

The University of Leeds

EXTERNAL EXAMINER'S REPORT

ACADEMIC YEAR: 2015– 2016

Part A: General Information

Subject area and awards being examined

Faculty / School of:	Physics and Astronomy
Subject(s):	Physics
Programme(s) / Module(s):	Physics, Physics with Astrophysics, Physics with Nanotechnology, Theoretical Physics. Medical Physics
Awards (e.g. BA/BSc/MSc etc):	BSc, MPhys

Name and home Institution / affiliation of Examiner

Completed report

The completed report should be attached to an e-mail and sent as soon as possible, and no later than six weeks after the relevant meeting of the Board of Examiners, to exexadmin@leeds.ac.uk.

Alternatively you can post your report to: **Head of Quality Assurance**
Room 12:81, EC Stoner Building
The University of Leeds, Leeds LS2 9JT

Part B: Comments for the Institution on the Examination Process and Standards

Matters for Urgent Attention

If there are any areas which you think require urgent attention before the programme is offered again please note them in this box

None.

Only applicable in first year of appointment

Were you provided with copies of previous relevant External Examiners' reports and the response of the School to these?

N/A

For Examiners completing their term of appointment

Please comment on your experience of the programme(s) over the period of your appointment, remarking in particular on changes from year to year and the progressive development and enhancement of the learning and teaching provision, on standards achieved, on marking and assessment and the procedures of the School

N/A

Standards

1. **Please indicate the extent to which the programme Aims and Intended Learning Outcomes (ILOs) were commensurate with the level of the award**
- *The appropriateness of the Intended Learning Outcomes for the programme(s)/modules and of the structure and content of the programme(s);*
 - *The extent to which standards are appropriate for the award or award element under consideration.*

The various degree schemes at Leeds offer students a range of options from a wide spectrum of areas of Physics and an excellent learning experience.

The Aims and ILOs are appropriate and commensurate with the awarded BSc and MPhys degrees.

2. **Did the Aims and ILOs meet the expectations of the national subject benchmark (where relevant)?**
- *The comparability of the programme(s) with similar programme(s) at other institutions and against national benchmarks and the Framework for Higher Education Qualifications.*

The aims and ILOs are suitable and comparable with other Russell Group universities.

Teaching material and style are broadly similar to other Physics departments.

The courses are accredited by the Institute of Physics.

3. **Please comment on the assessment methods and the appropriateness of these to the ILOs**
- *The design and structure of the assessment methods, and the arrangements for the marking of modules and the classification of awards;*
 - *The quality of teaching, learning and assessment methods that may be indicated by student performance.*

The structure of assessment methods and the balance between exam and continuous assessment contributions are fine. Project assessment was of a good standard. I like the fact that diaries are included with project reports for assessment.

4. **Were students given adequate opportunity to demonstrate their achievement of the Aims and ILOs?**
- *The academic standards demonstrated by the students and, where possible, their performance in relation to students on comparable courses;*
 - *The strengths and weaknesses of the students as a cohort.*

The examination papers were appropriate and generally effective at probing the students' understanding and ILOs.

Student performance was generally good. This year, the average marks were higher than I expected. For instance, the average year 3 marks since I have been examiner, according to my records, are: 2013-14 59.3%; 2014-15 59.8%; 2015-16 about 67%. I recognise that this year 3 cohort may well be stronger than other years. Nevertheless, when it is considered that most physics cohorts have around 10% of poorly-performing students whose engagement is weak, it suggests that average students are close to obtaining a first class degree. Recognising the fluctuations in quality of cohorts and awarded marks on a year-by-year basis, I would recommend that these indicators are considered carefully over the coming couple of years.

5. **For Examiners responsible for programmes that include clinical practice components, please comment on the learning and assessment of practice components of the curriculum**

N/A

6. **Please comment on the nature and effectiveness of enhancements to the programme(s) and modules since the previous year**

It would be particularly helpful if you could also identify areas of good practice which are worthy of wider dissemination.

