College of Science and Engineering  
College Learning and Teaching Committee  

Meeting to be held on **Tuesday 20th November at 2.00 pm**  
in the **Old Faculty Meeting Room, Kings Buildings**  

*(The Old Faculty Building is the single story building opposite the multi-storey car park near Gate 1. The entrance is opposite the entrance to the car park.)*

1. **APOLOGIES**

2. **MINUTES OF PREVIOUS MEETING**

   To approve: draft Minutes of the meeting of 23 October 2007 *(Paper A)*

   **Matters Arising**

   To **consider**: matters arising from the Minutes

3. **REPORT ON LEARNING AND TEACHING STRATEGY PROJECT**

   To **receive**: an oral report from Daniela Gachago (E-Learning Advisor) on current status and future activities, particularly the links with personal development planning.

4. **TEACHABILITY**

   To receive: A background note on Teachability *(Paper B)*

   To **consider**: Action Reports from Schools *(Paper C1 - C7 - to follow)*

5. **COURSEWORK STICKERS FOR STUDENTS WITH SPECIFIC LEARNING DIFFICULTIES**

   To report: Directors of Teaching should draw the attention of markers to the purpose of coursework stickers for students with specific learning difficulties. The marker should not adjust the marks because of the presence of a coursework sticker. A paper outlining the policy can be found at: [http://www.aaps.ed.ac.uk/Committees/Senate/ugsc/20072008/20070926/PaperMCourseworkStickers.pdf](http://www.aaps.ed.ac.uk/Committees/Senate/ugsc/20072008/20070926/PaperMCourseworkStickers.pdf)

6. **STRUCTURE OF BOARDS OF EXAMINERS**

   To **consider**: Assessment Administration Working Group Guidance *(Paper D1)*  
   College Proposals for Implementation *(Paper D2 – to follow)*

7. **SPECIAL CIRCUMSTANCES**

   To **discuss**: A paper from the Convenor *(Paper E – to follow)*

8. **CHANGES TO COLLEGE ORDINARY DEGREE REGULATIONS**

   To **consider**: proposals to amend College UG Regulations for Ordinary Degrees in Designated Disciplines *(Paper F)*
9. **NEW COURSES**

   **To Note** the following new course was approved by Nick Hulton on Convenor's action: (U03889) Sustainable Energy Group Design Project

   **To consider:** Courses to be approved: (Paper G)

10. **NEW PROGRAMMES**

    **To consider:** a new MSc in Carbon Management from the School of GeoSciences (Paper H - to follow)

11. **CONCESSIONS**

    **To consider:** reports from School representatives on the operation at School level of procedures for the award of concessions (for undergraduate and taught postgraduate students).

    [http://www.scieng.ed.ac.uk/Admin/Temp/Concessions.asp](http://www.scieng.ed.ac.uk/Admin/Temp/Concessions.asp)

12. **OFF CAMPUS EXAMINING POLICY**

    **To consider:** a proposal from Dr Stuart Anderson (Paper I – to follow)

13. **EUCLID**

    **To receive:** an oral report on relevant activities.

14. **Convenor’s Report**

    **To receive** An oral report from the Convenor of arising issues.

15. **ANY OTHER COMPETENT BUSINESS**

16. **DATE OF NEXT MEETING**

    Tuesday 22 January at 2.00 p.m. in the Hodgson Room, Weir Building
College of Science and Engineering
College Learning and Teaching Committee

Minutes of meeting held on Tuesday 23rd October

Present: Dr N Hulton Convenor
Dr S Anderson School of Informatics
Prof J Ansell Undergraduate Dean, HSS
Dr S Bates School of Physics
Dr J Bond School of Biology
Dr T Bruce School of Engineering
Dr J Byatt-Smith School of Mathematics
Dr A Dugmore School of Geosciences (in place of Dr S Rigby)
Prof R Fisher PGT Adviser
Dr J Martin Deputy Head of College
Mr S McFadden Student Representative (UG)
Dr M Paton School of Chemistry
Dr D Williams Head of Academic Affairs
Ms L Burns Minutes Secretary

1. Remit and Membership

Noted:

i) The Convenor welcomed members to the first meeting of the College Learning and Teaching Committee;

ii) Distribution of papers will be improved for future meetings;

iii) Apologies were received from Ms L Henderson (Academic Affairs Officer), Dr S Rigby (GeoSciences) and Mr S Martin (Student Representative PG).

Considered:
The remit of the Committee (Paper A).

Resolved:
Reference should be made to responsibility for quality enhancement in the remit of the Committee.

Note: This revision has been incorporated into Paper A

2. Minutes of previous meetings of related committees

Considered:
i) The minutes of the meeting of the College Undergraduate Studies Committee held on 15th May 2007;
ii) The minutes of the meeting of the College Postgraduate Studies Committee held on 22nd June 2007.

2.1 Matters Arising

Noted:

i) Teachability (item 6 from the minutes of the CUGSC) will be raised at the next meeting of the L&T Committee members should give this matter some consideration before then.

ii) The subject of TEAM Testing (item 121 from the minutes of the CPGSC) was being reviewed by the Secretariat and proposals would come to a future meeting of the L&T Committee.
3. Report on the Learning and Teaching Strategy Project

Note: Ms S McConnell, the Learning and Teaching Strategy Project Officer, attended for this item

Received:
An overview of the Learning & Teaching Strategy Report from the Project Officer, a copy of the associated paper is filed with these minutes.

Noted: The following points were noted in discussion:

• It would be of benefit to involve and encourage administrative staff as much as possible in this issue;
• The activities could be promoted more effectively, paying particular attention to those people and groups who were historically less enthusiastic;
• There should be a focus on years 1 and 2 so that the strategy was embedded effectively in these years – this will assist the rollout to honours years;
• In addition to the activities in the 1st year of this project there should be a clear 3-5 year ‘road map’ for the future development of the strategy;
• It is important to consider the sustainability issue and how this can be distributed over the time-scale of the project, both in terms of the level of current support given to the course teams and also resourcing in a steady-state

4. Exam scripts feedback

Received:
(i) Written reports from the Schools of GeoSciences, Mathematics; Physics (Paper B); and Chemistry (filed with the Minutes)
(ii) Oral reports from the Schools of Biological Sciences and Informatics

Noted: The following points were noted in discussion:

• At previous meetings it was noted that all Schools offer opportunities for students in years 1 and 2 to see their exam scripts. Schools had been encouraged to trial and develop individual models;
• All Schools allow students to see scripts on demand, but there appeared to be a very low take-up of students wishing to take advantage of these opportunities. Such opportunities are publicised within each School, but not all Schools incorporate such publicity in their Course Guides;
• Some students do not appear to appreciate the benefit of feedback as an opportunity to reflect on their understanding, rather than just their mark, and that further progress could be made in this area;
• Oral feedback or tutorials are sometimes not recognised by students as being ‘proper feedback’;
• There is good practice within the College, differing in the mechanisms and format of feedback: e.g.
  - audio feedback (e.g. Physics, Biological Sciences);
  - electronic feedback on essays (Biological Sciences);
  - whole class “post-mortem” sessions to provide formative feedback (e.g. Chemistry)
  - enhanced formative commentary on scripts (for the benefit of External Examiners and students, e.g. GeoSciences).

Resolved:
  i) Schools should wherever possible advertise the benefits of feedback on scripts;
  ii) EUSA should be encouraged to convey the developmental benefits of feedback to students;
  ii) Information on feedback opportunities should be incorporated into the Course Guides for next year.

