REPORT ON EXAMINATIONS

M.Sc. in Mathematical Modelling and Scientific Computing 2020-21

Part I

A. Statistics

(1) **Numbers and percentages in each class/category**

	Number				%			
	2020/21	2019/20	2018/19	2017/18	2020/21	2019/20	2018/19	2017/18
Distinction	8	10	6	8	32	43	22	27
Merit	7	5	5	N/A	28	22	19	N/A
Pass	9	4	14	20	36	17	52	70
Fail	0	1	0	2	0	4	0	7
Incomplete	1	3	2	0	4	13	7	0

(1) Vivas

The 25 candidates who submitted dissertations were examined by *viva voce*.

(2) Marking of scripts

Written examinations were sat in Weeks 0 of Hilary and Trinity Terms 2021. Scripts were single-marked by assessors followed by a script check carried out by the Course Director. Finalisation of marks by the examiners took place during an examiners' meeting in week 3 of each term. Special topics and case studies were double-marked by assessors. In cases where marks varied over the pass/fail borderline, or the difference in marks was greater than ten, the assessors were asked to meet and reconcile their marks. All marks were approved by the examiners during the meetings held in week 7 of Hilary Term and week 8 of Trinity Term, as well as at the final examiners' meeting, before being released to the candidates. All dissertations were read and marked by at least two examiners; marks were approved by all examiners at the final examiners' meeting.

B. New examining methods and procedures

Owing to Covid-19 the following action was taken:

All written examinations were sat as open-book online examinations. The Hilary Term Week 0 papers were issued via Weblearn and the Trinity Term Week 0 papers were issued via Inspera. Students were given 30 minutes of technical time in addition to the 2.5 hours to complete the paper.

C. Changes in examining methods etc. which the examiners would wish the faculty/department and the divisional board to consider

None.

D. How candidates are made aware of conventions

The conventions are posted on the course website and electronic copies are circulated to the students. The Course Director discusses the conventions with the candidates and the candidates are reminded of them by email on several occasions during the year. This year candidates were notified via email on any changes to the examination conventions owing to Covid-19, amended conventions were uploaded to the course website.

Part II

A. General comments on the examination

As noted in Section B above - 'New examining methods and procedures' all exams were offered as open book examinations.

B. Candidates' performance in each part of the examination

This course administers examinations internally in January and April, with each student sitting 4 papers. Each of the two sets of examinations is split into Paper A (Mathematical Methods) and Paper B (Numerical Analysis).

On the A2 examination, students gained around 10 marks more than on the A1 exam, despite both papers being offered online. However, the B2 results were either the same, or worse than on the B1 paper.

Both sets of examinations went smoothly this year, with a good distribution of marks between failure and distinction ranges. Performances on the case studies, special topics and dissertations also ranged from fail to distinction level.

C. Distribution of special topics

Of the 24 topics offered this year, 8 failed to attract any students.

Michaelmas Term	**Passed**	**Failed**
Approximation of Functions	6	0
Further Mathematical Biology	11	0
Graph Theory*	1	0
Integer Programming	1	0
Machine Learning*	1	0
Mathematical Geoscience	1	0
Solid Mechanics	1	0
Topics in Fluid Mechanics	1	0
Viscous Flow	1	0

Hilary Term	**Passed**	**Failed**
Finite Element Methods for Partial Differential Equations	4	0
Further Mathematical Biology	1	0

Integer Programming	3	0
Mathematical Mechanical Biology	1	0
Mathematical Models of Financial Derivatives	5	1
Networks	4	0
Stochastic Modelling of Biological Processes	1	0
Theories of Deep Learning	1	0

Trinity Term	**Passed**	**Failed**
Advanced Topics in Statistical Machine Learning*	1	0
Approximation of Functions	1	0
C++ for Scientific Computing	3	0
Elasticity and Plasticity	1	0
Finite Element Methods for Partial Differential Equations	1	1
Networks	2	0
Python in Scientific Computing	13	1
Stochastic Modelling of Biological Processes	3	1

Courses labelled * were offered by special approval**.**

D. Names of members of the board of examiners

Prof. J. Tanner (Chair)
Prof. P. Maini
Prof. P. Farrell
Prof. P. Grindrod (for final exam board)
Prof. S.J. Chapman
Prof. K. Kaouri (External Examiner)

Prof. P. Farrell was unable to attend the final exam board and was replaced by Prof. P. Grindrod.

6 October, 2021