There were few changes from last year. Recent changes in the balance of marks awarded for BSc and MPhys projects between Supervisors and Assessors have been beneficial.

The annotations of exam solution sheets to indicate bookwork, unseen problems etc has improved and is helpful for external examiners. It is also healthy for those preparing examinations to consider the balance of bookwork and unseen problems.

7. **Please comment on the influence of research on the curriculum and learning and teaching**
This may include examples of curriculum design informed by current research in the subject; practice informed by research; students undertaking research.

There are strong connections between research strengths and some of the taught modules, as in many Physics departments. In my area of expertise relating to nanotechnology and biophysics, there is a strong synergy between teaching and research.

The final year project, particularly for the MPhys, provides students with an excellent opportunity to experience research

in a laboratory environment.

8. **Where the programme forms part of an Integrated PhD, please comment on the appropriateness of the programme as training for a PhD**

N/A

For Examiners involved in mentoring arrangements

9. **If you have acted as a mentor to a new External Examiner or have received mentor support please comment here on the arrangements**

N/A

The Examination/Assessment Process

10. **The University and its Schools provide guidance for External Examiners as to their roles, powers and responsibilities. Please indicate whether this material was sufficient for you to act effectively as an External Examiner.**

Whether External Examiners have sufficient access to the material needed to make the required judgements and whether they are encouraged to request additional information.

Yes, the guidance was sufficient and helpful.

11. **Did you receive appropriate documentation relating to the programmes and/or parts of programmes for which you have responsibility, e.g. programme specifications or module handbooks, marking criteria?**

The coherence of the policies and procedures relating to External Examiners and whether they match the explicit roles they are asked to perform.

Yes. and colleagues were very helpful in providing information efficiently on request.

12. **Were you provided with all draft examination papers/assessments? Was the nature and level of the questions appropriate? If not, were suitable arrangements made to consider your comments?**

Yes, these were provided. The level of questions was appropriate in papers generally – some requiring revision. There has been an improvement over the last couple of years in detecting and correcting minor typographical errors before I'm sent the papers. A very small number of academic paper required moderation, which was handled appropriately. There is greater clarity regarding responsibility for checking the correctness and appropriate level of each examination paper – this emphasis needs to be made continuously to embed good practice and culture.

13. **Was sufficient assessed / examined work made available to enable you to have confidence in your evaluation of the standard of student work? Were the scripts clearly marked/annotated?**

Yes, all papers were made available. Scripts were clearly annotated and checking procedures were satisfactory.

14. **Was the choice of subjects for dissertations appropriate? Was the method and standard of assessment appropriate?**

There was a comprehensive range of final year projects. Assessment was good.

15. **Were the administrative arrangements satisfactory for the whole process, including the operation of the Board of Examiners? Were you able to attend the meeting? Were you satisfied with the recommendations of the Board?**

The arrangements were good and well-administered. I was able to attend the Board of Examiners, which was handled well. At this meeting, I noted my concern about average marks as noted under pint 4. above.

16. Were appropriate procedures in place to give due consideration to mitigating circumstances and medical evidence?

Yes, the procedures used by the department are fine, in line with practice elsewhere.

Other comments

Please use this box if you wish to make any further comments not covered elsewhere on the form

Head of School and Cavendish Professor of Physics
School of Physics and Astronomy
University of Leeds
Leeds, LS2 9JT
United Kingdom



UNIVERSITY OF LEEDS

November 2nd 2016

Dear

Thank you very much for your examiner's report, which was discussed at the School's Taught Student Education Committee meeting on October 19. We are very pleased that you find that our degree programmes offer an excellent learning experience and that our assessment methods are of a good standard.

You have noted (under point 4 – Were students given adequate opportunity to demonstrate their achievements of the Aims and ILOs?) that the average marks were unusually high in 2015-2016, particularly in year 3. This was indeed the case and we have good evidence from the past few years that this third-year cohort did perform particularly well. Nevertheless, as you have recommended we will closely monitor performance indicators to ensure that there is no unjustified inflation in average marks.

