

The University of Leeds

EXTERNAL EXAMINER'S REPORT

ACADEMIC YEAR: 2011– 2012

Part A: General Information

Subject area and awards being examined

Faculty / School of:	Chemistry
Subject(s):	<i>Chemistry</i>
Programme(s) / Module(s):	All degree courses in Chemistry, Natural Sciences and Joint Honours programmes
Awards (e.g. BA/BSc/MSc etc):	BSc, MChem

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 Academic Quality and Standards**
Academic Quality and Standards Team
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

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?

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

As will be evident from the comments in later parts of this form, I believe that the School of Chemistry provides an excellent educational experience for its undergraduate students and that it carries out rigorous and fair assessment for determination of final degree classifications. The programmes of study are challenging and bring the students to a level of education in Chemistry that is comparable to other leading UK university departments both in terms of breadth and depth. The staff of the School show considerable dedication and care in their teaching duties and in the administration of undergraduate courses. However, the degree classification scale imposed on them by the University remains a cause for concern despite repeated criticism from external examiners in Chemistry over my 3-year term (and beyond). The mapping of marks onto the Leeds classification scale is the weak link in an otherwise robust and transparent system of assessment.

The course content in Physical and Theoretical Chemistry has been refined over the past 3 years, partly in response to some of my comments in year 1, and the level of expectation of the capabilities of the students in each year now appears to be more appropriate. New courses are coming on stream to keep pace with the evolution of the discipline, but without compromising the quality of teaching of core material.

My 2010/11 report noted a significant tail of weaker students in the final year of the BSc degree programme who either graduate with a 3rd class honours degree or an ordinary degree, or who fail the final assessment. There is a clear separation in academic achievement between the students following the MChem and BSc programmes, with the vast majority of the former group graduating with 2.1 or 1st class degrees. Without compromising standards, there are no quick remedies to the problem of low

marks for weaker BSc students, but I understand that the A-level grades of more recent intakes are superior and this higher academic quality should reduce the fraction of 3rd class and ordinary degrees awarded in the future. The BSc students are satisfied that the academic staff treat them on an equal footing with the MChem students – this is evident from discussions with groups of final year BSc students. However, it is important that the BSc degree is not perceived as an inferior pathway to graduation, particularly now that students will pay higher fees and may therefore make financially influenced decisions to opt out of four-year degree programmes.

Throughout my term as an external examiner, I have received excellent support and advice on procedures from <<>> and <<>> in the School of Chemistry.

Please see further comments at the end of Part B.

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 School of Chemistry provides a broad and in-depth education in Chemistry for its undergraduates. The course content and the rigour with which it is delivered and examined are certainly commensurate with the award of Integrated Masters (MChem) and BSc degrees. My reservations about the University's procedures for the classification of degrees have been highlighted in my previous reports.

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 – the programmes are of a quality commensurate with national benchmarks and compare very favourably with competitor university courses in Chemistry.

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.*

Students are assessed using a range of methods from coursework to research dissertations and examinations. I reviewed all the examination papers for Physical and Theoretical Chemistry in advance of examinations, and judged them to provide a balanced assessment of the candidates' problem solving skills and understanding as well as their retention of knowledge. The papers were well designed to discriminate between candidates performing at different levels of academic achievement. Award of marks was appropriate throughout the examination papers. Model answers were provided for all examination questions and were of considerable assistance in judging the quality of the questions and the allocation of marks. Where I felt it necessary to suggest modifications to examination questions, these suggestions were given serious consideration and I was fully apprised of the outcomes. The marking of scripts was thorough and fair, and the assessment procedures for literature reports and research projects were appropriate.

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.*

Assessment by a range of methods (examination, coursework, reports/dissertations, etc) provides plenty of opportunity for the students to demonstrate their achievements in learning and understanding. The academic standards are broadly in line with students on comparable course elsewhere.

In previous years, I expressed some concern about the number of students who failed the BSc course or were awarded ordinary degrees. In the 2011/12 academic year, the total number of students was lower than in previous years, but from a BSc cohort of 44 students, I counted 4 failures (2 were withdrawals) and award of 3 ordinary degrees (though these numbers may change after resits / supplementary examinations). Despite the lower number of students on the course, there is still a significant tail of weaker students. With inclusion of the number of 3rd class degrees awarded, this year more than ~1/3 of the BSc students could be judged to be struggling or disengaged from much of the course. That some of them produce literature reports of a good standard suggests that they can still be motivated by aspects of the subject and by certain challenges. As I have suggested previously, the weaker students might benefit from some degree of choice in examination papers - as far as I can tell from the papers I have seen, all parts of all questions on exam papers are currently compulsory.

The MChem cohort performed to a high standard again this year, with almost all graduating with 1st or 2.1 degree classes.

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

Not applicable

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 did not identify any significant changes to the programmes and modules this year.

Areas of good practice identified in my reports from previous year and still relevant include clear guidelines for assessment of the literature reports and research project reports, the progressive development of course material from one academic year to the next, and the links between course material and modern scientific research in the later stages of the programme.

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 students are exposed to current research across the discipline of Chemistry through research-informed teaching and – for MChem students – an extensive research project in their final year. The impressive outcomes of these projects demonstrate the value of this experience as a part of the students' education and training.

I attended an MChem poster day in Feb 2012 and had the opportunity to talk to several students about their research projects and their results. This was a stimulating event and showed how well the students were engaging with the research element of their degree programme.

For Examiners involved in mentoring arrangements

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

Not applicable

9. 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 documentation was clear and comprehensive. Additional valuable guidance was provided in-person by the School's Director of Learning and Teaching and the Learning and Teaching Administrator when required.

