

UNIVERSITY OF GLASGOW

Education Committee - Monday 14 June 2004

**Departmental Programmes of Teaching, Learning and Assessment -
Report of the Review of the Division of Earth Sciences - Thursday 22
April 2004**

Ms Helen Clegg, Senate Office

Review Panel

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Dr Ed Stephens	External Subject Specialist and Senior Lecturer in Geoscience, University of St Andrews
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Introduction

1. Background

The Division of Earth Sciences was constituted in 1998 from the former Department of Geology and Applied Geology, following a report from the Committee of the University Court. It was now a division of the Department of Geography and Geomatics. The Department of Geology and Applied Geology had been reviewed internally in December 1992. A Teaching Quality Assessment of Geology had been undertaken by the Scottish Higher Education Funding Council (SHEFC) in August 1994 and resulted in an 'Excellent' rating. The Division of Earth Sciences received a rating of 4 in the 2002 Research Assessment Exercise.

2. Documentation

The Division had provided a Self Evaluation Report and supporting documentation, in accordance with the University's requirements for the Review of Departmental Programmes of Teaching, Learning and Assessment. The Convener thanked the Head of Division for the completeness and clarity of the documentation.

3. Participants in the Review

The Review Panel met with Dr Bob Hill, Deputy Dean of the Faculty of Physical Sciences, and Dr Chris Burton, Head of the Division of Earth Sciences. The Panel also met with five key members of academic staff, the Divisional Secretary, two technical support staff and seven Postgraduate Teaching Assistants/Demonstrators. In addition, a group of twelve undergraduate students from all levels was met. A number of these were elected Student Representatives. There were no taught postgraduate programmes operating in the Division at the time of the Review.

4. *Range of Provision*

The Review Panel considered the following range of provision offered by the Division of Earth Sciences:

Single Honours:

- BSc Earth Science

Combined Honours

- BSc Archaeology & Earth Science
- Environmental Biogeochemistry

All of the above programmes were paralleled by three-year BSc (designated) degrees.

Level 1 and 2 provision was offered, as well as service teaching for undergraduate programmes in Civil Engineering, Environmental Science and Biology.

Overall Aims of the Division's Provision

5. The overall aims of the Division's provision were stated in the Self Evaluation Report and were communicated to all students via course handbooks. The Panel considered the Division's aims to be appropriate and consistent with the aims of the University.

5.1 *Degree Provision*

The Self Evaluation Report indicated that provision at Levels 1 and 2 was partly preparation for entry to Honours degrees, but also offered an introduction to the subject area for students making their choice of programme. As Earth Sciences was not a subject commonly taught in schools, many students had had no experience of it. Therefore the introduction at Levels 1 and 2 was vital to the successful recruitment of students to degrees within the Division. At Levels 3 and 4 the aim was to provide a comprehensive and complete course for Honours students and to prepare them for employment, further study and research. Through discussion with the student group, the Panel discovered that several of the students intended to pursue PhD study, whilst many planned to begin their professional careers immediately on graduation. The student group confirmed that they felt prepared for either option.

5.2 *Service Provision*

In terms of the Division's service provision, the aim was to introduce students to the area of Earth Sciences and to provide the essential Earth Sciences components (including practical and field skills) needed for students to complete their degrees.

Undergraduate Provision

Aims

6. The aims of each module were stated clearly in the documentation provided to students. The Panel agreed that the course aims were fully relevant to the overall aims and were appropriate to the corresponding level of study.

The Self Evaluation Report stated the strong belief of the Division that the study of Geology was, and should be, at the core of all the programmes it provided. This was reiterated by the Head of Division and the staff group. However, the Panel believed that rather more clarity was required about the use of the interlocking terms 'Geology', 'Earth Sciences' and 'Environmental Earth Sciences'.

Postgraduate Provision

7. At the time of the Review, no taught postgraduate programmes were offered by the Division.

Intended Learning Outcomes

8. The Self Evaluation Report indicated that, at Level 1, the ILOs emphasised the acquisition of basic knowledge and ways of approaching and understanding the subject area. At Level 2, the ILOs were designed to provide broader and deeper knowledge. At this level, the ILOs began to introduce the need for an understanding of other subjects relevant to Earth Sciences. At Honours levels, the ILOs became increasingly detailed and demanding, including a full range of field and transferable skills. Many modules and their ILOs were designed as interlocking units in order to give the student a fully comprehensive view of certain areas of the subject.

