on a date to be specified by the examiners which will normally be in late June, to the Examiners, M.Sc. in Mathematical and Computational Finance, c/o Examination Schools, High Street, Oxford OX1 4BG. The examiners may also direct that a copy of the dissertation in pdf or other machine-readable format shall also be made available, in accordance with instructions which the examiners shall determine and notify candidates of. Candidates will also be required to give an oral presentation based on their dissertation.

7. The examiners may award a distinction for excellence in the whole course.

8. A candidate who fails the examination will be permitted to retake it on one further occasion only, not later than one year after the initial attempt. In such a case the examiners will specify at the time of failure which components of the examination may or must be redone.

Schedule


Explanatory Notes

i. The syllabus is to be extended with material that was previously not available to the students to adapt to recent changes in the financial industry. In particular, the Supervisory Committee wish to add material that is relevant for hedge funds, pension funds, insurance companies and other big investors (“buy side”), such as statistics, financial time series analysis, market microstructure, optimisation, and calibration.

ii. A more structural change is made to allow students to choose between two optional streams of courses rather than the current model which has only a little optionality with choice between some individual lecture courses. Compared to the current selection of optional courses, the new streams cover a wider area of financial theory and applications. Moreover, unlike current practice, the new streams are fully supported with practical sessions and classes.

iii. The essay-based components of assessment, which currently only require the students to focus on a small aspect of each optional course, will be replaced with a take home project that covers the whole of the lecture material.