10. 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 – handbooks and programme specifications were all available well in advance of the examiners' visit. It was very useful to be sent examination marks sheets and copies of project reports of candidates with special circumstances in advance of the visit.

11. 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 - draft examination papers and marking schemes for all papers in Physical and Theoretical Chemistry (my area of expertise) were sent to me with enough time to scrutinize their content and recommend modifications. The contents of the questions were appropriate for the levels of study being assessed, with a few minor exceptions that I highlighted in comments to the School. These comments were considered in preparation of the final versions of the examination papers and I was sent a summary of changes.

12. 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 – in addition to examination scripts and project reports for the borderline candidates, all marked exam scripts and reports for other students were available during the visit. Plenty of time was made available to look carefully at marked scripts and project reports.

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

Yes – MChem students were able to join active research groups and carry out projects in research laboratories. The topics of these projects were challenging but well chosen to provide the students with a rewarding experience. Students have the opportunity to select the broad area of their project and their choices reflect their principal interests and strengths. From discussions with students at the MChem poster day in Feb 2012, it was clear that they were engaging well with their projects and that the choices of subject were therefore appropriate.

The project assessment considers both research performance and the quality of the written report. In some cases, annotation and commentary by markers of project reports was insufficient for transparent award of marks, but the standard of assessment was broadly appropriate. Further comments on this topic are included at the end of this report.

14. 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 – the whole process was organised efficiently, paperwork was well prepared and all meetings conducted effectively. The external examiners had the opportunity to discuss their views with all academic staff in the School of Chemistry at a final meeting of the Board of Examiners. I was fully satisfied with the recommendations of the Board.

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

Yes – the examiners were briefed appropriately on mitigating circumstances without violating any confidentiality issues. Clear recommendations were presented to the external examiners for consideration in cases where special circumstances might affect degree classification outcomes.

Other comments

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

In previous reports, and in a 2010 letter to the Vice Chancellor, my co-examiners and I expressed concerns about the transparency and fairness of the mapping of marks onto the Leeds degree classification scale. Shortcomings appear at the low and high marks ends of the scale that serve to give very weak students additional unearned scale points while not allowing the very best students to demonstrate clearly their true quality. Despite lengthy letters of justification from the Academic Quality and Standards Team, I remain unconvinced that the Leeds system is as good a method of classification of degrees in scientific disciplines as those more straightforward and transparent procedures operated by most other UK universities. However, some improvements have been made, such as to weighting schemes for year 2, 3 and 4 marks in reaching a final average and refinement of criteria for promotion of students lying just below degree classification borderlines.

The above criticisms are not directed at the School of Chemistry, which implements the University regulations fairly. The School of Chemistry provides an excellent educational experience for its undergraduates and maintains high standards of assessment. However, the following comments identify a few areas for further consideration within the School:

1. Project marking: I am satisfied that the project average of 70.8% for the MChem programme is within an acceptable range (though perhaps slightly high) and that clear guidelines are provided for assessing projects. However, the written commentary by project markers is very variable in both quantity and quality. The project mark constitutes a significant fraction of the final degree mark, yet is assessed by only two members of staff. This is the norm in Chemistry departments, but my own and other institutions require much more detailed written justification of marks awarded in each category of the assessment to make the process transparent and defensible. I recommend that the School of Chemistry reviews its forms for marking of projects and includes boxes for written comments by assessors.
2. I noticed a few unusual marks profiles in the final spreadsheets. For example, one student was awarded a 1st class MChem degree without achieving a first class average in either year 3 or 4, and with a declining profile of marks from years 2 to 3 and 4. A second student was awarded a 2.1 MChem degree without averages at 2.1 or higher in years 3 and 4, and with 3 failed modules in year 4 and a written average of 43.7%. This student benefited from a strong research project, though I looked at carefully at the written report and judged it to have been appropriately marked, and from the choice of weighting scheme that maximises the impact of the second year mark.
3. Some modules in years 2 and 3 have low average marks (in the 40 – 50% range) and the content and assessment of these modules may need some attention.
4. The School may consider introducing some choice in examination papers, particularly to benefit the weaker students.

I was pleased to see a larger number of MChem students undertaking projects in Physical and Theoretical Chemistry this year, despite the smaller number of final year students, and hope that this trend continues.

School of Chemistry

University of Leeds
Leeds LS2 9JT



UNIVERSITY OF LEEDS

22 October 2012

Dear

I am writing on behalf of the School of Chemistry to provide a formal response to your Examiner's report. I would like to thank you for your contribution over the past three years and I hope that you have enjoyed working with us; we have certainly valued your input greatly.

We will redesign the MChem project mark sheet in light of your comments, especially to encourage greater transparency in the allocation of marks. There is a great degree of variability currently and a system that emphasises the need for justification will be introduced in the coming session. There is a moderation process for final year projects and the marks returned are overseen by the Heads of Sections and the Director of Student Education (in addition to the two named markers). The marks returned for posters and oral presentations are also obtained from different sets of staff.

Like you, the School is concerned about the tail in the distribution of marks and, despite what you heard directly from the students themselves about their levels of engagement with the BSc Programme, there is some (small) evidence of dissatisfaction within the NSS and the local programme surveys. We plan a rewrite of the Physical Chemistry syllabus at years 1 and 2; the first phase has been introduced in the current session. Moreover, the BSc students are being exposed to a more open-ended laboratory course where mini three week research projects have been developed in each of the three sections which will allow for a slightly different weighting of marks within the final year.

With best wishes

Head of School

c.c. AQST /