According to the Self Evaluation Report, ILOs at all levels were subject to change as new knowledge came to light and new modules were developed. The Division operated a 'rolling review' system aimed at incorporating new knowledge and re-aligning teaching and learning at all levels with the levels above and below. The Head of Division explained that any changes to ILOs were discussed by the relevant Course Team, the Management Committee and the Staff Student Liaison Committee. They would then be offered for approval by External Examiners and finally the Science Undergraduate Studies Committee. The Division believed this contributed to a feeling of shared ownership of the aims and objectives.

8.1 *Transferable Skills/Employability*

The Panel was informed that employability was always kept in mind when formulating or reviewing ILOs, and that transferable skills were enshrined within the degree programmes in recognition that graduates would enter a variety of sectors. The Head of Division stated that the needs of employers were often drivers for change, as it was essential that graduates had marketable skills. The student group considered that the Division needed to develop better links with employers and that opportunities for careers talks should be fully exploited. The Head of Division advised that there was an Employers Liaison Group and, through this, a full programme of careers talks had been arranged for the current session, but that the speakers' professional commitments meant this had had to be cancelled for this year only. He also stated his intention to invite graduates to give talks about their own careers since leaving University. The Panel **recommended** that the programme of careers talks be assured for future cohorts.

Benchmark Statement

The Self Evaluation Report stated that all Earth Science ILOs were based upon and related to the Quality Assurance Agency Benchmark for Earth Sciences, Environmental Sciences and Environmental Studies (ES3). The Benchmark statement had been welcomed by the Division and was the accepted basis for professional accreditation by the Geological Society. The Panel questioned how the introduction of new or revised courses fitted with the provisions of the Benchmark Statement. The Head of Division stated that the Benchmark Statement was often one of the drivers for change, but that any change would be made within the Statement's parameters.

Assessment

9. The Division's assessment methods were varied and included continuous assessment, projects, laboratory assessments, fieldwork assessments and essays, in addition to formal examinations. The Panel explored some related aspects as follows:

9.1 *Laboratory Assessments*

The Panel noted from the Self Evaluation Report, and from its discussion with students, that the laboratory assessments were time consuming. The staff group were asked if they believed there was a more effective means of assessing the material. They stressed that the knowledge base must still be assessed, but agreed to give some consideration to the use of a more time efficient assessment method. The Panel **recommended** that alternative means of assessment be investigated.

9.2 *Code of Assessment*

The Panel was pleased to note that the Division had embraced and implemented the University's Code of Assessment. It was stated in the Self Evaluation Report, and reiterated by the Head of Division and the staff group, that there had been some early difficulties with the use of the Code, in that staff found it difficult to use the entire range of grades. The 18-20 range was found to be difficult as the previous system used by the Division was a 17-point scale. However, staff were now becoming more familiar with the new scale and the difficulties were reduced.

9.3 *Feedback*

The Self Evaluation Report detailed a number of mechanisms for providing feedback to students. These included written comments on pieces of coursework and general comments to the class as a whole. Students could also access the comments on their examination papers, although the papers themselves were the only item of assessment which was not returned to students as a matter of course. Whilst appearing robust and consistent, the student group considered the provision of feedback to be rather variable. They stated that, on some occasions, they received only a total grade for the module, so that they did not know which parts were strongest or weakest. The staff group stated that there was a clear policy on the provision of feedback, and were unsure what the students believed had been missing. They agreed to raise this issue at the next meeting of the Staff Student Liaison Committee. The Panel **recommended** that a clear and consistent policy on the provision of feedback be clearly communicated to the students in order that they knew the extent of the feedback they might expect.

