

## COMMITTEE OF MANAGEMENT FOR THE NATURAL SCIENCES TRIPOS

Unconfirmed minutes of a meeting of the Committee of Management for the Natural Sciences Tripos held at 2:00 pm on **Tuesday 9<sup>th</sup> October 2012** in the Todd–Hamied Room, Chemistry Department, Lensfield Road.

Present: Dr J Keeler (Chair), Dr M Aitken, Dr A Alexandrova, Dr P Barrie, Professor M Carpenter, Dr S Fulton, Dr D Good, Professor I Leslie, Mr V Oleinikovas, Dr R Padman, Professor D Ritchie, Dr N Rutter, Dr T Tiffert, Professor G Worster and Mrs E Oliver (Secretary).

Apologies: Mr G Cottiss, Professor H Griffiths, Professor Colin Hughes, Professor J Morton, Professor S Redfern.

### **651) MEMBERSHIP OF THE COMMITTEE**

Dr Keeler reminded the Committee that it was necessary to elect a Chairman. He was content to continue in this role and his continuation was unanimously supported. Introductions were made and new members welcomed. Several members would reach the end of their term in December and the Secretary would be contacting the nominating bodies.

**Action:** Secretary to contact the relevant Faculty Boards and Schools.

### **652) MINUTES**

The minutes of the meeting held on 1<sup>st</sup> May 2012 had been circulated and were approved.

### **653) MATTERS ARISING NOT ELSEWHERE ON THE AGENDA**

A summary sheet of action points and matters arising from the meeting of 1<sup>st</sup> May (**CM.786**) had been circulated.

#### **Minute 645 v.**

Open Day leaflets and posters had been reproduced for the Cambridge Open Days in July and the NST website had been updated.

#### **Minute 645 viii.**

The Interdisciplinary Notice had been published in the Reporter of 7<sup>th</sup> June 2012 and the guidance note and candidate lists had been circulated to Senior Examiners. Subjects had found this helpful and the same process would be repeated this year.

#### **Minute 645 xi.**

The Committee's comments on the Examination marking Software project had been forwarded to CARET.

#### **Minute 645 xii.**

Meeting dates for the Management Committee had been forwarded to the Diary Editor.

#### **Minute 646.**

The Course Organiser for Part IA Mathematical Biology had circulated details of the timetable change and the rationale to Directors of Studies ahead of the start of term. The change seems to have been well received although it is still too early to see the overall effect.

#### **Minute 647.**

The Committee's comments on the online Exam papers project had been forwarded to the Project Manager who had been appreciative of the contribution. It was understood that a project plan had been finalised and that development had started during the summer.

#### **Minute 648.**

The Committee's views on proposed changes to the Regulations for Preliminary Examinations had been forwarded to Educational & Student Policy. This would be discussed shortly by the Education Committee of the General Board and it was likely that a change to regulations for the Natural Sciences would be required.

## **654) REPORTED AND STRAIGHTFORWARD BUSINESS**

A paper of reported business had been circulated (**CM.787**). It included:

### **i. Physical Sciences Education Committee**

Minutes of the meeting of the Committee held on 8<sup>th</sup> May 2012 (**CM.788**).

Item 5.1. It was noted that the Physics Teaching Office had agreed to oversee arrangements for timetabling shared courses. As yet there had not been much traffic but there had still been some timetable changes close to the start of term.

### **ii. Faculty Board of Biology, Biological Sciences Committee (BSC)**

Minutes of the meeting of the Committee held on 10<sup>th</sup> May 2012 (**CM.789**).

Item 443. It was noted that the Faculty Board of Biology had approved a change to enable a divided second class to be used in MVST Part IA, and that discussion had taken place on whether NST Part IA should retain an undivided second class.

This had been referred by the BSC to the Physical Sciences Undergraduate Education Committee for their views and it was suggested that following that discussion a paper should be prepared for the Management Committee to consider.

### **iii. Changes to Regulations – Part II Psychology**

On behalf of the Committee, the Chairman had agreed a change to regulations for Part II Psychology with effect from October 2012.

The date of approval of the title of the dissertation by the Senior Examiner has been moved from the division of the Lent Term to the end of the Michaelmas Term, and the submission date of the dissertation has moved from the first Monday of Full Easter Term to the fifth Monday of Full Lent Term.

In the class list, the attachment of a mark (*cn*) to the name of a candidate who has offered four papers relating to the subject area Psychology (Cognitive Neuroscience) was no longer required and the third paragraph of Regulation 31 has therefore been removed.

### **iv. Examination Marking Software project – summary of progress to date**

CARET had supported the production of the overall spreadsheets for Part IA and Part IB examinations this year. They had investigated and mapped current processes for gathering and collating subject marks for Part IA and Part IB of the Tripos, and had surveyed Examiners and collected and anonymised marks data. A pilot system was being developed to check their understanding of the Tripos mark processing, including selected subject mark processing, and would be used to demonstrate that the same input data yields the same output data. A report would be prepared for the November meeting of the Committee. The Committee was keen to ensure that the project did not lose sight of its primary objective of support for the preparation of the overall spreadsheet.

