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1 October 2013

Dear Catherine,

**Re: MSc in Mathematical Foundations of Computer Science, 2012/2013 cohort.**

I am writing to you as one of the two external examiners for the above mentioned MSc. I represent the mathematics side of this joint programme.

There were 17 candidates in all (plus one who decided to defer to next year) and I must say straight away that the standard of most of them was very high, though possibly not quite so high as last year. Nevertheless we were, in my view, completely justified in awarding 10 distinctions. (There were 12 out of 16 candidates last year.)

The material itself is very rigorously tested. Each candidate chooses a minimum of five courses (according to a rubric that dictates that a certain number of advanced and applicable courses must be taken). For each course a miniproject is set by the lecturer which tests both a fundamental understanding of the material as well as having an open-ended component that gives the candidate an opportunity to display some originality or, at least, some reading outside of the set texts and lecture notes. The miniprojects are marked by the lecturer who also writes a short report on each candidate's performance. Now it used to be our job at the Michaelmas and Hilary Terms examiners' meetings to monitor the reports. However, this year double marking was introduced. This considerably lightened our workload and, more importantly, provided a much greater robustness to the whole procedure. Only on rare occasions did we have to arbitrate on widely differing marks.

It was not necessary to have a Trinity Term meeting for the small number of miniprojects in that term, and all the business was conducted in a routine manner via email.

This brings me to the final examiners' meeting where we discussed the dissertations and listened to the oral presentations. Here I have to repeat my remarks from my report last year to the effect that the candidates were not, in general, as good at talking about their work as they were at writing about it. Indeed, if anything they were worse this year. In fact many of them seemed to be totally ill-prepared to give a ten minute account of their work-one candidate even asked if he was allowed to use notes or refer to his dissertation! However, there are no marks for eloquence: we simply had to be convinced that the dissertations were their own work and in all cases we were.

Finally, I would like to express my thanks and gratitude to Wendy Adams who is now retiring from administering this course. She has done so with efficiency and cheerfulness over many years (and certainly since my time in Oxford when I was an

MFoCS internal examiner) and has not only kept an eye on the complicated rubrics and regulations with skill and authority, but also made sure that we, the externals, were kept fully briefed at all stages of the process. My best wishes to her for the future.

Yours sincerely,

Prof. Alex J Wilkie FRS, Fielden Professor of Pure  
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To: Prof Andrew Hamilton, Vice Chancellor  
c/o Mrs Sally Powell, Assistant Registrar  
Education Policy Support  
University of Oxford  
Oxford, OX1 2JD

September 27, 2013

Dear Prof Hamilton,

**Re: Examiner's Report, MSc in Mathematical Foundations of Computer Science, 2012/2013 cohort**

I attended the final examinations and the Board of Examiners meeting for this programme this week and am pleased to report as follows:

**Academic standards** Students on this programme choose a minimum of five modules from a large catalogue of advanced courses offered by the departments of Mathematics and Computer Science. In each of these they work on a substantial "take home" assignment. Starting in Trinity Term, they work on a dissertation supervised by a member of staff. In September, there is a brief oral examination in the presence of the external examiners.

As external examiner, I came to Oxford on three occasions, twice to evaluate coursework and this week to take part in the oral examinations. As last year, I was able to see some very impressive work by the students in all parts of the course. The overall quality of candidates was perhaps slightly lower than last year but some variation is inevitable, and many dissertations contained publishable results. I am particularly pleased to see that the dissertation work is usually based on very recently published material. This makes sure that the course stays up-to-date and students are led to the forefront of current research. Indeed, several of the candidates indicated that they are about to start a research career.

**Assessment processes** All course work is read and marked by the setter of the assignment and then double checked by two examiners (one external). Dissertations are read by the supervisor and a second reader. The candidate then gives a short presentation during the oral examination and engages in a scientific dialogue related to the results of the dissertation, in the presence of the second reader, two internal and two external examiners. Altogether this amounts to a robust system of double checking and moderation and I have confidence in the outcomes.

**Standards of student performance** Standards on this programme are exceptionally high. Throughout, the students are exposed to cutting-edge research and are engaged actively in problem solving and creative investigation. We awarded a slightly lower number of distinctions than last year but it still amounted to 10 of 17 candidates.

**Comparability** I have examined MRes candidates at two other institutions previously and find that the achievements of the Oxford cohort exceed those at one and are comparable to those at the other.

**Issues** I have no academic issues to raise.

**Good practice** There are many things that are excellent about this programme, but it may be appropriate to emphasise again the currency of the research undertaken.

**Observation** As last year, many candidates appeared to be poorly prepared for the examination. Some even seemed surprised that we expected them to give a short presentation, despite the fact that the course administrator (Wendy Adams) reminded them of this fact on more than one occasion. I am a bit at a loss as to what to recommend to address this issue, but it is one that all four of us present at the orals agreed on.

The students appear to choose topics from a rather narrow selection of those available to them. Perhaps this is just a statistical fluke but it may be worthwhile to review the way students are introduced to the course and to their dissertation work.

**Support** I'd like to close this report by thanking Ms Wendy Adams for her services to this course, which is rather complex to administer and runs somewhat independently of the other teaching activities of the two departments. She supported us examiners expertly and in a friendly manner throughout.

With best regards,

A handwritten signature in black ink, appearing to read 'Achim Jung', written in a cursive style.

Prof Achim Jung

Cc: Ms Catherine Goodwin