



EXTERNAL EXAMINER ANNUAL REPORT FORM

Guidance notes are available to support the completion of this Report and are available at <http://learning.cf.ac.uk/quality/review/external-examiners/reports/>.

	For completion by External Examiner:		
Name of External Examiner:	Dr Steven Tear		
Home Institution / Employer of External Examiner:	University of York		
Programme and / or Subjects Covered by this Report	Undergraduate degrees in Physics and Astronomy <i>BSc/MPhys in Physics and physics-related degree programmes</i>		
Academic Year / Period Covered by this Report:	2015/16	Date of Report:	3/8/2016

For completion by External Examiner in the spaces provided. Please extend spaces where necessary. **Please note this Form will be published online and should not make any reference to any individual students or members of staff.**

1. Programme Structure

This is my 4th and final year as external examiner and as in previous years I shared the external examining responsibilities with a second external examiner, in this case for 2015/16 it was Dr Simon Goodwin. The examination papers were divided between us and I was given the opportunity to comment on all the exams, but was asked in particular to comment on a suggested list of about half the examination papers across years 2-4, and this I did.

The degree programmes are well structured with a balance of laboratory work, lectured courses, skills activities, and different types of assessments which enable students to develop their skills and knowledge from their entry at the start of year 1 to a high level of attainment in their final year. The project work in particular enables students to demonstrate independence in their learning and to be involved in physics and astronomy at the forefront of current research. The content and structure of the degree programmes are comparable to many other Russell Group Universities in the UK, and exceed the core requirements of the Institute of Physics. Students in many of the degree programmes, in addition to the core modules, have a choice of optional modules throughout their time at Cardiff. These options offer students, particularly those on the main Physics programme, the opportunity to study a broader range of topics, for example, astronomy, astrophysics, acoustics, and a range of medical physics topics, as well as specialise in more advanced topics. There have been some changes to the degree structure which have been rolling out over the past few years, and these have now completed. These changes have been well designed and

managed by the Department to benefit the students' learning and knowledge development.

2. Academic Standards

Overall the proportion of the sum of first and upper second class degrees is largely in-line with those across UK Physics Departments in the Russell Group with which I have experience. As judged from studying the exam papers and marked scripts the academic standards are appropriate and indicate that courses are well taught. To enable a complete picture of academic standards I was grateful to the Department in providing me, as last year, with all the module averages as these were not available from the spreadsheets provided centrally. It is a principle of the Examination Boards responsibility to monitor quality and standards and a critical component in that monitoring is that average module marks across the entire cohort are available.

Notable this year there was a high number of first class degrees to be awarded, particularly for the MPhys degree, and that correspondingly the year 4 average mark of 71% was higher than in the past 3 years. I therefore, together with the other external examiner, looked in some depth at the year 4 assessments including the substantial contribution to the final degree mark that comes from the year 4 project. My view based on this is that within the MPhys final year cohort there were a number of exceptional students who had performed consistently very well over their four years at Cardiff and the standards and marks obtained for their assessments were at the appropriate level. Projects in particular were of a very high standard and comments from markers, for example, noted the exceptional standard of the dissertations and response to questions in the project viva. Overall, their achievements are well deserved and are the main reason for the high year average. However there are a few points to raise on what I found regarding some assessments and components of marks which may be leading to a slight overall drift up in the marks. I mention these in the next section and the Department should consider these.

The final year projects are a challenging opportunity for students to work at the forefront of research. Students demonstrated in their reports that they are well equipped by their courses, skills and laboratory work to achieve high standards in their projects. Speaking to some of the students informally over lunch it is clear that they find project work very rewarding, and the overall high standard of the style and content of the project reports is indeed very good.

3. The Assessment Process

I was satisfied that the Examinations Board procedures were rigorous and followed, as far as I observed, the University's policies and regulations on the assessment correctly. The Department made available to me all marked scripts, projects reports and markers' comments as well as mark distributions for modules. The Department responded promptly to questions I had for further information.