5. Convenor’s report

Noted:

i) The Convenor wished to pass on his congratulations to Dr John Martin for his success with the JCMB studio. Dr Martin thanked the Convenor and suggested that credit for this project should be also be extended to the Audio Visual Technology Section.

ii) Congratulations were extended to Mechanical Engineering for the encouraging signs for the outcome of the TPR.
iii) John Cooke had given a briefing to Committee members on 3rd October concerning the EUCLID activities and plans for the Assessment stream. Consultation meetings with Schools had not yet taken place.

iv) Calls for proposals to the Principal’s Teaching Awards Scheme have been issued, with a closing date of 17th December. Schools are encouraged to participate in the scheme. The Convenor indicated that he is developing a bid on standardised approaches to clicker questions, as part of the Learning and Teaching Strategy. A Workshop on this Scheme would be taking place on Tuesday 30th – details of which can be obtained through the TLA website.

v) The Convenor had, in his new role as Dean of Learning and Teaching, been meeting with all TO Administrators, School Administrators and members of the Committee. This is to give the opportunity for Schools to raise any issues or areas of concern throughout the academic year.

Resolved:

i) The Convenor should write to John Power to congratulate him in his involvement in the successful JCMB studio project. ACTION : NH

ii) The Convenor should contact John Cooke to establish a time-scale for the expected school visits. Secretary’s note: John Cooke’s reply has indicated that he will be contacting Schools shortly about consultations on requirements.

6. Feedback from students

6.1 Taught Postgraduate questionnaire

Considered:
Results from the Taught Postgraduate questionnaire (Paper C1).

Noted:
Although the overall response rate was low, the level of overall satisfaction with the College of Science and Engineering was very encouraging. It was noted with disappointment that three specific areas had lower levels of satisfaction: accommodation issues; academic support; and training and development needs. The first two issues are being addressed at University level.

Resolved:
There should be a discussion on training and development needs of PGT students at the next meeting of the Committee.

6.2 National Student Survey (NSS)

Considered:
(i) List of NSS questions (Paper C2)
(ii) Initial analysis by School of questions 1-9, 22, prepared by the Secretariat (Paper C3)
(iii) Commentary from the Convenor on the assessment and feedback aspects, including draft guidelines to Schools on short-term actions to address feedback issues (Paper C4)
Noted:
- The results were similar in that, although there was a high overall level of satisfaction, specific sections revealed weaknesses, particularly in the area of student feedback (questions 7-9);
- There may be contributing factors towards the weakness with feedback:
  - the timing of the questionnaire in February may be at a time when students are particularly stressed and this is reflected in their answers;
  - students may not always be aware when they are receiving feedback (e.g. in the form of tutorials or problem sessions);
  - the timeliness of feedback from a small minority of examiners could be improved.

Resolved:

(i) The draft guidelines to Schools on short-term actions to address feedback issues should be approved, with the incorporation of the following points:
- any documents issued to students which could be regarded as feedback should be clearly marked “Feedback”;
- Schools should look at their own procedures for issuing feedback and their turn-around period;
- School staff / student liaison meetings should include feedback as a specific issue on agendas;

Note: These revisions have been incorporated into a revised document Paper C4–GuidanceforSchools.

(ii) The Convenor should send the revised guidelines to Heads of Schools for implementation.

7. Concessions

Received:
Oral reports from Schools on any general principle of University-wide significance in concessions approved within the devolved structure, i.e. at School or College level.

Noted:
It was hoped that the new EUCLID system would make concessions easier to administer and involve less paperwork.

Resolved:
There were no specific issues raised regarding concessions that would require amendments to College or University regulations or policies.

8. New courses

Considered:
New courses from the Schools of GeoSciences and Mathematics (Paper D1)

Received:
A list of courses approved by the Convenor on behalf of the Committee during the summer (Paper D2)

Resolved
All the new courses are compliant with the Curriculum Project Framework and should be approved.

9. New programmes

MSc/Dip in Structural and Fire Safety Engineering

Considered:
A new programme: MSc in Fire Safety Engineering (Paper E), proposed by the School of Engineering and Electronics
Noted:
The programme builds upon a successful undergraduate degree in this area of strength of the School, and is compliant with the Curriculum Project Framework.

Resolved:
The new programme should be approved.

MSc/Dip in Electronics: Analogue Systems Design

Considered:
A new programme: MSc in Electronics: Analogue Systems Design proposed by the School of Engineering and Electronics. (Paper F1: programme specification; Paper F2: extract from business plan; Paper F3: list of associated courses for approval)
Note: It is not a requirement that Schools submit a business plan to the Committee.

Noted:
The programme is in an area of strong industrial demand and has good industrial collaboration. It compliant with the Curriculum Project Framework.

Resolved:
The new programme and the associated new courses should be approved.

MEng in Electronics and Electrical Engineering (Communications)

Considered:
A new programme: MEng: Electronics and Electrical Engineering (Communications), proposed by the School of Engineering and Electronics. (Paper G1: summary and list of new courses; Paper G2 programme specification),

Noted:
The programme complements the existing BEng degree and completes this suite of BEng / MEng degrees in this area of strength of the School. It is compliant with the Curriculum Project Framework.

Resolved:
The new programme and the associated two new courses should be approved.

10. MSc in System Level Integration - revised College Regulations

Considered:
Revised College regulations for this joint, collaborative programme, incorporating revisions to the list of optional courses (Paper H1: regulations; Paper H2: DPTs).

Resolved:
The proposed revisions should be approved.

11. Boards of Examiners - roles

Considered:
Draft guidance from the Assessment Administration Working Group on the operation of Boards of Examiners, covering the roles of Convener, External Examiner, Members and Secretary. (Paper I)
Noted:

Para 1.2.3
• Reference to the week of the Semester should not preclude the possibility of meetings being held outside of normal Semester times.
• It may not always be possible to specify the actual date two years in advance.

Para 3.2.2
• Members favoured wording that “it is highly desirable... that all members”

Resolved:
Members should send any further comments to david.williams@ed.ac.uk by 30 October 2007.

12. Academic Affairs Office - contacts

Received:
Contact details for the Academic Affairs Office (Paper J).

13. Any Other Competent Business
There was no other competent business

14. Date of next meeting
The next meeting will take place on 20th November 2007 at 2.00 p.m. in the Old Faculty Building.
College of Science and Engineering

Teachability

The report of the College Teachability Working Group went to the College Undergraduate Studies Committee on 15 May. The paper can be found at: http://www.undergrad.scieng.ed.ac.uk/docs/open/15057F.pdf

The Committee accepted all the proposals, i.e.

(i) Schools should produce and implement an action plan for:
   - addressing those areas where the School is not fully meeting obligations under the DDA in terms of anticipatory adjustments in examinations and assessments;
   - dissemination of good practice (including identification of any areas where this may be facilitated by a College-level workshop or similar event.)

(ii) The action plans should be presented to CUGSC (now CL&TC) in Semester 1 of 2007/08, together with timescales and progress to date.

(iii) The Teachability theme for 2007/08 should be “Creating accessible course or programme design and structure for disabled students” which will incorporate consideration of competence standards.

The College Learning and teaching Committee will consider the Action Plans from each School at its meeting on 20 November. These Action Plans will be based on the self-review undertaken by each School, as presented to the College Teachability Working Group.

A further meeting of the College Teachability Working Group is to be arranged to consider the form of School self-review of the course design / competences theme for 2007/08.