### **v. Calculator Notice**

An updated Notice on the use of Electronic Calculators in University Examinations, which had been published in the Reporter of 3<sup>rd</sup> October, had been circulated (**CM.790**). It was noted that an issue had arisen during the 2012 examinations on a paper whose rubric made no reference to the use of calculators. It was agreed that a clear statement in the rubric of each paper, as to whether or not calculators were allowed, removed all doubt.

**vi. NST website and Course Costs 2012-13**

The NST website (<http://www.cam.ac.uk/about/natscitripis/>), including the programme specifications and subject summary, had been updated. A copy of the page which detailed additional course costs had been circulated for information (**CM.791**). The pages referring to Examinations and the Part II subject allocation procedure would be updated in due course.

**vii. Open Day 2012**

The Open Days on 5 and 6 July had been well attended. There were displays on all Part IA subjects in the central marquee and staff and current students had been present throughout the day. In addition, most departments had participated by offering tours, giving talks or providing additional displays.

**viii. Undergraduate Prospectus**

The Undergraduate Prospectus had been substantially revised for 2013 entry and would keep the same format for the 2014 edition. Departments had been asked to update their subject information; the revised version, which had been submitted for proofing, had been circulated (**CM.792**). The Committee approved the content.

**ix. Part IA Practical Allocation process**

The Part IA Practical Allocation process had run relatively smoothly and had incorporated various minor improvements. Nevertheless, the process had taken 16 hours and it was difficult to see how this could be reduced unless the deadline was brought forward. A full report, which would include individual subject numbers and student choice combinations, would be prepared for the November meeting.

**x. Part II and Part III Supervisions**

It was noted that the Senior Tutors' Committee were contacting NST Part II and Part III Course Organisers with a view to discussing supervision arrangements, particularly with regard to additional support from postdoctoral researchers.

**xi. Entry to Part III**

As agreed by the Committee, a combined list of all students continuing to Part III had been provided to the Student Registry by the June deadline. The process appeared to have been successful and would be used again this year with some minor improvements to cover students applying for more than one subject at Part III and additional guidance on late applications.

**xii. Code of Practice: Reasonable Adjustments for disabled students**

A copy of the Code of Practice had been circulated for information (**CM.793**). Following consultation during the Easter Term this document had now been implemented and published at <http://www.admin.cam.ac.uk/offices/education/support/index.html>.

It was recommended that subjects took note of the document which included information on alternative modes of assessment. This would be dealt with on a case-by-case basis if it were required and the document provided a useful reference.

**xiii. Key Information Sets**

Key Information Sets (KIS), the comparable sets of information about full or part-time undergraduate courses had now been published on the Unistats website. Data for NST was at: [http://unistats.direct.gov.uk/subjects/overview/10007788-UG\\_NSTX\\_KIS](http://unistats.direct.gov.uk/subjects/overview/10007788-UG_NSTX_KIS)

In addition to course information, it included information on the student satisfaction survey, future employment prospects including salary data, accommodation costs, tuition-fees and

students' union feedback. A link from the University's webpage to the Unistats site would be in place by the end of October.

#### **xiv. QAA Review March 2013**

A letter from Professor Rallison, Pro-Vice-Chancellor for Education had been circulated (**CM.794**), together with a briefing note. This was for information only at this point but at a later stage supporting documentation might be requested and academic colleagues might be asked to meet the review team during their visit.

#### **655) SCIENTIFIC COMPUTING IN PART IA**

A paper had been circulated which included notes from a review meeting held on 9<sup>th</sup> May 2012, an email from Dr Andrew Jardine and discussion of changes to the course format dated 5<sup>th</sup> September, and a copy of the email sent to Directors of Studies on 5<sup>th</sup> October 2012 (**CM795**). The Committee noted that student feedback had been more positive in 2011-12 compared to the previous year and that various improvements had been made for 2012-13. Initial plans had been over-ambitious given the wide range of computation skills of students taking Part IA Mathematics. Practical sessions had proved very useful and the current version of the course was close to converging on a sustainable process.

#### **656) MATHEMATICS TEACHING IN THE NATURAL SCIENCES TRIPOS**

Following issues raised in the Learning and Teaching Reviews in the Department of Physics and Faculty of Mathematics, the General Board's Education Committee had referred the matter to the Management Committee and had recommended that an external member should be included in any working party. A paper to inform discussion on the way forward had been circulated (**CM796**). It included the letter from Educational & Student Policy, the relevant extracts from each review report, from the Departmental and Faculty responses and from the Education Committee's minutes. The members of the Committee representing Physics and Mathematics were invited to comment.

Professor Ritchie, representing Physics, reported that lecturing staff sometimes found that there were gaps in the students' mathematical knowledge and that the teaching style was not always well suited to the physical science students. There was a feeling also that some lecturers had not been as experienced as might have been expected. The Physics Department would also like access to student feedback.