It is most gratifying that you have mentioned our recent achievements in reducing errors in exam papers, and in adjusting the balance of marks for the B.Sc. and MPhys projects. These improvements are to a large extent due to previous suggestions by you.

Finally, some very good news. It has been agreed that in future the examiners need only sign a cover sheet listing the modules for which marks have been approved. This should greatly ease the burden on both the external and internal examiners.

We would like to thank you for your efforts to uphold and improve the standards of our assessment process, and look forward to your assistance next year as well.

Best wishes,

Head of School and Cavendish Professor of Physics.

The University of Leeds
EXTERNAL EXAMINER'S REPORT
ACADEMIC YEAR: 2015– 2016

Part A: General Information**Subject area and awards being examined**

Faculty / School of:	Physics and Astronomy
Subject(s):	<i>Astrophysics, Physics, Maths</i>
Programme(s) / Module(s):	Physics, Physics with Mathematics, Physics with Astrophysics, Physics with Nanotechnology, Physics with Medical Physics, Theoretical Physics
Awards (e.g. BA/BSc/MSc etc):	BSc, MPhys

Name and home Institution / affiliation of Examiner**Completed report**

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Part B: Comments for the Institution on the Examination Process and Standards**Matters for Urgent Attention**

If there are any areas which you think require urgent attention before the programme is offered again please note them in this box

None

Only applicable in first year of appointment

Were you provided with copies of previous relevant External Examiners' reports and the response of the School to these?

n/a

For Examiners completing their term of appointment

Please comment on your experience of the programme(s) over the period of your appointment, remarking in particular on changes from year to year and the progressive development and enhancement of the learning and teaching provision, on standards achieved, on marking and assessment and the procedures of the School

n/a

Standards

1. Please indicate the extent to which the programme Aims and Intended Learning Outcomes (ILOs) were commensurate with the level of the award

- The appropriateness of the Intended Learning Outcomes for the programme(s)/modules and of the structure and content of the programme(s);*
- The extent to which standards are appropriate for the award or award element under consideration.*

The ILOs are completely appropriate for the individual modules as well as the overall BSc and MPhys programmes. The structure, content and standards of the degree programmes are balanced and appropriate.

2. Did the Aims and ILOs meet the expectations of the national subject benchmark (where relevant)?

- The comparability of the programme(s) with similar programme(s) at other institutions and against national benchmarks and the Framework for Higher Education Qualifications.*

Yes. I can compare the standards/aims and ILOs with my own home institution as well as other institutions where I have had roles as external examiner and can confirm that they are fully in-line with national subject benchmarks and the requirements for BSc and MPhys qualifications.

3. Please comment on the assessment methods and the appropriateness of these to the ILOs

- The design and structure of the assessment methods, and the arrangements for the marking of modules and the classification of awards;*
- The quality of teaching, learning and assessment methods that may be indicated by student performance.*

Overall, I am happy that the assessment methods are appropriate, rigorous and fair. Specifically, the exams have been marked, fairly, accurately and consistently across the modules.

I have a few (minor) criticisms/concerns:-

I find the procedure for moderation of modules with anomalous exam averages rather unclear and arbitrary. The remedies that were applied seemed to be fair and reasonable, but it was not clear to me (a) how/when it is deemed necessary to apply these moderations, and (b) in what form those measures should take. Some additional clarification as to the functioning of the moderation committee would be helpful.

I noticed that some questions on examination papers were very unpopular. In a few cases this is due to the fact that the questions were of a new style/content - and that is (regrettably) to be expected. However, in many cases it was clear that the unpopular questions were longer (in terms of text content) than other questions. It would be helpful if setters could make some of the written questions a little more concise.

4. Were students given adequate opportunity to demonstrate their achievement of the Aims and ILOs?

- The academic standards demonstrated by the students and, where possible, their performance in relation to students on comparable courses;*
- The strengths and weaknesses of the students as a cohort.*

Yes, there was a good dynamic range of achievement across the various modules and (as commented in section 6, below) normal mark distributions for most modules.