DMW
College of Science and Engineering

School of MATHEMATICS

Teachability theme: Creating accessible examinations and assessments for disabled students

Action plan: November 2007

The School can confirm that the outcome of the earlier self-review is still valid. Further actions have been taken on two aspects: on marking; and on feedback. These are summarised below.

<table>
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<tr>
<th>Statements</th>
<th>Comments</th>
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<tr>
<td>The nature of marking criteria are kept under regular review: such matters as the importance of spelling, grammar, the ability to calculate, and the ability to remember dates and constants are collectively evaluated by the staff including part-time staff and teaching assistants.</td>
<td>Procedures within the School have been reviewed to ensure that all tutorial assessment and exams have clear marking schemes and marking instructions. This is to help with uniformity of marking and with feedback. Also each question, whether it is a tutorial assessment or exam question, is allotted a certain number of marks and this information is made clear to the students. Feedback from students indicates that this appears to be working well. Further, if a student, by reason of an impairment, is unable to show evidence or relative attainment or performance, we can add to the facilities we offer. There are occasions where we can offer a scribe. This is sometimes the only way a student who is used to submitting his answer to an examination paper by typing his exam script can submit answers to a mathematical exam.</td>
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<tr>
<td>Assessment feedback to students is accessible to all our students, both in terms of content and format.</td>
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**School of Physics**

**Teachability theme: Creating accessible examinations and assessments for disabled students**

**Action Plan – Status November 2007**

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<tr>
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<tr>
<td>Staff are consciously aware of, and in agreement about, what aspects of student attainment or performance they are trying to assess.</td>
<td>This is achieved via the learning outcomes (LOs). There are LOs associated with each programme and course offered by the School. Although minor revisions to LOs are inevitable, for example when there are changes to the course lecturers, significant changes, particularly those impinging on other courses, must be approved by the School Board of Studies. This level of formality is not intended to be cumbersome or heavy handed, but rather a means of protecting against unforeseen consequences of uncontrolled changes; in particular to ensure that the programme LOs are related to the appropriate course LOs.</td>
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<tr>
<td>Students are aware of the aspects of attainment or performance which are the subject of assessment.</td>
<td>Again, the LOs are key. LOs for each course are available to students via DRPS. In addition, they should be given prominence in the Programme and Course Information Booklets, together with a paragraph explaining their purpose i.e. that they are summaries which define the nature and level of courses, assist students in choosing courses and allow them to assess effectively their own progress. In practice, this is implemented somewhat patchily at present. Not all of our Course Booklets include LOs; some simply include a summary of the aims and objectives of the course. <strong>Ongoing Actions:</strong> Ask Course Organisers to review the LOs for their course. A suitable opportunity might be at the same time as checking pre-requisites in preparation for migration to EUCLID.</td>
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</table>
The nature of marking criteria are kept under regular review: such matters as the importance of spelling, grammar, the ability to calculate, and the ability to remember dates and constants are collectively evaluated by the staff including part-time staff and teaching assistants.

Course monitoring meetings (CMMs) are held annually for each course. The CMM considers feedback from students/teaching staff, assessment results, External Examiner comments etc. We do not explicitly require marking criteria to be discussed at the CMM, although this would be an ideal time for such a review. We anticipate that the generic exam feedback form that has been introduced this session (see below) will facilitate this process and help to highlight any problems.

At present, we do not explicitly consider the likely needs of disabled students at the CMM.

A small number of students require formula sheets to be provided in exams. This may require a significant amount of effort by the course lecturer(s), often at short notice – this requirement is not always stated explicitly on the student’s learning profile. However, it should be largely a “one-off” exercise, as sheets can generally be re-used in future years. The process is also simplified somewhat where course material is contained the Physics content management system (“Aardvark”).

On balance, we do not feel that it would be appropriate to put in place an anticipatory adjustment by providing formula sheets for all students, whether or not they are disabled.

**Actions:**
The exam feedback form has been introduced across all UG examinations. Initial feedback suggests that this is indeed working as intended, and is useful for both students and staff.

**Ongoing Actions:**
Ask Course Organisers to include review of marking criteria at CMM.
Provide exam setters/checker with summary of agreed adjustments for that course (As suggested in item 5 of Teachability paper presented to CUGSE 15th May 2007)
Policies concerning electronic aids to spelling, grammar and calculation in examinations are kept under regular review.

Examination setting and checking procedures require staff to state whether calculators and/or constant sheets are allowed for each exam. The School does not have an explicit policy on the provision of electronic aids to spelling and grammar. Normal practice is that exam scripts are handwritten and we rely on the provision put in place by Registry for students who have a learning profile and who require special arrangements for exams. Take up of coursework stickers by students with specific learning difficulties has been low. The reasons for this are not clear; possibly it is because students don’t want to be identified to their classmates? However, stickers are not really needed, as the Teaching Office (who maintain updated lists for every course of all students with a learning profile) include a list in coursework marking folders of all students where the marking of the work could be affected. That means, for instance, that individual markers are informed about issues such as dyslexia, but not about whether students need extra time in exams.

**Actions:**

Student assignments (especially in the early years) are usually marked by different markers each week, hence it is possible that students whose Learning Profiles are not providing appropriate support could remain undetected. To address this, we plan to implement a system (starting in semester 2 07/08) to monitor instances where there is “cause for concern” and alert Course Organisers and the CoA. Students who are consistently causing concern will be advised to contact the Disability Office if appropriate so that their Learning Profile can be reviewed.

Where a student is unable by reason of an impairment to show evidence of relevant attainment or performance in the standard way, alternative arrangements are put in place if it is possible to do so.

Course organisers are alerted to specific requirements related to assessment for students with a learning profile by the CoA. Requests for additional/alternative assessment arrangements are relatively uncommon; when they arise they are considered on a case-by-case basis by the Course Organiser and CoA in consultation with the Director of Teaching and the Disability Office.
<table>
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<th>The flexibility referred to above is available in terms of deadlines and timetabling of assessments.</th>
<th>In the past, the most common issue was exam timetabling clashes where students should not be asked to sit two exams in a single day. However, since the new exam timetabling arrangements came into operation this year, we have had no cases of disabled students having two exams on one day or, where relevant, two consecutive days – although there has been a large concentration of exams for some students. It is also worth noting that we are generous regarding hand in deadlines for disabled students should they request an extension.</th>
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<td>Alternative assessment arrangements as referred to above are well controlled to ensure consistency and fairness, vis-à-vis both the students taking them and other students.</td>
<td>As mentioned above, most cases are covered by the well-established University-wide procedures. Exceptional cases require a discussion involving the CoA, DoT and Disability Office in order to ensure both fairness and equivalence.</td>
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<tr>
<td>Assessment feedback to students is accessible to all our students, both in terms of content and format.</td>
<td>Starting from 2006/07, generic examination feedback is provided for all courses. This provides examples of what went well and what was done badly. It forms part of the marking process, and is carried out immediately following marking of exam scripts. The feedback sheet is made available to students via WebCT or the School course information portal. This feedback is also seen as being useful for External Examiners, course monitoring and for teaching the course in subsequent years. Some courses post weekly assignment feedback on WebCT homepages. These are generally only issued electronically, but can be in other forms if needed. Feedback on Honours projects is provided by means of a two page form, one side for confidential information used in Boards of Examiners, and the second page made available to the student. The agreed (provisional) grade is included in the feedback form together with marker’s comments. Each student receives 2 feedback forms, one from the supervisor and one from the second marker (who is identified by name).</td>
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Those responsible for our examinations and assessment appeals are well versed in the ways in which procedures may need to be adjusted in acknowledgement of the needs of some disabled students.

