
I dealt with two sets of exam papers for this session. The first set included an MCQ paper and a Practical paper, and these counted towards the Second MB/Second Veterinary MB Mechanisms of Drug Action exams. The second set, which involved an essay paper, counted along with the first towards the Tripos Part IB.

I received the question papers (with answers where appropriate) earlier in the year and had a few queries and comments, which were promptly dealt with by the Senior Examiner.

The MCQ paper is wide ranging and is an appropriate test (counts for 75% of the Second MB mark) of the Mechanisms of Drug Action, such that it covers the basic scientific information a clinician needs to know about how the drugs they are prescribing work. Most aspects of pharmacology are covered (excluding neuropharmacology, which has been examined in a separate course, but is being brought back into MODA from next year). There are some questions to be answered specifically by medical or veterinary students.

The Practical paper was composed of two questions, one a data interpretation of figures which could have come from a published paper, and the other covering cell signaling and ligand binding. These questions were well constructed, and tested the ability of students to interpret pharmacological data as well as their ability to manipulate pharmacological data. I very much support the focus on data interpretation and numeracy that this paper provides for medical and veterinary students.

The exam mark spreadsheet was explained to me in detail during my visit. In addition all exam scripts were available for me to look at during my time in Cambridge, if I so wished. I was given a number of sets of scripts to look over, including ones around the pass/fail borderline for 2nd MB of 50%. In my opinion the borderline of pass/fail is a fair one and I was satisfied that this mark fairly distinguished those who passed from those who failed the Second MB.

In addition I was given sets of scripts reflecting different levels of achievement in the Tripos Part IB. The highest firsts represented exceptionally good students who wrote outstanding essay answers. Whilst generally happy with the standard of marking, I would however
encourage staff to use the full marking scale, as it was rare to see marks above 14 for the essays. Staff should not be afraid to award 16 or higher for really good essays; if they do award 14 for an excellent essay then they should imagine themselves sitting down with the student and having to clearly explain to the student where the other 6 marks will come from. If they are unable to do this readily then they should be awarding higher marks.

I found particularly helpful the report given to me by the Senior Examiner, providing an analysis of how the questions were answered (essays plus the practical paper questions) including comments from markers about the different questions that they had marked.

The Senior Examiner also discussed with me some issues that arose during the exams:

- Four students did not receive the drug list until 20 minutes into the exam.
- One candidate retained the drug list until 20 minutes into the essay paper
- A typographical error in one of the practical questions was noted and the correction announced 15 minutes into the exam

In each of these cases I do not feel the students were unduly disadvantaged or advantaged, and agree with the view of the Senior examiner as set out in his report.

Some of the issues mentioned above concerned the drug list. Personally I do not approve of the students having a drug list in the exam, and I am not convinced they are useful anyway – they invariably cause more problems than they solve. If such a list is to be retained then the reasons for the list being provided needs to be spelled out clearly to staff and students. My view is that Pharmacology must include a reasonable knowledge of drug names, and clinicians must be aware of the names of the most important drugs.

The essay questions for the Tripos represented in general a good mixture of topics. Upon reflection I do have one issue with this year's paper. Whilst the essay question designated for medics was clear and straightforward (anti-hypertensive drugs), the question for vets was more obscure (chocolate consumption in dogs). I think there is much less that can be written for the latter than the former, and this was reflected in the take-up rate, with 211 medics answering their question and only 3 vets answering theirs. Thus the vets effectively had less choice in their essay answers than the medics. Whilst I should have spotted this in the draft papers, I would nevertheless urge staff to try to ensure that these particular pair of essay questions are comparable, with ideally a similar % of medics and vets answering the specialist question.

An area that I think needs further consideration is the continuing gap between medic and vet achievement (in all sections) on the MODA course. I have made this point previously. There may well be unavoidable factors to explain this, but I still think it should be a matter for continuing consideration and discussion within the department. The vet question on the essay paper did not help this year, and I noted that in the overall mark sheet the top vet had 28 medics above him/her.

Some smaller issues for consideration:

- Lack of annotation on exam scripts is not helpful for the external examiner. In Bristol we have to initial each page and write on comments, ticks for good points etc. This is also a good way for the marker to avoid “drift” whilst marking a large number of
scripts.

• For the practical paper, proper sectionisation of the questions with allocated marks may help the students to focus more easily. Whether the final part of the question is worth 2 marks or 6 marks (they have no way of knowing at present) may influence the time spent on that section by the student.
• In the essay paper, are students aware whether or not specific drug examples are required? Are these expected and will the students get extra marks for this? In some of the answers I looked at named drug examples were not given by the students. It needs to be made clear to the students in the lecture course that drug names are required/not required in essay answers. Of course this could also form part of the question, to make it clear e.g. “Using named drug examples, discuss how.....”.

Overall I am very happy with the content of the course, and with the associated assessment processes. As I said in last year’s report, at a time when at other institutions the important pharmacology content of medical and vet degree courses seems to be shrinking, it is very good to see that this appears not to be the case at Cambridge.

I would particularly highlight the following as outstanding aspects of the MODA course at Cambridge:

• The focus on pharmacological principles that underpin the clinical use of drugs (pharmacodynamics and pharmacokinetics)
• The significant practical content of the course
• The numeracy and data interpretation content of the course and exam (practical paper)
• Being up to date (e.g. the latest on important biologics)

The MODA course at Cambridge is a high quality Pharmacology course and the staff should be proud of their achievements in that respect.