Curriculum Design and Content

10. It was explained in the Self Evaluation Report that the Division's curricula were based on the premise that a thorough understanding of Geology was fundamental. Therefore, the core curricula for all programmes reflected this through all levels. Given that most students would not have experienced Geology in school, no prior knowledge of the subject was assumed. Each level of the programmes relies on the knowledge gained at earlier levels - therefore, students could only proceed to Honours when Level 2 concepts had been mastered. Levels 3 and 4 built upon these, with the focus of producing professional Earth Scientists capable of career-specific work or of entering postgraduate study. Students at these levels had an unrestricted choice of options and could choose to specialise in particular areas or alternatively study a wide range across the entire subject area.

10.1 *Fieldwork*

The Self Evaluation Report indicated that Fieldwork was an essential part of all programmes at all levels. The Head of Division reiterated this. The Fieldwork programme consisted of a number of day excursions and longer residential trips. However, it was stated in the Self Evaluation Report, and emphasised by the Head of Division, that there was insufficient funding for fieldwork. The Division had benefited from an endowment account which was used for this purpose, but was now in the

position of having to use the fund's capital to finance its fieldwork. It was envisaged that this fund would only be available for another two years. However, it was not planned to reduce the amount of fieldwork for several reasons. Firstly, it was essential for the acquisition of skills required in the workplace, and this involved working in locations with real life geological case studies. Secondly, it was stated in the Benchmark Statement that a 'significant' amount of fieldwork (between 80-100 days over the four year degree) must be completed. The current amount of fieldwork was around 90 days, so it was not considered desirable to reduce this further. Finally, an appropriate amount of fieldwork was necessary in order for the Division's courses to be granted accreditation by the Geological Society. Field trips were led by academic staff and postgraduate Demonstrators. The student group were of the opinion that a larger number of postgraduates would be advantageous, in order that all groups on the field trip had a source of advice and guidance. Students and staff alike stated that the field trips, particularly residential trips, helped build excellent relationships which might not otherwise be developed. Whilst acknowledging the importance of fieldwork to the students' learning, the Panel **recommended** that the Department continue to monitor its field classes, in terms of form and length, in order to ascertain whether any further rationalisation was possible.

In addition to the Division's funding, students were also required to pay a proportion of fieldwork expenses. The student group calculated that, taking into account subsistence and equipment, this could reach around £800 over the course of their degree and stated that most students on the course had had to apply to the University Hardship Fund for assistance. Some stated that, had they been aware of this before applying for the course, they may have considered other, less expensive, subjects. In addition, those students in part-time employment found they had to use most or all of their holiday entitlement in order to attend the field trips, which then meant they could not have a summer break. The staff group acknowledged the difficulties faced by the students, and were sympathetic. However, they stated that other institutions received separate funding for their fieldwork, whilst the Division was now having to use reserve funds.

The Head of Division advised that he had made applications for industry subsidies, but that these lasted only one or two years at a time. He stated his commitment to continuing to seek these subsidies as necessary. The Panel **recommended** that alternative means of funding the fieldwork trips continued to be investigated.

10.2 Field Mapping Exercise

The Field Mapping Exercise formed a key part of the Field programme, and was stated by the Head of Division as being an area of some concern. He explained that External Examiners had pointed out that the standards achieved by Earth Sciences students had been generally lower than the UK average (although this should not be taken to imply that most students were below average). External Examiners believed the Field Programme was strong, but that the problem appeared to be a lack of focus in the students' mapping and in their reports. The Division had responded to this by revising its approach to mapping and redefining the requirements of the exercise. This redefined programme had been introduced in the current session and its success would be closely monitored. The student group stated that they understood the purpose of the Field Mapping Exercise and appreciated that it brought together all the elements of their class teaching by applying various techniques to real examples. The staff group acknowledged that students found mapping difficult, and had employed a computer program to help develop 3D awareness more quickly. There were physical limitations, as the IT suite and the map laboratory were two floors apart, so it was not possible to integrate the two aspects. However, they believed all their attempts thus far to bring IT into their teaching had been well received.