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<tr>
<th>There are procedures for the consideration of course assessment methods at the course approval stage.</th>
<th>Course assessment methods and weightings are required for course approval via CCAMS. Although assessment by examination continues to be the norm for most courses, the School Teaching Management Group is keen to encourage Course Organisers who wish to consider alternative assessment mechanisms and TMG will shortly be convening a “task force” to consider assessment breadth across the School. <strong>Actions:</strong> A task force on “Methods and Combinations of Assessment” has been convened with the remit to: - Build on data collected by the TLA Centre on methods and combinations of assessment used in the undergraduate programme; and - Deliver a summary of the assessment landscape within the School, with a commentary on breadth, variability and consistency. The findings of this task force have been reported to the Teaching Management Group and the School Board of Studies, and possible future courses of action are currently under discussion within the School.</th>
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<tr>
<td>There is contingency provision for students with sudden illness which may be regarded as a temporary disability (e.g. a severe migraine).</td>
<td>Specific issues such as this would normally be raised as special circumstances.</td>
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<tr>
<td>It might be instructive to compare assessment marks for disabled and non-disabled students. This may help to identify any problems with assessment-related adjustments.</td>
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Models for Boards of Examiners

This paper sets out the thoughts of the phase 1 Working Group on models for Boards of Examiners. General Principles 3 and 5 refer to models for Boards:

- Principle 3: ‘...the University aims to have an efficient system of Boards of Examiners, avoiding duplication of effort and underpinned by appropriate structural models.’
- Principle 5: ‘Working within the scope of agreed models and accompanying guidance, Schools will structure Boards of Examiners according to their own requirements. Changes to former models for Boards should ensure adequate input relating to small academic disciplines.

General
A further principle to bear in mind when considering possible models for Boards of Examiners is that of the groups that could reasonably come together to ensure consistency of treatment of students (academic rationale) and reduction in duplication of procedures (administrative rationale).

Course Boards
How to decrease the current number of course Boards, and still maintain academic integrity of the process? One possibility is to map pre-Honours courses onto programmes wherever possible, but some courses do not have an owning programme.

Programme Boards
1. A single departmental Board at each level, equivalent to having a Board at School level for undergraduate students and at Graduate School for taught postgraduate students.

2. In its composition a Board, should be have access to all necessary skills required in exercising oversight of the assessment process. It does not need to be constituted so as to cover every different skill base/subject expertise

3. All Single Honours Boards meet in the morning (by School?), and include in their consideration marks required for Joint Honours classification. A single Joint Honours Board for a collection of programmes (by owning School?/groups of Schools with a large number of joint programmes in common?) meets in the afternoon, with one representative from each Single Honours Board. The School owning the programmes would be responsible for all aspects of the Board’s administration.

4. The Convener of the second discipline in the joint degree represents the single Honours Board on the joint Board.

5. Two or three representatives of each Board (those with substantial teaching input), plus the external examiners, meet with other representatives of joint programmes after each discipline’s main Board.

6. It is recognised that arrangements for joint Boards can be difficult, but the move to setting dates of Board meetings well in advance will go some way to offsetting this.

7. How to deal with borderline cases in amalgamated Boards?
Structure of Exam Boards in CSE:

For Discussion: Please refer to the two appended papers (ii and iii):

Part i

ii) ‘Models for Boards of Examiners.’
This paper is one prepared by the Assessment Administration Working Group (AAWG) to consider models for exam boards within particular programme groupings. Please note the first two principles, i.e., that we should aim to operate boards efficiently but is Schools that will structure boards.

iii) A paper prepared by David Williams that summarises current practice in the structure of Boards within Schools in CSE.

Task:
The College has been asked to review its current practices and put forward potential models that it might work to. I would like to discuss the extent to which we could identify ‘models’ that we might agree to subscribe to in common.

Preliminary discussion
One possibility would be to say ‘carry on as normal’. Another route is to attempt to modify boards such that we gain some benefits of operating on commonly agreed patterns. Here are some potential models; I define ‘Programme Group’ as a single Programme or group of Programmes and the component courses for which the group is responsible.

A: Within any given Programme Group there is single integrated Board that considers all Honours and pre-Honours years and their component courses

B: Within a given Programme Group, one board considers pre-Honours courses, and there is another Board that considers both Honours years together. It would be possible to combine pre-Honours boards such that, e.g., a School might have a single board for all pre-Honours course.

C: Within a given Programme Group, there are separate pre-Honours, Junior Honours and Honours boards. Once more, it might be possible to have integrated Boards across Schools at the pre- and Junior Honours levels.

Note that within each of these models I have not left space for ‘single course boards’. I would need to be persuaded that these can be efficient or beneficial. The benefits of the grouping e.g. pre-Honours courses within a School is that it gives good ‘look across’ for practices and standards where students might typically encounter a number of Y1 and Y2 course within a given Programme Group. The advantage of a ‘vertical integration’ along the lines of model ‘A’ is that it helps in considering progression through Programmes. Clearly, if boards become too large it is difficult to manage them physically or give sufficiently detailed consideration to each board.
Part i: AAWG working paper G: Models for Boards of Examiners

This paper sets out the thoughts of the phase 1 Working Group on models for Boards of Examiners. General Principles 3 and 5 refer to models for Boards:

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1. A single departmental Board at each level, equivalent to having a Board at School level for undergraduate students and at Graduate School for taught postgraduate students.

2. In its composition a Board, should be have access to all necessary skills required in exercising oversight of the assessment process. It does not need to be constituted so as to cover every different skill base/subject expertise

3. All Single Honours Boards meet in the morning (by School?), and include in their consideration marks required for Joint Honours classification. A single Joint Honours Board for a collection of programmes (by owning School?/groups of Schools with a large number of joint programmes in common?) meets in the afternoon, with one representative from each Single Honours Board. The School owning the programmes would be responsible for all aspects of the Board’s administration.

4. The Convener of the second discipline in the joint degree represents the single Honours Board on the joint Board.

5. Two or three representatives of each Board (those with substantial teaching input), plus the external examiners, meet with other representatives of joint programmes after each discipline’s main Board.

6. It is recognised that arrangements for joint Boards can be difficult, but the move to setting dates of Board meetings well in advance will go some way to offsetting this.

7. How to deal with borderline cases in amalgamated Boards?
Part iii
Summary of Exam Board Structures in CSE:

Biological Sciences
Moving to 1 JH Board and 2 Honours Boards
Separate Boards for each of 2 MSc programmes

Chemistry
Board for all single Honours Chemistry
Board for Chemical Physics

Engineering and Electronics
Hons Board Chemical Engineering
Hons Board Civil Engineering
Hons Board Electronics and Electrical Engineering
Hons Board Mechanical Engineering
MSc programmes?

GeoSciences
Changing Board remits?

Informatics
AI and Maths / Comp Sci and Maths Honours
AI and with Psychology Honours
Comp Sci and Electronics / Electronics and SE
Comp Sci and Management
Comp Sci and Physics
MSc Board

Mathematics
Maths
Maths and Stats
AI and Maths
Comp Sci and Maths
Maths and Bus Stud
Economics and Maths
Maths and Physics
Philosophy and Maths
2 MSc Boards

Physics
JH Board for all single Honours Physics
JH Board for Mathematical Physics
SH Board for single Honours Physics
SH Board for Astrophysics
SH Board for Mathematical Physics
MSc Boards?
Colledge of Science and Engineering

Proposed amend to College Undergraduate Regulations for Bachelor of Science Ordinary Degree in a Designated Discipline

The College Undergraduate Regulations for Bachelor of Science Ordinary Degree in a Designated Discipline http://www.drps.ed.ac.uk/07-08/regulations/cse_undergrad.php states that:

“This BSc Ordinary Degree is awarded in designated disciplines corresponding to every BSc, BEng or MA Honours degree and with the same titles save that the Ordinary degrees in the designated disciplines of Biological Sciences...do not refer to subject specialisations.”