Finally I would like to thank the Senior Examiner and other members of the Department of Pharmacology for their hospitality, courtesy and efficiency during my period as an external examiner at Cambridge.

Eamonn Kelly
Professor of Molecular Pharmacology
University of Bristol
13th June 2016
Mechanisms of Drug Action September 2016 sitting

SECOND EXAMINATION FOR THE DEGREE OF BACHELOR OF MEDICINE AND SURGERY
SECOND EXAMINATION FOR THE DEGREE OF BACHELOR OF VETERINARY MEDICINE
(MODA1 and MODA2)

For this exam there were two sets of exam papers that I was asked to look over; an MCQ paper and a Practical paper. I received the question papers in good time and had a few corrections and minor comments, which were promptly dealt with by the Senior Examiner.

The MCQ paper was an appropriate test of the Mechanisms of Drug Action, i.e. a comprehensive coverage of the basic scientific information a clinician needs to know about the drugs they will be prescribing. The Practical paper was composed of two questions, one covering basic receptor theory/mechanisms, and the other being a pharmacokinetics calculation question. These questions were well constructed, and tested the numerical and data handling skills of the students. Overall the exam was a fair test of knowledge and understanding of the subject, and the level of difficulty was in my opinion about the same as the May/June exam, as well as the exams in the previous years I have covered.

The Senior Examiner forwarded the marksheet to me following the exams and we subsequently discussed the marks by telephone. Of the candidates who took the exam, two medical students failed and one vet student failed. I am satisfied that these candidates clearly failed this exam, and that the other candidates who took the exam passed.

Overall I had no significant issues or concerns to report and was satisfied with the final outcome, and have approved the pass/fail list and the marksheet.

I would like to thank the Senior Examiner Dr Lesley MacVinish for her helpfulness and efficiency.

Eamonn Kelly
Professor of Molecular Pharmacology
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11th October 2016
Report from David MacEwan, Pharmacology external examiner 2016

- The extent to which standards are appropriate for the examination and the qualification.

The standards are consistent with other UK university Pharmacology degrees that I have taught and examined on, as well as acted as external examiner.

- The extent to which standards are comparable with similar programmes in other UK institutions with which you are familiar.

I have academic experience in Pharmacology teaching at five UK Universities and one US University. Moreover, I have acted as external examiner at three other UK institutions. In short, the academic standards and achievements of these students are indeed comparable to these other institutions.

- The extent to which processes for assessment, and the determination of awards were sound and fairly conducted.

The examination process I believe was fairly conducted and gave the candidates sufficient opportunity to show their knowledge and grade.

- Any good practice which you feel could be usefully identified for further dissemination.

Once again, I felt that the breadth of the Pharmacology topics tested was particularly wide and strong. There was ample opportunity for students to show their abilities across a wide range of related topics and subjects. The project reports that I read were also to a very high standard. The projects that I witnessed were to a very high standard too. Also, being able to viva the students is a positive experience for the student and examiner – the University of Cambridge should be commended for including a viva as part of the examining process.

- The examination design, structure and marking of the examination.

There was evidence of rigor among the exam marking that I witnessed. The opportunity for two independent blind markers across most exam material was particularly impressive to witness.

- The examination procedures for assessment, including the basis and rationale for any comparisons of standards made.

There were clear grading standards that were made known to the marking staff beforehand and to myself. In general, any exam material I read was clearly overall within the degree classification awarded by the Pharmacology exam committee. Where there was some uncertainty at the borders of two degree classifications, the candidates were invited for interview and orally examined by myself and the exam committee. These viva exams were conducted rigorously and fairly and there was good agreement among those present, after general discussion by all.

- The examination strengths and weaknesses of the students as a cohort.

The standard of students among this cohort that I inspected was of a strong average level, with the expected allocation of degree classifications that are similar to those from other institutions awarding undergraduate Pharmacology degrees.
• Whether your role is appropriate for the examination to which you were appointed, including whether or not you had sufficient access to any material needed to make the required judgements.

The Head of the level 3 tripos, Dr Robert Henderson, kept me informed of the process, expected timelines, expectations of the students and examining staff. The outcomes were for me, very satisfactory, and in line with the expected classifications that were supported by the exam board. Discussion and consensus of opinion was obtained satisfactorily.

• The course curriculum, its aims, content and development.

The course curriculum appears nicely balanced among the expected topics to be taught in Pharmacology, without biasing any one particular area. This is my second year as Pharmacology external examiner, and am satisfied with the aims of the course, it's content any examination process development.

• The course resources as they impact upon student performance.

The course resources are of good quality. Perhaps best among these is the communal tearoom space that the undergraduates share with staff. This is perfect for giving the student’s a feeling of belonging and helping their interaction with academic staff, to the benefit of their studies. There is a very apparent collegial feel between staff and students.

• The course quality of teaching and learning, which may be indicated by student performance.

Cambridge is at the very top in terms of student satisfaction, so others could learn from its practices. Similarly, the high number of intercalating medical and veterinary students ensures that the majority of the Pharmacology students are highly motivated and enthusiastic to learn and progress in their studies.