10.3 *Geophysics*

The teaching of Geophysics was stated as an area of concern by the Head of Division. He explained that the reorganisation of the former Department in 1998 had resulted in a loss of all of the Division's Geophysics staff and field equipment. Since then, Geophysics teaching had had to be provided by external colleagues. This presented certain difficulties with regard to timetabling, and as a result teaching was provided in a concentrated block which, the Head of Division believed, overloaded students. He stated, however, that the difficulties would be partly addressed by the appointment of a new member of staff who would cover certain aspects of Geophysics teaching. The student group also raised the question of Geophysics teaching, and were pleased to hear this was being addressed to some extent.

10.4 *Tutorials*

Tutorials were not used within the Division at present. However, the student group believed that they would be advantageous, and suggested that their introduction might be considered for the future. The Panel **recommended** that the use of tutorials be considered.

10.5 *Oral Presentations*

The student group advised that they were not required to give formal presentations until Level 3. They stated that a presentation was required during the field trip to Arran. Many, but not all, members of each group would present. They considered it would be useful to have experience of giving presentations at an earlier stage in their degree. The staff group agreed that this would be useful in terms of employability. The Panel **recommended** that the Division investigate the possibility of developing students' oral presentation skills prior to Level 3.

10.6 *Honours Options*

The Head of Division stated that he would like to see more students selecting the Geography Honours options. The student group confirmed that many of them would like to do so, but they understood that coinciding assessment deadlines would present them with difficulties. The Panel **recommended** that this issue be considered by the Division, together with the Department of Geography and Geomatics, in order that possible solutions might be found which would encourage more students to choose the Geography options. It was further **recommended** that this be done as part of the existing plan to increase the amount of shared teaching between the Division and the Department of Geography and Geomatics.

10.7 *Geotechnics*

The student group made the point that, as many graduates went on to work in the area of Geotechnics, it would be useful to have more teaching (even as optional modules) in that area. The Panel **recommended** that consideration be given to the possibility of offering more teaching in Geotechnics.

Student Recruitment, Support and Progression

11. Recruitment

11.1 Faculty Entry System

The Head of Division stated that recruitment to degrees in Earth Sciences was via the Faculty entry system. A number of students applied with the specific intention of

pursuing an Earth Sciences degree, but many more decided to take a degree in the subject after experiencing it in Levels 1 and 2. The Head of Division believed that the experience of fieldwork played a key role in determining the conversion to Earth Sciences from other subjects. Of the group of students the Panel met, around half had come to the University with the specific intention of studying Earth Sciences, and the remainder had made their decision after being exposed to the subject in Levels 1 and 2. The students felt strongly that the flexibility of choice afforded by the Faculty entry system allowed them to make better, more informed decisions.

Entry Numbers

The Self Evaluation Report indicated that, since 1998-99, the number of students entering Level 1 had increased from 103 to 164. The Head of Division commented that recruitment to the subject had remained stable nationally over the last 8 years, but recruitment within the Division had risen slightly, indicating the attractiveness of its programmes.

11.3 Recruitment Activities

It was stated in the Self Evaluation Report that the Division provided literature and prospectus information for use in University-wide recruitment activity. In addition, divisional activities took place, particularly at Faculty Open Days, where prospective students could talk to staff and students, and view the facilities. The Division was also involved in recruiting at school level via a range of activities, including provision of geological teaching materials, specialist packs for primary schools, and lectures. The Head of Division stated that he was a member of the Steering Committee of the Scottish Earth Science Education Forum, which was dedicated to the furtherance of Earth Science education at all levels in Scotland. The Panel **commended** the Division on its recruitment work.

12. Support for Students

12.1 Adviser of Studies System

It was explained in the Self Evaluation Report that all students would be allocated an Adviser of Studies on joining the University. In addition to academic support, the Adviser of Studies would also monitor students' attendance and counsel those with weak attendance.

12.2 Induction

The Self Evaluation Report stated that student induction was a key activity for all levels and programmes. Level 1 induction was supported by an extensive range of literature, including a course guide and handouts provided at enrolment, and by a series of introductory lectures. Training on field safety was also provided at an early stage (and additionally at the beginning of each excursion).

12.3 Special Needs

It was advised in the Self Evaluation Report that the Division had a Special Needs Co-ordinator. The Division's Disability Statement was made available to all students, including information on how to access the Special Needs Service. Procedures were in place for providing special needs students with the necessary field experience and learning. There were no special needs students in the group who met with the Panel, so the effectiveness of special needs provision could not be explored.