Thus, a student registered for any of the streams of the BSc Biological Sciences degree who meets the requirement for a BSc Ordinary degree in terms of the number and level of credits, would be eligible for the degree “BSc Ordinary in the Designated Discipline of Biological Sciences” rather than “BSc Ordinary in the Designated Discipline of Biological Sciences (stream)”.

The rationale for this exception to the normal College pattern is that there the specialisation for the flavour of BSc Biological Sciences Honours programme exceptionally takes place at the end, rather than the start, of the Junior Honours year. At the end of the Junior Honours year, there is a progression board which determines the Honours stream onto which the student will be transferred.

There is an exception to the School pattern in the case of the stream in BSc Biological Sciences (Psychology). Ownership of this stream was transferred to CHSS and the programme adopts the more usual pattern of specialisation in the Junior Honours year – see the DPT at: http://www.drps.ed.ac.uk/07-08/dpts/HSS_FINAL/278.html. This shows that a student must take at least 100 credits of Psychology courses in Junior Honours.

It does seem anomalous for a student who meets the requirement for a BSc Ordinary degree in terms of the number and level of credits, not to be eligible for the degree “BSc Ordinary in the Designated Discipline of Biological Sciences (Psychology).”

The Committee is invited to approve the following amendment to the College regulations:

“This BSc Ordinary Degree is awarded in designated disciplines corresponding to every BSc, BEng or MA Honours degree and with the same titles with the exception of the Ordinary degrees in the designated disciplines of Biological Sciences (where only the specialism in Psychology can be a Designated Discipline)...which do not refer to subject specialisations.”

Note: There are Combined Honours degree programmes in the College which include Psychology, e.g. BSc Artificial Intelligence and Psychology http://www.drps.ed.ac.uk/07-08/dpts/SCE_FINAL/197.html. The titles for Ordinary degrees in these programmes are covered by the College Undergraduate Regulation: “In the case of Combined Degree programmes, the Examiners will recommend the award of the BSc Ordinary Degree in single (see requirement 4 above) or combined disciplines in order to best reflect the achievements of the individual student.”

DMW
<table>
<thead>
<tr>
<th>course code</th>
<th>course title, credits, SCQF level</th>
<th>new course or change to existing course?</th>
<th>Consultations</th>
<th>Any issues of concern?</th>
</tr>
</thead>
<tbody>
<tr>
<td>U04026</td>
<td>Analogue Electronics (CMOS design) 4 (10 credits; level 10)</td>
<td>New, but this is a renaming only of U00351</td>
<td>BoS with external members</td>
<td>None</td>
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<tr>
<td>U04027</td>
<td>Analogue Electronics (Circuits) 4 (10 credits; level 10)</td>
<td>New, but this is a renaming only of U00378</td>
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<td>None</td>
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<tr>
<td>U04028</td>
<td>Analogue Electronics (Project) 4 (20 credits; level 10)</td>
<td>New, but this is a renaming only of U03475</td>
<td>BoS with external members</td>
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</tr>
<tr>
<td>U04029</td>
<td>Analogue Electronics (Project) 5 (20 credits; level 11)</td>
<td>New, but this is a renaming only of U03855</td>
<td>BoS with external members</td>
<td>None</td>
</tr>
</tbody>
</table>
**MSc (Taught) in Carbon Management**

<table>
<thead>
<tr>
<th>NYT</th>
<th>Course</th>
<th>S</th>
<th>L</th>
<th>CT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Climate Change: Impacts and Adaptation</td>
<td>N</td>
<td>11</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>Business and Climate Change</td>
<td>H</td>
<td>11</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>Carbon Economics</td>
<td>H</td>
<td>11</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>Climate Change Management</td>
<td>N</td>
<td>11</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>Dissertation in Carbon Management</td>
<td>N</td>
<td>11</td>
<td>60</td>
</tr>
<tr>
<td></td>
<td>Further courses*</td>
<td>H, N, J, M</td>
<td>11</td>
<td>40</td>
</tr>
</tbody>
</table>

* A booklet will be given to students to facilitate advance planning.
Foreword: This is a guide to the content of the MSc degree programme in Carbon Management. The staff who teach this programme are committed to offering students enthusiastic and authoritative teaching, and look to students to engage with dedication in the learning process. So, the learning outcomes etc specified here are what a student who engages in this way can typically expect to achieve. Of course, every student’s route through this programme and actual achievements will be unique.

1. Awarding Institution: The University of Edinburgh
2. Teaching Institution: The University of Edinburgh (The School of GeoSciences and Management School & Economics)
3. Programme accredited by: N/A
4. Final award: Master of Science (or Diploma)
5. Programme title: MSc (taught) in Carbon Management
6. UCAS code: N/A
7. QA responsibility: Dr Dave Reay
8. Date of issue: 15/11/07

9. Educational aims of programme:

The MSc in Carbon Management is a ground-breaking programme providing high-level interdisciplinary knowledge and skills in the business, economics and science of carbon management. The programme is designed for business, economics, social and physical science graduates who want an advanced academic qualification as a launch pad for careers in climate change and carbon management by business, industry, government and NGOs. Specific aims are:

- Development of conceptual and analytical skills to enable critical evaluation of projected climate change impacts on businesses and consumers.
- Assessment of policies at an international, national and local level devised to address climate change through adaptation and mitigation.
- Detailed examination of key carbon management techniques, incl. carbon benchmarking, auditing and footprinting, life-cycle and cost-benefit analyses.
- Integration of expertise in economics and business research with that in global carbon cycling, climate change impacts, adaptation and mitigation to provide graduates with an holistic understanding of carbon management.
- Completion of a tailored research project of a standard suitable for publication in the peer-reviewed literature, and involving leading carbon management business collaborators where appropriate, to provide graduates with high-level experience in the assessment and application of carbon management strategies.
10. **Programme Learning Outcomes:**

The outcomes given are specifically what a student can learn from the core courses of the taught element of the programme, and the dissertation. Elective courses allow students to learn more in related areas: e.g. Management of Biological resources, Management of Sustainable Development, Change Management, and Global Strategy and Management.

