

Guidance notes are available to support the completion of this Report via the Cardiff University Intranet [here](#) and from [ExternalExaminers@cardiff.ac.uk](mailto:ExternalExaminers@cardiff.ac.uk).

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	For completion by External Examiner:		
Name of External Examiner:	Edward Tate		
Home Institution / Employer of External Examiner:	Imperial College London		
Programme and / or Modules Covered by this Report	Chemistry		
Academic Year / Period Covered by this Report:	2017-18	Date of Report:	05/07/2018

Please complete all information in the spaces provided and submit within **six weeks** of the Examining Board.

**Please note this form will be published online and should not make any reference to any individual students or members of staff in accordance with the General Data Protection Regulation (2018).**

Please extend spaces where necessary.

## 1. Programme Structure (curriculum design, programme structure and level, methods of teaching and learning)

Firstly, I would like to emphasise that this is a well-run course, with a finely-honed design and structure which delivers many examples of excellent teaching practise. Chemistry staff are to be commended on the high quality of this international quality chemistry course.

The Cardiff course provides an impressive chemical biology offering, particularly in biosynthesis. However, the justification for holding chemical biology specifically as a core element in year 3 is not obvious; it is unclear why this is not also done for other important areas of multidisciplinary science in which Cardiff excels – for example, materials or catalysis. The School should consider aligning this element with the importance placed on other similarly important areas of interface chemistry; for example, by elevating other areas to core topics, or by making the chemical biology element optional. Presumably this change could be made in 2019-20; if this suggestion is not taken up, it would be useful to know the rationale for keeping chemical biology in the core of year 3.

Summaries (of content, issues, student feedback, and mark progression between years) for courses were a very welcome addition for this year. These were still missing for a number of courses, please provide for all courses next year, and include a summary of the proportion and nature of coursework assessment

(importantly, since this seems to be changing year on year), and a summary of actions (if any) taken forward based on student feedback, course issues, etc.

Uneven expectations across lecturers and courses in terms of content memorisation and volume was noted, including examples where too many slides have been packed into only a few lectures, or where an exam question was based entirely on one slide out of a long course. The response to this feedback was cited by students as not always convincing, with staff proposing to leave the course unchanged without justification. Where feedback of this type is received consistently over more than one year, staff should be required by the Department to make a robust response, and to make changes unless there is a very compelling case to the contrary. Actions taken should be fed back to the external examiners in the course summaries.

## **2. Academic Standards** (comparability with other UK HEIs, achievement of students, any PSRB requirements)

The examiners agreed that the secondary rule allows too many low scoring modules to be carried over. This undermines the credibility of the course both academically and with employers, since students are graduating with undeservedly high classifications.

A better system would require that a student has no component (or perhaps no more than 10% of total credits) in the final two years at a classification lower than the grade they achieved prior to adjustment. For example, if a student scores a pass or 2.2 on any substantial component then they should not be able to move up from a 2.1 to a 1<sup>st</sup> by the secondary rule. This will prevent the elevation of students to higher classifications when the balance of grades does not support a consistent performance at that level, and would be more in line with likely decisions to undertake a viva in the previous system.

## **3. The Assessment Process** (enabling achievement of aims and learning outcomes; stretch of assessment; comparability of standards between modules of the same level)

For the organic part of the course, the model answers are excellent with well-designed questions, most with strong elements of problem solving. Marking is clear and well-annotated. It was helpful to receive feedback on my suggested changes.

One important point which should not be overlooked in future years: we insist (quite rightly) that students do not plagiarise their work; by the same argument, where academic staff have used or adapted a literature example for an exam question (best practise, since one can have high confidence that the chemistry works in the lab), then the original reference must be provided at the bottom or end of the exam to recognise this fact.

BSc reports should be 1<sup>st</sup> and 2<sup>nd</sup> marked fully independently, this is important for a component which makes up 20% of the degree. The faculty should also consider whether 16 lab days is sufficient for a BSc project, and if so then perhaps the 30-page recommended length (often more in practise) should instead be a suggested maximum length.

It is noted that timetable challenges have driven a future proposal to combine viva and talk for MChem projects, as they are for BSc. This is a pity since it forgoes a

useful and important MChem-level learning opportunity and cohort-cementing activity – that of presenting science formally in a scientific meeting. If possible, holding all MChem talks on the same day (in parallel themed sessions), with mandatory staff and student attendance, would be better, and a suitable final celebratory event for the students. Prizes could also be given for the best talk(s) in each session, audience prize, etc. Perhaps, then, a lower weighting would be given to the talks, 20% (a good portion of the final degree grade) seems high for a 20-minute talk which certainly disfavors some students over others depending on performance on the day; 5-10% would be more reasonable.

The University could do more and be more flexible in supporting the Department to timetable their assessments to enable this to happen.

4. **Examination of Master's Dissertations** (sample of dissertations received, appropriateness of marking schemes, standard of internal marking, classification of awards)

Looking at projects at and around borderlines, the quality is in line with what is expected, and particularly the MChem projects include several very strong examples.

It is notable that the supervisor marks for projects ('practical' component) tend to be high on average, well above 70%, and that these need to be properly justified in all cases. A mark >75% should represent an exceptionally strong student, and a mark about 80-85% would be one of the strongest ever seen at Cardiff. Given the high weighting of this component in the final year, limiting the mark range to remain in line with other classes of assessment is very important so as not to over-value the supervisor's mark in the final classification. It would be very surprising to see more than a small handful (5-10%) of these marks in any one year.

