



## EXTERNAL EXAMINER ANNUAL REPORT FORM

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	For completion by External Examiner:		
Name of External Examiner:	Dr Oliver Harlen		
Home Institution / Employer of External Examiner:	University of Leeds		
Programme and / or Subjects Covered by this Report:	Mathematics (Applied)		
Academic Year / Period Covered by this Report:	2012-13	Date of Report:	24/9/13

For completion by External Examiner in the spaces provided. Please extend spaces where necessary. **Please note this Form will be published online.**

### 1. Programme Structure

The structure and content of the programme are appropriate for the stated aims and learning outcomes. The BSc degree contains a good range of courses in applied mathematics covering both core mathematical methods and applications areas such as fluid mechanics and data mining. A number of level 3 courses have been merged to form 20 credit modules. In the case of Theoretical and Computational PDE's this has produced a well structured course combining theoretical and numerical approaches to solving PDEs. However, I think the syllabus of the "Methods of Applied Mathematics" course could be reviewed to make this a more integrated course. As I commented last year, there are currently only a limited choice of MMath courses in applied mathematics.

### 2. Academic Standards

The standards of the programme are comparable to mathematics programmes at other UK universities including my own. Likewise the performance of students is at same level as those on similar programmes at other universities. In particular there is an appropriate increase in level between the MMath and BSc degrees. The standard of the programmes is appropriate to meet the QAA Subject Benchmark for Mathematics, Statistics and Operational Research, and all students awarded an honours degree are achieving the threshold standard in that statement.

### **3. The Assessment Process**

Final year modules are assessed by a final unseen examination of 2 hours for 10 credit modules and 3 hours for 20 credit modules. Some modules contain a 15% coursework element, while others are 100% final examination. This form of assessment is appropriate and in line with practice on mathematics programmes at similar institutions. I was not able to examine a sample of the coursework, however as coursework only makes up 15% of the assessment of a module, it is of secondary importance compared with the final examination.

The system of preparing and reviewing examination papers works well and the samples of papers I saw had been carefully and clearly marked with fair allocation of partial credit for partially correct answers. One of the challenges in mathematics is setting questions at an appropriate level to allow weaker candidates to demonstrate their understanding of the basic elements in a course, but also stretch the stronger candidates. While this is a difficult balance to get right, there were quite a number of modules where significant scaling was used to reduce the marks at the top of the scale. I would therefore like examiners to consider setting slightly more challenging questions at the ends of questions, in order to prevent the need to scale examinations in future.

The examiners meeting gave due consideration to the classification of candidates and the classification rules concerning candidates on border lines were applied consistently and fairly. There was, however, one case that highlighted an issue with the consideration of students with extenuating circumstances. These circumstances are not considered by the examining board, but by a separate committee, who judge whether the circumstances were likely to have significantly affected the student's performance, but without considering the student's classification position. While this procedure works satisfactorily in most cases, in considering a candidate who was a long way from a classification boundary, but who had serious extenuating circumstances, the examining board required more detailed advice on the extent to which the student's average could be adjusted in deciding upon degree classification.

### **4. Year-on-Year Comments**

Last year I commented that students on the final year of the MMath have a rather limited range of applied courses to choose from. While this remains true for this year, I understand that the School intends to offer more courses as the numbers of students taking this option increases.

I also raised the question of the use of different models of assessment in the third year, with some courses having an element of coursework while others are assessed purely on the final examination. I understand that the topic of assessment has been extensively discussed within the School, but I think the need for consistency of the form of assessment between different modules should be considered further.

Last year I commented on the very high marks awarded to the MMath projects and whether full consideration was given to higher level and increased credit weighting of the MMath projects. The school noted that these were particularly strong students, but issued

further guidance on applying the criteria-referenced marking framework at the different levels. This year I felt the level marks awarded to BSc and MMath projects were appropriate.

### **5. Preparation / Induction Activity (for new External Examiners only)**

N/A

### **6. Noteworthy Practice and Enhancement**

Through its assessment handbook the School provides clear information on the rules, procedures and conventions governing assessment at each level within the degree programme.

The use of criteria-based marking framework to provide consistency in the assessment of projects is an example of good practice that I have example of suggested to my own School.

### **7. Appointment Overview (for retiring External Examiners only)**

## 8. Annual Report Checklist

Please include appropriate comments within Sections 1-7 above for any answer of 'No'.

		Yes (Y)	No (N)	N/A (N/A)
<b>Programme/Course Information</b>				
8.1	Did you receive sufficient information about the Programme and its contents, learning outcomes and assessments?	✓		
8.2	Were you asked to comment on any changes to the assessment of the Programme?			✓
<b>Draft Examination Question Papers</b>				
8.3	Were you asked to approve all examination papers contributing to the final award?	✓		
8.4	Were the nature, spread and level of the questions appropriate?	✓		
8.5	Were suitable arrangements made to consider your comments?	✓		
<b>Marking Examination Scripts</b>				
8.6	Did you receive a sufficient number of scripts to be able to assess whether the internal marking and classifications were appropriate and consistent?	✓		
8.7	Was the general standard and consistency of marking appropriate?	✓		
8.8	Were the scripts marked in such a way as to enable you to see the reasons for the award of given marks?	✓		
8.9	Were you satisfied with the standard and consistency of marking applied by the internal examiners?	✓		
8.10	In your judgement, did you have the opportunity to examine a sufficient cross-section of candidates' work contributing to the final assessment?	✓		
<b>Coursework and Practical Assessments</b>				
8.11	Was the choice of subjects for coursework and / or practical assessments appropriate?	✓		
8.12	Were you afforded access to an appropriate sample of coursework and / or practical assessments?		✓	
8.13	Was the method and general standard of assessment appropriate?			✓
8.14	Is sufficient feedback provided to students on their assessed work?			✓
<b>Clinical Examinations (if applicable)</b>				
8.15	Were satisfactory arrangements made for the conduct of clinical assessments?			✓
<b>Sampling of Work</b>				
8.16	Were you afforded sufficient time to consider samples of assessed work?	✓		
<b>Examining Board Meeting</b>				

		Yes (Y)	No (N)	N/A (N/A)
8.17	Were you able to attend the Examining Board meeting?	✓		
8.18	Was the Examining Board conducted properly, in accordance with established procedures and to your satisfaction?	✓		
8.19	Cardiff University recognises the productive contribution of External Examiners to the assessment process and, in particular, to the work of the Examining Board. Have you had adequate opportunities to discuss the Programme and any outstanding concerns with the Examining Board or its officers?	✓		
<b>Joint Examining Board Meeting (if applicable)</b>				
8.20	Did you attend a Composite Examining Board, i.e. one convened to consider the award of Joint Honours degrees?	✓		
8.21	If so, were you made aware of the procedures and conventions for the award of Joint Honours degrees?	✓		
8.22	Was the Composite Examining Board conducted according to its rules?	✓		

Please return this Report, preferably in a Microsoft Word format, by email to:

[ExternalExaminers@cf.ac.uk](mailto:ExternalExaminers@cf.ac.uk)

Your fee and expenses claim form and receipts, should be sent electronically to the above email address or in hard copy to:

Clive Brown, Registry Officer, Registry & Academic Services, Cardiff University,  
McKenzie House, 30-36 Newport Road, Cardiff, CF24 0DE