(a) **Core knowledge**

- Climate change impacts on global carbon (C) sinks. Feedback effects (positive and negative). Surface albedo. Vegetation C. Soil C decomposition, methane flux (wetlands, permafrost, hydrates), oceanic C sink. Interactions with land-use management and nitrogen deposition.
- Climate change impacts: IPCC 4th assessment report. Ecosystem goods and services, crop yields, water supply, migration and security, health, insurance and finance.
- Impacts of climate change at the national level. Emphasis on business sector: oil & gas, financial services, retail, utilities, telecoms, airlines, food and chemical industries.
- Local, regional and national adaptation to climate change.
- Global adaptation to climate change.
- Low and zero carbon technologies. Renewable energy, hydrogen, biofuels, nuclear, carbon capture and storage. Efficacy in UK and globally. CO₂ stabilisation wedges.
- Carbon sink protection and enhancement. Soil and vegetation C sinks. Carbon offsets.
- Corporate responsibility and climate change. Climate change as a reputational risk or a brand advantage. Managing stakeholder perceptions and expectations. NGOs business campaigning and climate change.
- Corporate carbon inventories, disclosure standards and reporting, and benchmarking. Associated issues – assurance, organisational boundaries; normalisation.
- Managing for lower carbon: understanding barriers (split incentives, materiality issues, managerial inertia) and solutions (governance, targets, management systems, incentives, change management). Surveying range of carbon management activities (energy efficiency, fuel switching, building management, behavioural changes, supply-chain carbon, low-carbon product design.)
- Investment and climate change. The role of investors. Current investor activity. Climate change as an investment risk/opportunity. Implications for financial analysis. Shareholder activism and climate change.
- Households as carbon sources. Indirect vs direct carbon emissions. Carbon footprinting.
Personal carbon allowances. Climate change mitigation. The role of business in encouraging/enabling household mitigation. Economic costs and benefits, payback times.

(b) Intellectual skills

- Economic implications of climate change impacts and integrated view of mitigation and adaptation by business and industry.
- Critical analysis of carbon reduction policies and technologies.
- Efficacy of climate change mitigation instruments (e.g. carbon trading and offsetting).
- Scientific, economic and political arguments for reducing carbon emissions.
- Management skills, techniques and strategies for climate change mitigation, adaptation and risk management.
- Advanced knowledge of, and skills in, the economics of climate change and carbon management, and the management of associated business risks and opportunities.

(c) Subject-specific skills

- Assessment of energy and carbon inventories for businesses and households.
- Determination of greenhouse gas abatement curves in relation to national and international targets.
- Use of life-cycle analyses and importance of embodied emissions of goods and services.
- Calculation of ecosystem carbon budgets.
- Use of climate change reporting standards and protocols to report on carbon emissions.
- Understanding of national and international carbon trading mechanisms, their aims and limitations.

(d) Transferable skills

- Quantitative methods, budget creation and analysis.
- Critical evaluation of governmental and corporate environmental policies.
- Economic and market analyses.
- Evaluation of institutions, ecosystems, goods and services in terms of resource flow.
- Interpersonal skills, independent learning and self-development.
- Research and science communication skills (incl. peers, public, media and government).

The programme provides a suitable qualification for students seeking careers in industry, research, consultancy or policy-making. The choice of dissertation project can be used to tailor the degree towards a chosen career path. The programme is able to draw on its collaboration with leading carbon management consultancies to provide excellent post-graduation employment opportunities. In addition, the programme provides an excellent pathway for subsequent PhD study at the University.

11. Programme structure and features

Entry Requirements Minimum of a 2.1 Honours degree or equivalent in business, economics, or a physical science. Applicants with a degree in social science or humanities may be accepted, subject to appraisal by the programme director and the completion of recommended pre-session reading.

Target Intake 25 students in the first year (2008/09), rising to 50 students per year in subsequent years.

Fees Standard taught MSc in Management fees for School of Management and Economics (£6,500 EU, £11,700 non-EU [2007/2008]). This fee is inclusive of a £500 fee to cover research dissertation costs.

Degree Criteria MSc is full-time (12 months) or part-time (24 months). Progression to MSc or award of
a Diploma in Carbon Management will be determined based on the criteria specified in the University’s Assessment Regulations.

**Taught Component**

The taught component consists of six courses of lectures (all at SCQF level 11 and totalling 120 credits): three courses in the first semester and three in the second semester. All students attend and complete the four compulsory core courses, three in semester 1 and one in semester 2. Students must achieve at least a minimum of 50% in their 4 core courses and a minimum overall mark for the taught component of 50% to progress to the research dissertation stage. Progression of any students who do not achieve this minimum to a Postgraduate Diploma in Carbon Management will be determined as specified in the University’s Assessment Regulations.

**Core Courses (80 credits)**

- Climate Change Impacts and Adaptation (Geosciences). Semester 1 (20 credits).
- Business and Climate Change (Management & Economics). Semester 1 (20 credits).
- Carbon Economics (Management & Economics). Semester 1 (20 credits).
- Climate Change Management (Geosciences). Semester 2 (20 credits).

Further details of these courses can be found in the accompanying documents. Details of the expert lecturing staff now confirmed for provision of these courses are also provided.

**Elective Courses (40 credits total)**

The optional courses are selected from a wide range offered within related MSc programmes in the School of Geosciences and School of Management and Economics. Other optional modules provided by the School of Social and Political Studies, the Scottish Agricultural College and the Institute for Energy Systems will be offered subject to timetable and quota constraints. The following courses are recommended:

**School of Geosciences**

- Human Resource Management, SCQF level 11
- Forest and Environment, SCQF level 11
- Management of Sustainable Development, SCQF level 11
- Management of Biological Resources, SCQF level 11
- Participation in Policy Planning, SCQF level 11
- Values and the Environment, SCQF level 11
- Rural Development, SCQF level 11
- Culture, Ethics and Environment, SCQF level 11

**School of Management and Economics**

- Change Management, SCQF level 11
- Global Strategy and Management, SCQF level 11
- Corporate Strategy, SCQF level 11
- Management Across Cultures, SCQF level 11
- Global Financial Markets and Emerging Economies, SCQF level 11
- The Changing Business Environment in China, SCQF level 11
- Financial Analysis, SCQF level 11
- Marketing Management, SCQF level 11
- Corporate Finance in Emerging Markets, SCQF level 11
- Advertising Management, SCQF level 11
Japan as a Model for Emerging Markets, SCQF level 11  
Cases in Finance and Investment, SCQF level 11  
Providing and Managing Public Services, SCQF level 11  
Case studies - Business Management in China and India, SCQF level 11  

**School of Social and Political Studies**  
- Sociology of the Environment and Risk, SCQF level 11  

**Scottish Agricultural College**  
- Applications in Ecological Economics, SCQF level 11  
- Environmental Impact Assessment, SCQF level 11  
- Waste Reduction and Recycling, SCQF level 11  

**Institute for Energy Systems**  
- Power System Engineering and Economics, SCQF level 11  
- Renewable Energy Engineering, SCQF level 11  

**Research Dissertation** (60 credits) Each student conducts an individual research project on a subject chosen in consultation with and supervised by the Programme Director and/or lecturing staff. MSc candidates write up their work as a dissertation (up to 15,000 words), which is submitted by the end of August. Research dissertation costs (£500 per student) are included in the overall programme fees.

A minimum mark of 50% for the research dissertation is required for awarding of the MSc. Students not achieving this minimum mark may be awarded a Postgraduate Diploma in Carbon Management based on the criteria specified in the University’s Assessment Regulations.

In addition to in-house expertise, the programme boasts numerous collaborative links to carbon management consultancies and academic institutions. These will provide additional supervision capacity for those students wishing to undertake more applied research projects, in particular those focussed on carbon and energy auditing, waste management and life cycle analyses. Confirmed collaborators include:

- The Edinburgh Centre for Carbon Management  
- CarbonPlanet.com  
- Changeworks, Edinburgh  
- National Industrial Symbiosis Programme  
- Royal Botanic Gardens, Edinburgh

The wide-ranging expertise in all aspects of carbon management provided by the lecturing staff and industry partners allows students to conduct a research dissertation project tailored to their specific interests and aspirations for post-graduation employment. Potential research areas include:

- Carbon trading and taxation  
- Carbon benchmarking  
- Ecosystem carbon cycling and management  
- Climate change adaptation by businesses  
- Waste management and climate change  
- Low carbon technologies  
- Governmental and international carbon reduction

**12. Further comments:**

The programme draws together existing expertise in carbon management from across the University, as
well as input from nationally and internationally renowned experts in specialist areas such as Personal Carbon Allowances, Carbon Offsetting, Food-related emissions, and Emissions Scenarios.