Professor Worster, representing Mathematics, felt that there was little of substance on specific issues reported in the reviews and that it should be possible to work together to improve the course through the committees that were already in place, such as the NST Syllabus Committee. If Physics had concerns regarding the material, this should be relayed to this Committee which kept the teaching of NST Maths under continual review. The matter of teaching style had been raised before and was not thought to be significant. All lecturers were peer reviewed and feedback from the lectures was reviewed by committees in the Department. There was variability in experience, which included lecturers from other Departments, and where necessary this was addressed. It was felt that the recommendation from the General Board was rather imprecise and contained generalised statements rather than a clear statement that a working party was needed and that existing structures were lacking.

Other subjects, present commented. Dr Rutter, on behalf of Materials Science, did not have any concerns; Dr Barrie, on behalf of Chemical Engineering, noted the variability of Mathematics teaching in schools which could be a contributing factor. His department had approximately 40 students each year taking Natural Sciences subjects and, although this had not been done in the past, he felt that any issues could be addressed by approaching the NST

Syllabus Committee. Dr Keeler reported that Chemistry drew lightly on the mathematical content as their requirement was less. They encountered the perpetual problem that the students lacked 'facility' and confidence. Although revision or remedial work was made available to incoming students during the summer, there seemed to be a mismatch between the expectation of mathematics level of those entering NST and the work they encountered in IA Maths. The colleges then had to meet the costs of additional supervisions. Dr Good, representing the biological sciences, felt that the situation for Biology was slightly different in that biological subjects were requiring an increasingly greater understanding of mathematical and computational techniques, and that therefore the teaching of mathematics to biological science students was constantly evolving.

Dr Aitken queried whether Mathematics A level should be made a requirement at entry. The current numbers entering without A level were small (c40) and often these students underperformed in their final year. Raising the entry requirement, however, would not help access.

Consideration of opening up Mathematics in the second year to those who had taken Mathematical Biology was mooted but had not found favour in the previous review. Following the last review of Mathematics in NST, some changes had taken place: example sessions had been introduced and the 'A' section of the Tripos papers on key skills and fluency, had been included.

The Committee needed to decide whether a review was needed or whether robust discussion within existing mechanisms would suffice. Physics felt that what was required was a solution to the problem and that the process was less important. For the current mechanisms to be effective, it would require the NST Syllabus Committee, under its new Chairman, Professor Worster, to meet regularly and to invite agenda items from relevant subjects.

Dr Padman felt that the Committee was in danger of losing the opportunity of a comprehensive review which would benefit not only Physics but biological sciences subjects and Chemistry as well. If the NST Management Committee were to recommend a review it would encourage a holistic perspective. This would not be addressed by a piecemeal approach which would only defer the problem. In any review, careful consideration would need to be given to the topics to be covered.

After further discussion, it was felt that Professor Worster should convene the NST Syllabus Committee in the near future and ensure that items were invited from interested parties; an active membership was needed for this committee which could discuss short term issues in a small group forum.

**Action:** Professor Worster to convene the NST Syllabus Committee.

A wider review would take longer but suggestions should be put forward to see what shape such a review might take. It was suggested that Mathematics A and Mathematics B should be looked at in the short term, and that the message to the Directors of Studies may need reviewing. It was thought that a member of staff from Engineering would make an appropriate Chairman for a review.

**Action:** Dr Keeler to invite suggestions for participants and topics for discussion.

## **657) PART II SUBJECT ALLOCATION AND MATERIALS SCIENCE**

In the light of increasing numbers taking Materials Science, the Department might need to run a competitive entry process in 2012/13 for those considering Part II Materials Science in October

2013. The Committee was asked to consider the implications of such a change. The Part II Subject Allocation process includes all subjects but previously physical science subjects either had unlimited places or had never reached their maximum capacity. The last few years had seen a marked drift towards physical science subjects in the first year which was now beginning to impact on laboratory capacity, supervisions, and project supervisors in subsequent years. Physics also has a large IB cohort and would be discussing what measures may need to be taken at their next Teaching Committee. Based on previous conversion rates, Materials Science were concerned that numbers would exceed capacity in October 2013. There was some concern that, for some subjects, a move to a dissertation-style option in the physical sciences might affect accreditation. It was agreed that a watching brief needed to be kept and due consideration given when updating the student guidance which was published early in the Lent Term.

**Action:** Professor Ritchie to report back on the discussion of the Physics Teaching Committee.

#### **658) ANY OTHER BUSINESS**

In connection with the previous item, the Chair raised the issue of gender balance in the Tripos and noted that there seemed to be a slight drop in the percentage of females taking Chemistry. Other subjects thought the balance was stable. The Chair agreed to pursue this with the Cambridge Admissions Office.

**Action:** Dr Keeler to contact Dr Beard.

A query was raised regarding central lecture theatres and plans for refurbishment. The Secretary agreed to contact the Student Registry.

**Action:** Secretary to contact the Student Registry.

#### **659) DATE OF NEXT MEETING**

The next meeting would take place at 2:00 pm on Tuesday, 20th November 2012, Todd Hamied Room, Ground Floor, Department of Chemistry.