12.4 Approachability of Staff

The Head of Division stated that, in addition to the Adviser of Studies system, all members of staff had an 'open door' policy and that students quickly learnt they could approach any member of staff for advice and support. The staff group believed the field trips helped to form good relationships between staff and students. The student group strongly agreed with this and stated their appreciation for the support they received from staff. The Panel **commended** the Division on its commitment to supporting students.

12.5 Careers Guidance

Advice on employability and careers was offered within the Division. Vacation work with local companies, a formal careers programme and an employment opportunities service were available to students. In Levels 3 and 4, students were made very aware of employment patterns and opportunities.

13. Progression

13.1 Progression from Level 1 to Level 2

The Self Evaluation Report indicated that, since 2000-01, the percentage of Level 1 students progressing to Level 2 had risen from 22.6% to 29.15%. This contrasted favourably with the initial declared figures of 20% or less, indicating that a number of students had converted from their original choice of subject. The Head of Division advised that the students most likely to convert came from the Department of Geography and Geomatics, Archaeology and Environmental Science. However, he explained that, as many students enter Level 1 with no intention of carrying Earth Sciences beyond Level 1, and the same could be said of the Geography students, this made the progression figures rather less meaningful.

13.2 Progression from Level 2 to Level 3

The Self Evaluation Report indicated that, since 2000-01, the percentage of Level 2 students progressing to Level 3 had risen from 55.8% to 64.15%. Again, this indicated conversion and the Head of Division stated that these students came mainly (but not entirely) from the Department of Geography and Geomatics (although, as before, these students may not have intended to pursue Geography to Honours level in the first place). He firmly believed that these conversions indicated the effectiveness of Level 1 and 2 teaching in encouraging student interest in the subject.

13.3 Progression Advice

It was stated in the Self Evaluation Report that the Division had a recruitment programme for students at Levels 1 and 2. Information sessions and leaflets were provided, informing students of the opportunities available to them. Information was also given on the possibilities for study periods abroad, and the Division had a number of links with overseas institutions.

The Effectiveness of Provision

14. The Department offered evidence of the effectiveness of its provision, by means of External Examiners' comments, Student Success Performance Indicators, student feedback and the employability of its graduates. In general, graduates were in high demand. External recognition was evident, as shown by the links the Department had forged with various external agencies. It was also noted that the Division was seeking accreditation for its programmes by the Geological Society.

14.1 Learning and Teaching

The Self Evaluation Report stated that Earth Sciences graduates were expected to function in a range of settings, including the office, the laboratory and field areas, often in difficult regions. Thus, they needed a wide range of technical and managerial skills. Therefore, the teaching focus was to cover fully the necessary theoretical, practical and field elements in order to produce graduates of a professional standard.

Students stated that the methods of learning and teaching clarified to them the purpose of the subject, and that the fieldwork tended to bring the various elements together.

14.2 Rationalisation of Learning and Teaching

The Panel believed that there was scope for the rationalisation/streamlining of teaching, in terms of contact hours and assessment loads, without compromising the quality of the learning and teaching experience for students. The Panel **recommended** that attention be given to balancing teaching and research commitments, as it was evident that releasing more time to undertake funded research could lead to an overall improvement in the Division's financial position. This would have positive results for teaching – for example, in supporting field work.

The Panel further **recommended** that the Division take the opportunity of asking its two new members of staff to appraise the learning and teaching methods within the Division, and identify areas which could be refined.

15. Learning Resources and their Deployment

15.1 Team Teaching

The Self Evaluation Report indicated that team teaching was standard within the Division and that, with a small staff group, this meant that almost all staff members taught at all levels. It was also explained that the different specialisations at each level were taught by the same staff member, or a member of staff from the same subject group, and that this ensured smooth articulation within and between levels. The Head of Division and the staff group believed that this close integration was extremely effective in ensuring that learning and teaching formed a coherent whole.