As such, the programme is unrivalled in terms of its provision of comprehensive high-level training in carbon management. Following establishment of the programme in 2008-9, the rolling out of targeted CPD courses in key areas of business carbon management are planned.

APPENDIX 2

GEOSCIENCES: NEW MSC BUSINESS PLAN FORM

This form must be submitted in conjunction with a Draft Programme Specification and the associated financial spreadsheet to GO for agreement to take a proposal for a new MSc programme to School Board of Studies.

(The details requested on this form are also required by College after BoS approval.)

1. SUMMARY INFORMATION
   - please insert the requested information into the boxes below

<table>
<thead>
<tr>
<th>Programme Title</th>
<th>MSc in Carbon Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name of proposer(s)</td>
<td>Dr Dave Reay</td>
</tr>
<tr>
<td>Name of intended Programme Director</td>
<td>Dr Dave Reay</td>
</tr>
<tr>
<td>Duration of study</td>
<td>Full time x 12 months</td>
</tr>
<tr>
<td></td>
<td>Part time x 24 months</td>
</tr>
<tr>
<td>Mode of study / delivery</td>
<td>Resident at Edinburgh University x</td>
</tr>
<tr>
<td></td>
<td>Resident at another HE institution □</td>
</tr>
<tr>
<td></td>
<td>Collaborative □</td>
</tr>
<tr>
<td></td>
<td>Distance learning □</td>
</tr>
<tr>
<td></td>
<td>Flexible training package □</td>
</tr>
<tr>
<td>Date of intended first intake</td>
<td>September 2008</td>
</tr>
</tbody>
</table>

2. MARKET INFORMATION

(i) Explain how you have assessed the potential demand for this programme.
   (including where appropriate information from the Recruitment and Admissions Liaison Service; International Office; Careers Service; employers; professional bodies; students etc)

We have liaised with Lorna Halliday, Head of College Recruitment, to ensure the marketability of the programme and to put in place a coherent marketing strategy via the International Office and elsewhere. We have spoken to several relevant employers about the programme, all of which have been very enthusiastic, offering collaboration with student dissertations and the opportunity for post-graduation employment:

"In order to satisfy our growing customer base we require the services of skilled carbon auditors, brokers and originators. Carbon Planet is excited to be collaborating with the University of Edinburgh in providing both practical study opportunities and, at graduation, employment prospects for a significant number of qualifying students." Dave Sag, CEO, Carbon Planet

Interest and feedback from prospective students has been excellent, with over a dozen enquiries to Geosciences already and at least 2 applications, despite our having made clear that applications cannot be considered until the
programme is granted approval. Feedback from undergraduate and post-graduate students already at Edinburgh has been similarly positive, with several indicating their intent to apply.

Since the creation of the programme web page at www.geos.ed.ac.uk/carbon and publication of a press release on the programme by the University it has featured in Nature, the Daily Record and on BBC Radio Scotland. Additional interviews have also been requested by BBC Newsnight and BBC Radio Scotland should the programme gain approval. Our contacts within the British Council have been used to alert them to the proposed programme and we are have subsequently been approached to tender for a new Chevening Fellowship Programme on ‘Finance and Investment in a Low Carbon Economy’ which, if successful, would provide even more weight and vitality to the proposed programme.

Quantitative information on demand for such a programme has been difficult to find. Anecdotal evidence supporting our view that there is a great demand for courses such as that proposed here have come from recent articles in the Times Higher Education Supplement, The Guardian and Nature. Specifically:

"Global warming and the need to become a sustainable society are driving a new industrial economic revolution. Any time you have an industrial economic revolution, you create thousands of new jobs in disciplines that didn't exist before, and I think we're at the early stages of that." Tom Kimmerer, executive director, Association for the Advancement of Sustainability in Higher Education.

“There is great demand for graduates who have grappled with the complexity and uncertainty of issues such as environmental sustainability, development, economics and climate change” Charles Redman, director of the new School of Sustainability at Arizona State University in Tempe.

Further Marketing of the Programme

- Stuart Simmons, Business Development Executive in the School of Geosciences, has committed £3,000 from the Knowledge Transfer Fund for the advertising of the programme. This funding will be used to provide half page adverts in New Scientist magazine for two weeks during February 2008.
- Programme marketing via the International Office, School of Geosciences and School of Management and Economics has been instigated, with the rolling out of marketing should approval be granted.
- An official programme launch early in 2008 at the Scottish Parliament is planned, subject to programme approval. Key media, political and academic contacts will be invited.
- Promotion of the programme via collaborating networks and companies, including the British Council, Edinburgh Centre for Carbon Management, CarbonPlanet.com, National Industries Symbiosis Programme (NISP), Food Processing Knowledge Transfer Network (FPKTN) and the Industry CO2 Consortium.
- Additional advertising for the programme has been secured on the www.researchiscool.com, www.ghgonline.org and School of Geosciences websites.
- Further high-profile marketing of the programme will be achieved through the various media contacts of the programme director (incl. TV, radio, print and online, see www.geos.ed.ac.uk/homes/dreay/media.html).

(ii) Summarize comparable provision and student numbers at competitor institutions.

To our knowledge, the proposed programme is the first of its kind to bring together economists, management experts and geoscientists to provide such high-level MSc training in carbon management. Its integration of expertise in the School of Geosciences with that in the School of Management and Economics means that it is able to recruit from student pools not normally available to Masters courses in this area. Given its strong focus on carbon management by business, industry and consumers, we anticipate the bulk of our student intake to come from a business/economics background and so have based our projected intake on student numbers on existing Masters programmes within the School of Management and Economics.

The Management School & Economics have examined the content of and fees for broadly comparable programmes in the UK. Very few provide the integrated business-economics-geosciences programme we
propose, though there is a clear move towards such programmes in the few leading Universities that possess the critical mass to achieve something along these lines. Based on the limited information available, those that come near to such a well-rounded programme appear to be in high demand.

Broadly comparable UK programmes:

**University of St Andrews.** MSc Managing Environmental Change. New for 2008. Geosciences focus, no real business/economics element.


**University of Cranfield.** MSc in Environmental Management for Business. Limited geosciences input. 25 places per year.

**University of Reading.** MSc in Renewable energy. Aimed at engineers/geoscientists.

**University of Glamorgan.** MSc in Renewable Energy and Resource Management. Aimed at engineers/geoscientists.

**University of Nottingham.** MSc in Environmental Management. Aimed at Geoscientists.

**University of Bath.** MSc in Integrated Environmental Management. As above.

**University of Hertfordshire.** MSc in Environmental Management for Business. Aimed at Geoscientists.


**University of Manchester.** MSc in Environmental Management. Generic course. High fees (£13,480 for all)

**Brunel University.** MSc in Environmental Science. Focus on Law.

**University College London.** MSc in Environmental and Resource Economics. Generic, but highly-regarded (and expensive) course.


**University of Oxford** (ECI): MSc Environmental Change and Management 300 applicants per year (from >40 countries) for 32 places. Limited business focus.

**University of East Anglia.** MSc Environmental Assessment and Management. Generic, climate change and carbon management only one component.

**University of East Anglia.** MBA in Carbon Management. First intake in Jan 2008, expensive (£13,800 per student), emphasis on business, likely to be greatest competitor for those applicants with a business/management background.