There is a reasonable consistency of performance across levels, with the notable exception of level 2, where the students have - on average - significantly underperformed, and there are some very large failure rates in key/core modules. This could be a potentially serious problem as the students progress to level 3 and above - and careful attention will be required to ensure that the problems do not propagate/amplify.

I am concerned at the rather high failure rate at all levels - particularly levels 1 and (especially) 2, but also - and more alarmingly - in level 5. I, once again, ask that due vigilance be paid to the setting and implementation of the progression rules.

I was particularly concerned that it was necessary to moderate some key core courses (e.g. Physics 3) and hope that this is not something that will repeated too often.

5. For Examiners responsible for programmes that include clinical practice components, please comment on the learning and assessment of practice components of the curriculum

n/a

6. Please comment on the nature and effectiveness of enhancements to the programme(s) and modules since the previous year

It would be particularly helpful if you could also identify areas of good practice which are worthy of wider dissemination.

I thank professor <<>> for <<>> full and thoroughly constructive response to the various issues that I raised in last year's report. Specific issues that have been positively addressed include:

(i) the introduction of an 'Exams Focus Group' that has resulted in a very significant reduction in the frequency of errors in examination papers, (ii) a commitment to closely monitor and assess the progress of borderline

candidates, (iii) a clarification of the procedure for anonymous marking, and (iv) a response to my concern about the rather unusual marks distributions for many of the modules.
Concerning item (iv) I was delighted to see that near-normal distributions were obtained for almost all of the modules, and the examiners/module leaders are to be congratulated on this achievement.

7. Please comment on the influence of research on the curriculum and learning and teaching

This may include examples of curriculum design informed by current research in the subject; practice informed by research; students undertaking research.

The taught modules, as well as the project/dissertation topics, are kept well-informed by current research. The curriculum as a whole is highly topical and relevant. These aspects are particularly noticeable in the later (3-5) levels. As one would expect, there are significant research components in the projects.

8. Where the programme forms part of an Integrated PhD, please comment on the appropriateness of the programme as training for a PhD

n/a

For Examiners involved in mentoring arrangements

9. If you have acted as a mentor to a new External Examiner or have received mentor support please comment here on the arrangements

n/a

The Examination/Assessment Process

10. The University and its Schools provide guidance for External Examiners as to their roles, powers and responsibilities. Please indicate whether this material was sufficient for you to act effectively as an External Examiner.

Whether External Examiners have sufficient access to the material needed to make the required judgements and whether they are encouraged to request additional information.

Yes, the information provided for guidance was entirely satisfactory.

11. Did you receive appropriate documentation relating to the programmes and/or parts of programmes for which you have responsibility, e.g. programme specifications or module handbooks, marking criteria?

The coherence of the policies and procedures relating to External Examiners and whether they match the explicit roles they are asked to perform.

Yes, I was given all of the necessary documentation as specified.

12. Were you provided with all draft examination papers/assessments? Was the nature and level of the questions appropriate? If not, were suitable arrangements made to consider your comments?

I was provided with copies of all draft examination papers and model answers. These were checked for accuracy and academic standard. The examination papers were of a uniformly high quality with few errors for correction (see comments in section 6 above). Overall they were well-constructed, covering a broad range of subject material at an appropriately testing level – with a good balance of bookwork and unseen components.

13. Was sufficient assessed / examined work made available to enable you to have confidence in your evaluation of the standard of student work? Were the scripts clearly marked/annotated?

I was provided with all of the assessed/examined work which I closely scrutinized; I examined the exam scripts/project reports and dissertations, and the results for all modules, in each case checking the spreadsheets and mark distributions, the averages, standard deviations and failure rates etc., the distribution of questions attempted, as well as spot checking of individual scripts - for marking accuracy and fairness.

14. Was the choice of subjects for dissertations appropriate? Was the method and standard of assessment appropriate?

There was a good range of subjects for the dissertation/practical modules. These were fairly marked and some of the projects were really excellent. There was a good dynamic range of marks, although I couldn't help thinking that the very best projects possibly deserved a few more marks.