Where students fail to attend projects, a clear policy of intervention and assessment is in place, which is commendable. As external examiners it will be helpful to be provided with the 'paper trail' which shows what has been done to resolve the problem. It would be useful to record student and supervisor comments at the mid-way point of the MChem project, to identify problems and back any later decisions.

Comments on marks are in general ample but providing only 4-5 lines of justification for a failing or superb supervisor's mark is insufficient, and should be automatically returned for revision. One would expect to see multiple, detailed, and specific examples of excellence (or lack thereof) cited in the comments for any mark outside the 40-75% range, since outside this range the consequence of the mark becomes highly significant for the overall degree classification.

The examiners were in unanimous agreement that the mark schedule should be split up into sub-components within the supervisor mark for research projects (BSc and MChem). This should include components of effort, practical/technical competence, and initiative (i.e. to what extent the student drove the project themselves at an intellectual level in the lab). The balance between these elements could be roughly equal, and in this way only a student who genuinely led their project from the outset with minimal input from supervisors would achieve a mark of 85%+.

Where project marks for 1<sup>st</sup> and 2<sup>nd</sup> markers lie outside a reasonable range (e.g 5% or 8%), it would be good practise to send that report to an independent 3<sup>rd</sup> marker, blind to the marks already given.

1<sup>st</sup> and 2<sup>nd</sup> (and 3<sup>rd</sup>) marks need to be on separate sheets (preferably electronic), with separate comments for each marker.

## 5. Year-on-Year Comments

[Previous External Examiner Reports are available from the Cardiff University Website [here](#).]

It was noted that this has been a particularly challenging year, with strikes and the need to cover for absent colleagues at short notice. However, the staff are highly commended for the way they have pulled together to manage these changes and have continued to deliver a fundamentally strong course, with an interesting range of coursework elements.

Timetabling issues appear to have driven a need to schedule a week of MChem vivas in the week after the report hand in, and during revision week just before exams when no teaching activity is supposed to occur. Given the heavy emphasis of marks concentrated in this short period, which together probably account for 40-50% of the final degree mark, the University should endeavour to make it possible for the School to timetable this over a longer period. An extension of 1 week to the last term/semester does not seem unreasonable, some other top tier universities run their academic year through to almost the end of June.

Staff involved in lab courses should continue to seek feedback from student demonstrators on how practical scripts could be improved (e.g. to include non-obvious information about practical steps).

## 6. Preparation for the role of External Examiner (for new External Examiners only) (appropriateness of briefing provided by the programme team and supporting information, visits to School, ability to meet with students, arrangements for accessing work to review)

N/A

## 7. Noteworthy Practice and Enhancement (good and innovative practice in learning, teaching and assessment; opportunities for enhancement of learning opportunities)

The examiners met with students in year 4 and received several points of feedback, as follows:

It was noted that organisation of years 1 & 2 was well done, along with several examples of excellent teaching, including positive feedback on tutorials, which are supportive and effective, and adapted to student needs. I note that the previous assessment scheme (a very low % coursework component) was potentially effective in maintaining attendance, so it will be interesting to see how assessment changes coming through years 1 and 2 may impact attendance.

An occasional mismatch was noted between lab schedules and lecture content, which can lead to unfair assessment since students taking the practical later have an advantage, however, it was understood that timetabling limits what can be achieved in practise.

The MChem lab course at end of year three was particularly highlighted as an example where bringing research skills into the core part of the course (i.e. before the research project itself) was done very well. Bringing similar research skills into years 1 and 2 could further contribute to increasing standards and student satisfaction, so as to encourage students to think their way through rather than 'spoon feeding' from a set script.

A Facebook group effectively peer supported study and information sharing in the year 4 group, this may be worth instigating every year.

**8. Appointment Overview (for retiring External Examiners only)** (significant changes in standards, programme/discipline developments, implementation of recommendations, further areas of work)

N/A

## 9. 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>				
9.1	Did you receive sufficient information about the Programme and its contents, learning outcomes and assessments?	X		
9.2	Were you asked to comment on any changes to the assessment of the Programme?	X		
<b>Commenting on draft examination question papers</b>				
9.3	Were you asked to approve all examination papers contributing to the final award?	X		
9.4	Were the nature, spread and level of the questions appropriate?	X		
9.5	Were suitable arrangements made to consider your comments?	X		
<b>Examination scripts</b>				
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?	X		
9.7	Was the general standard and consistency of marking appropriate?	X		
9.8	Were the scripts marked in such a way as to enable you to see the reasons for the award of given marks?	X		
9.9	Were you satisfied with the standard and consistency of marking applied by the internal examiners?	X		
9.10	In your judgement, did you have the opportunity to examine a sufficient cross-section of candidates' work contributing to the final assessment?	X		
<b>Coursework and practical assessments</b>				
9.11	Was the choice of subjects for coursework and / or practical assessments appropriate?	X		
9.12	Were you afforded access to an appropriate sample of coursework and / or practical assessments?	X		
9.13	Was the method and general standard of assessment appropriate?	X		
9.14	Is sufficient feedback provided to students on their assessed work?	X		
<b>Clinical examinations (if applicable)</b>				
9.15	Were satisfactory arrangements made for the conduct of clinical assessments?			
<b>Sampling of work</b>				
9.16	Were you afforded sufficient time to consider samples of assessed work?	X		
<b>Examining board meeting</b>				
9.17	Were you able to attend the Examining Board meeting?	X		

9.18	Was the Examining Board conducted properly, in accordance with established procedures and to your satisfaction?	X		
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?	X		
<b>Joint examining board meeting (if applicable)</b>				
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?			

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[externalexaminers@cardiff.ac.uk](mailto:externalexaminers@cardiff.ac.uk)

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