The style of assessments is predominantly a mix of closed examinations and assessed coursework which appropriately enables the department to assess different skills and learning outcomes of modules and of the overall programmes. In

closed exams, for example, short compulsory questions ensure students are assessed in a broad range of core material while more in-depth knowledge and understanding can be demonstrated in the choice of extended questions. The additional monitoring checks on the marking of exam scripts by the Deputy Module Organisers introduced last year were again valuable in assuring the high standards of marking, but it would be helpful to have an indication of which specific scripts were sampled by the DMO to monitor the marking.

In terms of the design of assessments, many of the taught modules have a continuous assessment (CA) component contributing 20% to the final module mark. While the mark distributions are fine in the majority of cases, in several year 4 modules and some year 3 modules the average marks for the CA component were high, in the 80-100% region, and furthermore the range of marks was narrow. CA components may be aimed at measuring skills related learning outcomes and this often leads to high marks, however effective discrimination of achievement in skills should still be possible with an appropriate assessment and mark scheme. I would urge the Department to review the appropriateness of the continuous assessments or the marking schemes in modules which have high averages or narrow distributions for the CA component.

The marking of final year projects, particularly year 4 projects which make a 25% contribution to the final degree mark, is clearly important to ensure appropriate standard and consistency is achieved. The procedures in place are reasonably robust, certainly having two independent markers for the dissertation is good practice and where marks differ by more than 10% a third independent mark is allocated. The contribution from the project supervisor mark to the overall project mark has been reduced from previous years. Finally, the consistency of the project marking is reviewed by a moderation panel, which makes comments and recommendations. However, I, as well as the other external examiner, had concerns about the supervisors' component which on average was 8% higher than the independent assessors' mark, in some individual cases the supervisor's mark was 30% higher, but these were not commented on by the moderation panel. While I understand that the supervisor is assessing different criteria to the dissertation markers, as stated in the School's assessment criteria, it is nevertheless difficult to judge the standard and consistency of the marking across different supervisors because there is no evidence, other than the sometimes brief statement justifying the mark, which can be referred to. I and the other external examiner in reviewing these comments found that there was a tendency for the astrophysics and astronomy marks to be higher than would appear justified by the comments. I would therefore recommend the Department introduce a supervisor's mark form or similar which provides the clear criteria against which the assessment is to be made and prompts for statements of justification for the mark awarded against each criterion. In addition, I suggest the Department consider that project students keep a project notebook which then forms part of the assessment. At York, all project students have to keep a project notebook recording all their work on the project. This is handed-in at the end and forms part of the assessment by the supervisor. The project moderation panel in monitoring consistency and standards of marking across the projects can look at project notebooks as part of the evidence available to the panel.

4. Year-on-Year Comments

A number of comments made in previous years have been satisfactorily addressed, particularly the role of the DMO in monitoring the marking of scripts, although as commented earlier it would be valuable to see a simple indication that this process had been carried out for each set of scripts in a module. There has also been improvement in the quality of the comments made by project markers to justify their mark awarded, although there were still a few cases this year where it was not the case. For a number of years I've commented on high averages which have been consistently achieved on some modules, and this year, we looked more closely at the continuous assessments and found some of these have high averages and narrow distributions. These modules are not taken by everyone in the year, so there is concern that some cohorts who do not take these modules may be disadvantaged.

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

N/A

6. Noteworthy Practice and Enhancement

I believe there is some discussion in the Department about the value and contribution of the Gregynog course which contributes 10% to the project final mark and tends to be in a narrow range of 70-80% for all students. Over the four years I've been examining at Cardiff I've spoken to a number of final year students about their experience of this. I've always had a consistent picture of the valuable skills and confidence that students feel they've gained by being involved in group activity to produce and assess competitive bids, and this year was no exception when talking informally with the students over lunch. I know the Department puts a lot of effort into running the course, and this year we saw some of the output from the course, and I was very impressed by the exceptionally high standards and professional quality of the presentations. Looking from outside and from my experience this is something quite unique and valuable for students, and I would support its retention in the curriculum.

7. Comments on the Examination of Master's Dissertations (External Examiners for postgraduate Master's Programmes only, see also 9.23-9.29 below)

N/A

8. Appointment Overview (for retiring External Examiners only)

It has been a pleasure to be external examiner at Cardiff, the level of commitment to teaching quality across all programmes and professionalism shown by the Department has been excellent. It is testament to this that the final year students I've spoken with talk highly of their learning experiences and friendliness of staff at Cardiff, and the most able students achieve very high standards of knowledge, understanding and project work. Examination procedures are robust with some minor but important suggestions about consistency and appropriateness of some of

the continuous assessments and consistency of the project supervisor's marking which in my view need addressing.