I still have a few concerns about the variations in consistency of marking – with some scripts showing little if any annotation. There are two issues here: (i) providing justification for the marks, and (ii) the ability to provide feedback to the students. I ask that markers aim for greater consistency of procedure.

15. Were the administrative arrangements satisfactory for the whole process, including the operation of the Board of Examiners? Were you able to attend the meeting? Were you satisfied with the recommendations of the Board?

Yes, and I thank and commend the examinations team for their warm and hospitable welcome, and for their commitment and professionalism in management of the examinations process. I was able to attend the Board of Examiners and was very satisfied with its procedure and recommendations.

16. Were appropriate procedures in place to give due consideration to mitigating circumstances and medical evidence?

Yes, although I am rather surprised at the seemingly large proportion of students who claim mitigating circumstances, both during the year of studies, and at examination time.
It would be helpful to have some clarification as to the procedure for the assessment and compensations that are applied in these cases.

Other comments

Please use this box if you wish to make any further comments not covered elsewhere on the form

The level of absenteeism in examinations and (anecdotally) lectures is a subject of concern (the combined failure plus absentee rate is as high as 33% in some level one modules). However, I was informed that many of the students who were nominally absent from exams are those who have a re-sit opportunity 'by right' but who had no intention of sitting the examination.

I ask that the Registry tries to make a distinction between these students and those who were genuinely expected to re-sit the exams, as the statistics are currently unfairly skewed.

I find the procedure of signing the vast amount of paperwork - every single examination results sheet - time-consuming and rather pointless: it is, of course, not possible to scrutinize and check the information for complete accuracy. I wonder if it might be possible to simply sign some sort of overall summary approval instead?

Head of School and Cavendish Professor of Physics
School of Physics and Astronomy
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UNIVERSITY OF LEEDS

November 2nd 2016

Dear

Thank you very much for your examiner's report, which was discussed at the School's Taught Student Education Committee meeting on October 19. We are pleased that you believe that our Aims and Intended Learning Outcomes are highly appropriate and fully meet the expectations of national benchmarks. We also find it encouraging that you consider that our teaching is up-to-date with the latest research developments in physics.

You note that our exams were "marked fairly, accurately, and consistently across the modules", but have some minor concerns about the moderation applied to some modules. You also make a number of helpful comments and suggestions which I will address in what follows.

Moderation of exam results is only undertaken after extensive consultation between module team members and other senior staff, and only as a last resort. In these cases the average is typically about 10 marks less out of 100 than in previous years or on comparable modules. To let such marks stand unadjusted would seriously disadvantage the students.

We will keep an eye on the length of examination questions to ensure that this does not put students off from attempting them.

The underperformance at level 2 in 2015-16 to which you refer has been a concern to us, particularly when viewed in comparison with the results of level 3, which have been of a very high standard. We will closely monitor the performance of this cohort, now in year 3, in order to enable as many of them as possible to graduate with good degrees.

You find _____ response to your comments of last year constructive, and we are indeed very grateful for your suggestions last year as they have helped to bring about a significant reduction in exam paper errors.

Concerning project marks, we agree that we have been somewhat too cautious about awarding high marks. This has been discussed with staff members and your comments will enable us to award with confidence higher marks to exceptional and deserving project students.

We do have a rather large number of students with mitigating circumstances, but in the overwhelming majority of cases the compensation consists merely of an extension with coursework submission and/or the granting of a first-attempt resit.

Regarding the inclusion on examination lists of those students who have not signed up to resit exams, it is something that we will have to take up with the University, as these lists are prepared centrally.

Finally, some very welcome news. It has been agreed centrally that in future the examiners need only sign a cover sheet listing the modules for which marks have been approved. This should greatly ease the burden on both the external and internal examiners.

On behalf of the School I would like to thank you for your constructive comments and continuing efforts to uphold and improve our examinations procedures and standards.

I look forward to welcoming you to the School again next year.

Best wishes

Head of School and Cavendish Professor of Physics.