15.2 Staffing

The Panel noted from the documentation that the Division currently employed 9.75 staff FTEs, two of these having been recently appointed. The Head of Division expressed the opinion that staff had very high workloads compared to those in other areas of the University – particularly because of fieldwork teaching commitments. The staff group stated that they had struggled over the past session due to higher student numbers and fewer staff, and that this had been very tiring. However, they noted that the work of the Postgraduate Demonstrators had relieved much of the pressure. Two new staff had recently taken up appointments which, it was expected, would further relieve some of the pressure. New staff were given a reduced load in line with the New Lecturer/Teacher Development procedures. However, this clearly placed more responsibility on the remaining staff. It was stated in the Self Evaluation Report that the main staffing priorities for the future were the appointment of a full-time Geophysics lecturer and a sedimentologist, with a move towards a target of 11 staff FTEs

15.3 Postgraduate Demonstrators

The Panel heard that much of the lab-based work at Level 1 was taught by a part-time tutor assisted by postgraduate demonstrators and, according to the Head of Division,

this had not only relieved some of the pressure on staff, but had also resulted in some excellent teaching. All demonstrators taking classes were required to take an induction and training course provided at Divisional and Faculty level, and they were supervised by the experienced post-doctoral tutor. They also received training in the leadership of field groups, under the supervision of academic staff. Feedback from students was obtained through questionnaires and directly, and the Head of Division believed the postgraduate demonstrating team was highly effective in developing a good rapport with the student group and in bringing an understanding of students' needs to their teaching and learning.

The Demonstrators group stated that they were involved in Level 1 and Field Trip teaching, but that they were keen to have more responsibility. Many believed they could teach above Level 1 in their areas of specialism, and wished to teach for more than the standard 3 hours per week. They believed this was not possible at present because of financial constraints. The Head of Division and the staff group agreed that this would be a positive step and would be welcomed, but financial restraints were indeed preventing any additional hours being allocated to Demonstrators. The student group agreed that the use of Demonstrators after Level 1 would be helpful, as beyond Level 1 they found it more difficult to receive individual attention in labs. The Demonstrators confirmed that they had received training within the Division and that they always knew in advance the topics to be taught. They each received a course booklet containing the teaching requirements, and received guidance from a Staff Tutor. They stated that students found it easy to approach them with problems, although that these tended not to be major. Any problems brought to their attention would be referred to the Level 1 Co-ordinator. The Demonstrators felt they could, with guidance, tackle some assessment responsibility.

With regard to Field Trips, the Demonstrators stated that academic staff were normally in charge of the student groups, but that on occasion a Demonstrator would take charge of a group. However, they were not responsible for safety issues, although they were briefed on possible dangers before each trip and had received a small amount of first aid training as part of the Divisional training. Demonstrators felt able to lead groups and would appreciate opportunities to do so.

The Panel **recommended** that consideration be given to the possibility of increasing the amount of teaching undertaken by the Postgraduate Demonstrators, as well as expanding the type of teaching done and their involvement in the assessment process. The Panel acknowledged that the funding issue was a serious one, but felt that the expansion of the Demonstrators responsibilities would be an appropriate use of funds and would allow staff more time to pursue their research interests.

15.4 Interim Teaching Group

The Head of Division explained to the Panel that the Interim Teaching Group involved both the Division of Earth Sciences and the Department of Geography and Geomatics. Its remit was to look at the overlapping in existing provision, and to produce joint, integrated course teaching. This in turn would, it was expected, provide economies of scale and reduce teaching time, whilst providing improved learning and teaching for students.

15.5 Study Leave

The Head of Division told the Panel that there was a facility for staff to take study leave, although there was not a strong history of people taking this. He stated that no staff member had taken study leave since the constitution of the Division. The Panel **recommended** that all staff be made fully aware of the opportunities available to them for study leave, and that support be given where required.

15.6 Departmental Accommodation

Panel members were given the opportunity to visit the Division's accommodation and tour its facilities, including lecture space, laboratories, postgraduate offices and study/social space. No major problems with the size or quality of accommodation had been reported. However, the Postgraduate Demonstrators group stated that there were occasional problems due to the sharing of undergraduate laboratory space, which meant large numbers of geological samples had to be moved. They advised that at times the laboratories were very full, with up to 50 students being taught at one time, but that the increased number and quality of samples had reduced the difficulty of such situations.