**University of York.** MSc/Diploma in Environmental Economics. Poorly integrated, generic, with climate change and carbon management only one component.

3. FINANCIAL ASPECTS
Please complete the associated spreadsheet available at: https://www.geos.ed.ac.uk/postgraduate/Info_MSc_staff/ and return it with this form to the GO Manager.
Proposed MSc in Carbon Management – Further Information

(a) Strategy and Planning

Preamble

The proposed MSc in Carbon Management has developed from discussions between the School of Geosciences and the School of Management and Economics on how we might better meet the growing demand for high-level postgraduate provision in the areas such as carbon economics and trading, climate change mitigation and adaptation by business and industry, and national and international climate change policy. The School of Geosciences is world-renowned in the field of global carbon cycle research, while the School of Management and Economics (under the SIRE initiative) has recently made key appointments in the area of ‘business and climate change’. We therefore have the capacity and expertise to provide an MSc in Carbon Management of the highest quality and attract large numbers of economics, management and science graduates to Edinburgh.

Benefits to the School

The School will benefit from this programme through:

- A programme that other Geosciences MSc programme directors have indicated will be in great demand from their students.
- A programme which, because of its joint nature, has allowed the development of 4 new core courses, so easing the pressure on existing elective courses in the School.
- Greatly raised profile in what is a cutting-edge area, both in academia and politically.
- Cross-fertilisation of ideas, proposals and studentships with collaborating Schools and Institutions.
- Financial benefits of in-demand MSc course attracting significant numbers of non-EU students.
- Potential for CPD development in specific in-demand areas.
- Greatly increased potential for PhD research collaboration with the School of Management and Economics.

Consultation

We have consulted widely in the development of this programme, including close consultation with other MSc programme directors, the HoSs, the Graduate Organisation, the College Office and the International Office.

Risk Assessment

Health and safety procedures are in place in both Schools and no specific risks arising from the proposed programme have been identified. Research dissertations involving fieldwork will be covered by specific risk assessments already in place in the School of Geosciences and, in the case of novel fieldwork sites and methods, additional risk assessments will be made.

Teachability Assessment

The programme has been deliberately designed to allow graduates with a background in economics, management or a physical science to find it highly accessible and, by the end of semester 1, to each
have a well-integrated understanding of climate change science, carbon economics and business climate management.

Students will ideally have some knowledge of quantitative methods and an A’level or equivalent qualification in Mathematics and/or a science. The main pre-requisite is that of English proficiency: A Test of English as a Foreign Language (TOEFL) score of 600 (250+ computer based) or an International English Language Testing System (IELTS) score of 7 is preferred. Alternatively, a recent degree from a university in an English-speaking country would be acceptable.

The core components, requirements and aims of the programme are listed in detail in the accompanying documents. In brief summary the core teaching aims of the programme are that graduates will:

- Demonstrate an integrated high-level understanding of carbon management in business, politics and the biosphere.
- Show their ability to assess, debate and criticize existing climate change adaptation and mitigation policies at a range of scales.
- Have the ability to relate the external costs of climate change to existing and future carbon markets and mechanisms.
- Become the carbon management experts of businesses, NGOs, industry, government and academia, with advanced knowledge of the impacts of climate change and the efficacy of the strategies used to mitigate and adapt to it.

All of the teaching venues planned for this programme have disabled access, as well as facilities for the visually and aurally impaired. For those students progressing to the MSc Carbon Management must undertake a research dissertation between April and August. Some of these research dissertations may have a predominantly fieldwork-based component that makes disabled access difficult. However, the programme director and collaborators will make every effort to ensure each student is able to undertake the research dissertation project opted for. The provision for part-time study is designed both to allow those in work to undertake the programme and to provide the flexibility that may be necessary for those applicants with disabilities.

**Quality Assurance Arrangements**

Course assessment will be by members of academic staff using the University’s common marking scheme. The assessed group presentation component will be marked by 2 or more of the lecturing staff for that course, with feedback provided to students on the reasons for their assigned mark.

Student questionnaires will be used to provide feedback on the quality of the course, teaching and supervision. MSc research dissertations will be independently marked by at least two members of staff, their selection based on relevant expertise in the research area.

The quality of the overall programme and suitability of MSc grading will be ensured using an external examiner (Dr Nick Eyre, University of Oxford). Dr Eyre leads the ‘Low Carbon Futures’ programme at the Environmental Change Institute.
(b) Fees

The disparity between the MSc in Management fees we're planning to apply and those of CSE is, we believe, justified. For EU students, we're planning to set fees at £6,500 (2007-08 equivalent), this compares to the CSE total of £5,050 (assuming £700 additional programme costs). For non-EU students the total fees would be £11,700 - substantially less than the £13,900 (assuming £700 additional programme costs) currently charged by CSE. The basis for applying the Management MSc fees is that many of our prospective students will come via their existing recruitment streams and so will expect fees for our programme to be comparable.

We also anticipate a large percentage of our students will come from non-EU nations and fees for these students at the CSE level may deter many of these. As the content of the programme is a evenly-balanced integration of teaching from the two Schools the argument for CSE vs CHSS fees could be made on either side, but through out many consultations we feel the proposed fee structure offers the greatest return in terms of programme success and income.

We've already had to go through approval of this fee structure by the School of Management and Economics Executive committee. And as a result of this agreed that, were the programme to be the great success we envisage, fees could be further increased in line with demand.

The £500 additional programme costs we've specified are to cover the research dissertation, but this £500 is included in the £6,500 and £11,700 totals.

(c) Other issues arising

1. Can you confirm that the programme will be owned by the School of GeoSciences?

Yes, although the integrated nature of the programme makes definition of College ‘ownership’ rather odd. The core course provision is split 50:50 between the Schools and although I will be the programme director, admissions and graduation will be run via the Management School and Economics, based on our judgement that the majority of applications will flow from business and economics graduates.

2. Has the approval of the Head of School in GeoSciences (on the resourcing and strategic aspects, including the proposed fee level) been formally given?

Yes. The proposed programme has been progressing simultaneously through the approval systems of both Schools and their respective Colleges. It has now been approved by the School of Management Executive Committee and the School of GeoSciences Board of Studies. Both Heads of School (Nick and Martin) have given their approval.

3. There is shared teaching with the Management School and Economics. Can you confirm formally that there has been full consultations on this proposal with the Management School and Economics?

Yes, there have been extensive consultations with the Management School and Economics about the proposed programme and its teaching requirements etc.
College of Science and Engineering

Notification of new / changed courses for approval

New courses, or major changes to existing courses should be entered by the School via the Course Creation, Approval and Maintenance (CCAM) facility in WISARD:
http://www.registry.ed.ac.uk/wisard/default.htm

After entering the details in WISARD and after approval by the Board of Studies, the School should complete this pro-forma and send it to the College Office: lynda.m.henderson@ed.ac.uk

This proforma is used by the College Office to alert the Committee Secretary that courses are awaiting approval at College level, and to provide a background to the discussion at the College Learning and Teaching Committee.

Name of School:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Undergraduate or Postgraduate</th>
<th>New course or change to existing course</th>
<th>What other Schools have been consulted on this proposal?</th>
<th>Any issues of concern raised by BoS or those consulted</th>
<th>SCQF Level</th>
<th>Points</th>
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<tr>
<td>P02552</td>
<td>Climate Change Impacts and Adaptation</td>
<td>Postgraduate</td>
<td>New Course</td>
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