9. Annual Report Checklist

Please include appropriate comments within Sections 1-8 above for any answer of 'No'.

		Yes (Y)	No (N)	N/A (N/A)
Programme/Course Information				
9.1	Did you receive sufficient information about the Programme and its contents, learning outcomes and assessments?	Y		
9.2	Were you asked to comment on any changes to the assessment of the Programme?			N/A
Draft Examination Question Papers				
9.3	Were you asked to approve all examination papers contributing to the final award?		N	
9.4	Were the nature, spread and level of the questions appropriate?	Y		
9.5	Were suitable arrangements made to consider your comments?	Y		
Marking Examination Scripts				
9.6	Did you receive a sufficient number of scripts to be able to assess whether the internal marking and classifications were appropriate and consistent?	Y		
9.7	Was the general standard and consistency of marking appropriate?	Y		
9.8	Were the scripts marked in such a way as to enable you to see the reasons for the award of given marks?	Y		
9.9	Were you satisfied with the standard and consistency of marking applied by the internal examiners?	Y		
9.10	In your judgement, did you have the opportunity to examine a sufficient cross-section of candidates' work contributing to the final assessment?	Y		
Coursework and Practical Assessments				
9.11	Was the choice of subjects for coursework and / or practical assessments appropriate?	Y		
9.12	Were you afforded access to an appropriate sample of coursework and / or practical assessments?	Y		
9.13	Was the method and general standard of assessment appropriate?	Y		
9.14	Is sufficient feedback provided to students on their assessed work?	Y		
Clinical Examinations (if applicable)				
9.15	Were satisfactory arrangements made for the conduct of clinical assessments?			
Sampling of Work				
9.16	Were you afforded sufficient time to consider samples of assessed work?	Y		
Examining Board Meeting				

		Yes (Y)	No (N)	N/A (N/A)
9.17	Were you able to attend the Examining Board meeting?	Y		
9.18	Was the Examining Board conducted properly, in accordance with established procedures and to your satisfaction?	Y		
9.19	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?	Y		
Joint Examining Board Meeting (if applicable)				N/A
9.20	Did you attend a Composite Examining Board, i.e. one convened to consider the award of Joint Honours degrees?			
9.21	If so, were you made aware of the procedures and conventions for the award of Joint Honours degrees?			
9.22	Was the Composite Examining Board conducted according to its rules?			
Examination of Master's Dissertations (if applicable)				N/A
9.23	Did you receive a sufficient number of Dissertations to be able to assess whether the internal marking and classifications were appropriate and consistent?			
9.24	Was the sample in accordance with the University's sampling guidelines (guidelines provided below)?			
9.25	Were you satisfied with the standard and consistency of marking applied by the Internal Examiners?			
9.26	Were you able to attend the Master's Degree (Dissertation) Stage Examining Board?			
9.27	If so, was the Examining Board conducted properly and in accordance with established procedures?			
9.28	Were the schemes for marking and classification correctly applied?			
9.29	Were the standards of the awards recommended appropriate?			

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

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:

External Examiners, Registry, Cardiff University, McKenzie House, 30-36 Newport Road, Cardiff, CF24 0DE

SAMPLING OF TAUGHT MASTER'S DISSERTATIONS BY EXTERNAL EXAMINERS

External Examiners shall be expected to see prescribed numbers and ranges of Dissertations, but not to mark them, on the following basis:

At least 10% of Dissertations for a postgraduate taught Master's Programme, or a minimum of 10 (whichever is the higher figure) must be seen by the External Examiner(s). Where the total number is less than 10, all Dissertations must be seen by the External Examiner(s) #.

Dissertations seen by External Examiners should include examples from across the whole range of achievement (i.e. Pass with Distinction, Pass, Fail).

External Examiners will retain the right to see other Dissertations at random.

Where more than one External Examiner is appointed on a Programme, at least 10% of Dissertations, or a minimum of 10 (whichever is the higher figure), should be seen collectively by the External Examiners.