15.7 I.T. Facilities

Students benefited from 24-hour access to I.T facilities and also from technical support staff within the Division. There were two computer clusters – one dedicated to undergraduate students, and one dedicated to postgraduates – as well as specialist equipment and subject-specific software. Access was monitored and it was noted that usage was often fairly low at night, although at assessment times there would be far greater demand on the facilities. The student group stated that during assessment times, and particularly at the time of dissertation submissions, it was often difficult to access the facilities, particularly as the necessary software was not available in the University Library. However, they acknowledged that the 24-hour access placed them in a more favourable situation than students in many other departments.

The Maintenance and Enhancement of Standards of Awards

16. The Self Evaluation Report indicated that standards were maintained using a number of methods, including the Annual Business Meeting, the Undergraduate Module Assessment Programme, and the Staff Student Liaison Committee. The Annual Course Monitoring process also provided an opportunity to identify relevant issues and act upon them. The External Examiners also played a key role in ensuring comparability with standards and practice in other institutions. The comments and suggestions made by the External Examiner were taken seriously and often formed the basis of further discussion within the Division.

The Maintenance and Assurance of Quality

17. The Division was last reviewed internally in 1992, and underwent a Quality Assessment review by SHEFC in 1994 (as part of the Department of Geology and Applied Geology). Both reviews were very positive and comments and recommendations made were taken into account.

17.1 Quality Assurance Methods

A variety of measures were in place with regard to quality assurance – these included student questionnaires, the inclusion of student representatives in various committees and the regular review of courses.

17.2 Training of Postgraduate Demonstrators

All demonstrators taking classes were required to take an induction and training course provided at Divisional and Faculty level, and they were supervised by an experienced post-doctoral tutor. They also received training in the leadership of field groups, under the supervision of academic staff.

17.3 Mechanisms for Student Input

The student group confirmed there were various means by which they could offer their input, the main one being the use of questionnaires. These were distributed for some modules (approximately 25% of all modules each year), although students stated that they would prefer to be able to offer feedback on all of the courses they took. The Panel **recommended** that questionnaires be distributed for all courses in future, rather than a sample.

17.4 Divisional Culture

The Panel noted the Division's flat management structure in which one single committee, the Management Committee dealt with matters of divisional teaching and learning. All members of academic staff were part of this Committee. The Head of Division advised that this flat structure had been consciously chosen at the time of the reorganisation in 1998, as management had previously been remote and staff had not been fully involved in the decision making process. He explained that the move to the flat structure had had the immediate advantage that all staff felt involved in the decisions which affected the Division, and in turn this made it likely that all decisions had the full support of the staff. The Panel questioned whether this type of structure would continue to be effective if, for example, the Division were to merge with the Department of Geography & Geomatics. The Head of Division acknowledged that it would become less effective with a high number of staff, and would require to review the situation in that event. He also stated that, at present, he was largely responsible for much of the administration within the Division, and that it was hoped some of this could be devolved in order that the administrative burden did not rest on one member of staff.

Enhancing the Student Learning Experience

18. The Division offered examples of a variety of enhancements it had brought into its programmes.

18.1 Professional Accreditation

It was stated in the Self Evaluation Report, and by the Head of Division, that professional accreditation was being sought from the Geological Society. This would allow graduates to be accredited as Chartered Geologists. The student group were very positive about this development. The staff group were also positive, whilst acknowledging that the curriculum may have to change in line with accreditation requirements and the natural evolution of the subject.

18.2 Commitment of Staff

It was the unanimous opinion of the student group that staff in the Division were approachable and friendly, with a high level of commitment to the subject and to their students. Flexibility was shown in relation to 'office hours', with students being able to call on staff at different times. The Division was to be **commended** on these points.

Future of the Division

19. The Head of Division explained that the Division, while formally a division of the Department of Geography and Geomatics, was autonomous, and financially responsible to the Dean of the Faculty of Physical Sciences. He stated that the Division was in the midst of an evolutionary process which would be reviewed in 2005. He was of the opinion that there were mutual benefits resulting from the Division's relationship with the Department of Geography and Geomatics within the Centre for Geosciences,

particularly in terms of research integration. The Head of Division commented that staff in the Division were open to new arrangements provided these took account of their firm belief that the teaching of Geology was key to the Earth Sciences programmes.

