



Title of Examination:		Part B Mathematics and Mathematics and Computer Science
External Examiner Details	Title:	Professor
	Name:	Desmond Higham
	Position:	1966 Professor of Numerical Analysis
	Home Institution:	University of Strathclyde

Please complete both Parts A and B.

Part A					
		<i>Please (✓) as applicable*</i>	Yes	No	N/A
A1.	Did you receive sufficient information and evidence in a timely manner to be able to carry out the role of External Examiner effectively?	x			
A2.	Are the academic standards and the achievements of students comparable with those in other UK higher education institutions of which you have experience?	x			
A3.	Do the threshold standards for the programme appropriately reflect the frameworks for higher education qualifications and any applicable subject benchmark statement? <i>[Please refer to paragraph 3(c) of the Guidelines for External Examiner Reports].</i>	x			
A4.	Does the assessment process measure student achievement rigorously and fairly against the intended outcomes of the programme(s)?	x			
A5.	Is the assessment process conducted in line with the University's policies and regulations?	x			
A6.	Have issues raised in your previous reports been responded to and/or addressed to your satisfaction?	N/A			
<p>* If you answer "No" to any question, please provide further comments in Part B. Further comments may also be given in Part B, if desired, if you answer "Yes" or "N/A".</p>					

Part B

B1. Academic standards

- a. *How do academic standards achieved by the students compare with those achieved by students at other higher education institutions of which you have experience?*
- b. *Please comment on student performance and achievement across the relevant programmes or parts of programmes (those examining in joint schools are particularly asked to comment on their subject in relation to the whole award).*

Standards appear to be at least as high as those at any other UK university that I have experienced. Performance at the top end is exceptional.

I was surprised that, following University guidelines, a large proportion of the student cohort is mapped into the 2:1 category. As a consequence, this degree classification represents a very wide range of performance levels.

According to the commentaries provided by the individual exam setters/markers, there is some concern that students have forgotten some basic skills in the course of their three years of advanced study.

B2. Rigour and conduct of the assessment process

Please comment on the rigour and conduct of the assessment process, including whether it ensures equity of treatment for students, and whether it has been conducted fairly and within the University's regulations and guidance.

In my previous experience of honours-level exam boards, across several institutions, all academics involved in relevant assessment were obliged to attend a final board meeting. However, I can see the merit of the Mathematical Institute's strategy of using a subset of academics, with appropriate feedback having been processed and made available.

Overall, I was impressed by the professionalism and care exhibited by the examiners and the administrative support team. I am convinced that the students were treated as rigorously and fairly as the University's regulations allow.

Communication between maths/stats/computer science examiners was well-organised and effective.

B3. Issues

Are there any issues which you feel should be brought to the attention of supervising committees in the faculty/department, division or wider University?

Having seen the report from my fellow external examiner (Prof Richard Thomas), I strongly echo the view that the University Standardised Mark scheme (USM) is highly inappropriate for students in mathematics and related subjects. The USM scheme forces examiners to discard **significant**, fine-detail information. In many cases, in a particular exam, students whose performances are **quantifiably** different are mapped into **exactly the same** final mark. On a related note, the USM scheme requires each exam mark to be **rounded to a whole number and then fed into a follow-on computation**. If the University's Education Policy Support team

cannot see the flaws in this strategy, in terms of equitable treatment of students' performance, then I urge them to talk to colleagues in the Mathematical Institute.

B4. Good practice and enhancement opportunities

*Please comment/provide recommendations on any **good practice and innovation relating to learning, teaching and assessment**, and any **opportunities to enhance the quality of the learning opportunities** provided to students that should be noted and disseminated more widely as appropriate.*

I note that each exam setter/marker prepares an after-the-fact commentary for the exam board, giving an opinion about the level of difficulty of each question, summarizing student performance, and discussing any issues that arose in the course of marking the scripts. This is commendable practice. However, in a small number of cases there was a mismatch between this commentary and the black-and-white student performance data. I am aware that the Chairperson liaises with exam setters at various points in the academic year. Within this process, it would be useful to find a way for the exam setters to be more accountable for (a) preventing "outlier" exams and (b) acknowledging them when they have arisen.

B5. Any other comments

Please provide any other comments you may have about any aspect of the examination process. Please also use this space to address any issues specifically required by any applicable professional body. If your term of office is now concluded, please provide an overview here.

Based on the track record and achievements of the exam board members in terms of both teaching and research, it is clear that the Mathematical Institute attaches great importance to the quality of the Part B assessment process. The system is operating commendably within the Institute.

Signature:	DJH
Date:	5 th Aug, 2015
<p>Please email your completed form (preferably as a word document attachment) to: external-examiners@admin.ox.ac.uk and copied to the applicable divisional contact.</p> <p>Alternatively, please return a copy by post to: The Vice-Chancellor c/o Catherine Whalley, Head of Education Planning & Quality Review, Education Policy Support, University Offices, Wellington Square, Oxford OX1 2JD.</p>	