Southampton Mathematical Sciences

The Vice-Chancellor, University of Oxford, c/o Catherine Whalley July 9, 2016

Dear Vice-Chancellor,

External examiner's report 2015/16: Part C, Mathematics, Mathematics & Statistics, Mathematics & Computer Science

I have pleasure in enclosing my report on the above examination.

B1. Academic Standards

- (a) The portfolio offered by Oxford Part C is one of the most extensive and challenging in the UK in the areas of pure and applied mathematics and statistics. The academic standards achieved by the students are at least as high as anywhere else in the UK. Part C complies with the May 2015 Subject Benchmark Statement QAA subject benchmarks (albeit with one possible clarification that is needed, which is detailed below).
- (b) Student performance is generally extremely high. Despite the exacting nature of the material in Part C, a high proportion of the students rise to the challenge, to achieve very good degrees.

B2. Rigour and conduct of the assessment process

The examinations in part C are rigorous and all of (at least) a level 7 FHEQ standard. The quality of preparation of the papers was the highest I have ever encountered across many institutions, with almost no errors. The setters and checkers are to be highly commended for their extraordinary attention to detail. The administrative processes associated with the examination from the delivery of draft papers to the production of final marks lists are, from the viewpoint of the external examiner, extremely accurate, controlled and efficient. I single out the dedication of the administrative staff for special praise. The mapping of raw to USM marks is carried out in a considered, systematic and balanced way and is carefully explained in examination materials.

B3. Issues

The examination process for Part C is one of the best I have seen anywhere in the UK. The following issues that I raise are not meant to detract from the process, but to enhance it.

- (a) I would prefer if the responses from setters to the externals' comments on a paper should be reported back in sufficient time before the paper is sat. The responses should state which changes have been made, and any reasons for choosing not to make changes. this could be facilitated administratively by the use of Weblearn
- (b) This issue concerns my response to question A3 on the external examiner report form. The QAA May 2015 MSOR Subject Benchmark Statement (5.5 ix, p.23) indicates that graduates for Integrated Masters should be able to demonstrate (amongst other things):

...competence in planning and developing an advanced project themed in mathematics, statistics [sic] and operational research.

The Teaching Committee of the Mathematical Institute may wish to discuss how all Part C candidates are able to demonstrate their compliance with this particular QAA benchmark.

- (c) The scaling process occupies a significant amount of time during the examination meetings. I understand the principles behind this, namely that the papers should be scaled such that the incoming and outgoing cohort performance should be broadly similar so as to align the difficulty of the assessments. However my concern is whether, over time, certain courses are consistently scaled more than others. If so, this could raise concerns as to whether there is a sufficient incentive for assessors to set assessments at appropriate levels. Another potential concern might be that the marks of candidates who choose to take unpopular examination papers could be at greater risk of a disproportionate scaling (up or down), due to a small paper-cohort size.
- (d) I would suggest that greater guidance is given to students, staff and examiners/markers over the criteria for awarding marks for dissertations. For example, there might be a disparity in expectations between some first and second markers where either one is drawn from outside mathematics, or where dissertation topics are perceived (rightly or wrongly) to trade mathematical for other type of content (for example, historical). It might also be worth considering whether the cohort of second markers could be smaller to facilitate the consistent approach between subject areas (with suitable workload compensation for those involved).
- (e) There was clear and comprehensive evidence that systematic checking had taken place with scripts signed by checkers. On a couple of scripts I did see some pages with "working" that had no indication that a marker or checker had looked at that particular page. Sometimes a candidate's "working" may contain efforts that attract more marks than their actual answers. For this reason, assessors and checkers may wish to adopt the best practice, used elsewhere, of ensuring that there is a definite indication on each and every page of a candidate's script that its contents have been scrutinized for material that might be worthy of marks.

B4. Good practice and enhancement opportunities

- I commend the clarity and transparency of the documentation, both printed and online, that was available to both the candidates and external examiners.
- I commend the extensive range of examination topics offered.
- I commend the care with which the examination papers were produced and administered.
- I commend the comprehensive comments from the examiners based on examination performance.
- I commend the generally high level of achievement by the cohort of candidates.

Yours faithfully,

C.J.Howls Professor of Mathematics