The Panel questioned whether there might be a mismatch of department philosophies were the Division to merge with the Department of Geography and Geomatics, given its more conceptual and methodological emphasis. The Head of Department believed the mismatch would not be as great as might be expected, as students in the Division were regularly exposed to integrated problem solving and were encouraged to question and investigate issues.

Summary of Key Strengths and Areas to be Improved or Enhanced in relation to Learning and Teaching

Key Strengths

- The Division demonstrated a cohesive, consultative approach and staff showed a strong commitment to the success of the Division
- Staff were reported by students to be approachable, supportive and always willing to offer help
- The recruitment activities being undertaken showed a proactive approach to securing the Division's future
- The Division's applied approach to teaching provided a meaningful learning experience for students
- The Division had a variety of excellent equipment and facilities to assist students in their learning

Areas to be Improved or Enhanced

- The uncertainty surrounding the funding for fieldwork needs to be resolved

H. Conclusions and Recommendations

Conclusions

The Panel concluded that the Division's provision was of a high quality overall, and in particular wished to commend the Division on the following points:

- The recruitment activities being undertaken, particularly in schools
- The approachability, willingness and commitment of staff

More generally, the Panel noted that the Division had maintained the quality, depth and breadth of its provision, despite a relatively small permanent academic staff and high staff/student ratios. It was to be commended on this.

Recommendations

The recommendations interspersed in the preceding report, and summarised below, are made in the spirit of encouragement in order to enhance the already high standards of the Division of Earth Sciences. The recommendations have been cross-referenced to the corresponding sections of the report, and are ranked in order of priority.

1. That the Department raise with the Faculty and the University the mechanisms by which Fieldwork Trips can be funded for the future [refer to Item 10.1]

Action : Head of Division/Dean of Faculty

2. That attention be given to balancing teaching and research commitments, as it was evident that releasing more time to undertake funded research could lead to an overall improvement in the Division's financial position [refer to Item 14.2]

Action : Head of Division

3. That the Department continue to monitor its field classes, in terms of form and length, in order to ascertain whether any further rationalisation was possible [refer to Item 10.1]

Action : Head of Division

4. That consideration be given to the possibility of increasing the amount of teaching undertaken by the Postgraduate Demonstrators, as well as expanding the type of teaching done and their involvement in the assessment process [refer to Item 15.3]

Action : Head of Division

5. That questionnaires be distributed for all courses in future, rather than a sample [refer to Item 17.3]

Action : Head of Division

6. That the Division investigate the possibility of developing students' oral presentation skills prior to Level 3 [refer to Item 10.5]

Action : Head of Division

7. That alternative means of assessment to the laboratory examinations be investigated [refer to Item 9.1]

Action : Head of Division

8. That the issue of assessment deadlines be considered by the Division, together with the Department of Geography and Geomatics, in order that possible solutions might be found which would encourage more students to choose the Geography options. Further, that this be done as part of the existing plan to increase the amount of shared teaching between the Division and the Department of Geography and Geomatics [refer to Item 10.6]

Action : Head of Division/Department of Geography & Geomatics

9. That the programme of careers talks be assured for future cohorts.

Action : Head of Division

10. That consideration be given to the possibility of offering more teaching in Geotechnics [refer to Item 10.7]

Action : Head of Division

11. That a clear and consistent policy on the provision of feedback be clearly communicated to the students in order that they knew the extent of the feedback they might expect [refer to Item 9.3]

Action : Head of Division

12. That the Division take the opportunity of asking its two new members of staff to critically appraise the learning and teaching methods within the Division, and identify areas which could be refined [refer to Item 14.2]

Action : Head of Division

13. That the use of tutorials be considered [refer to Item 10.4]

Action : Head of Division

14. That all staff be made fully aware of the opportunities available to them for study leave, and that support be given where required [refer to Item 15.5]

Action : Head of Division

Prepared by: Janet Anderton, Senate Office

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