

State University of New York at Albany

MEMORANDUM

TO: Vice President Ramaley
 Vice President Shumaker
 Dean Wulff
 Professor Means ✓

FROM: Robert McFarland

DATE: May 23, 1983

SUBJECT: GAC-Review of Academic Programs in Geological Sciences

WDM ✓
 SED ✓
 WSP ✓
 JWD ✓
 TMH ✓
 AM ✓
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 KB ✓

I am pleased to report that at its meeting on May 12, 1983, the Graduate Academic Council approved the attached report as it pertained to the M.S. and Ph.D. programs in Geological Sciences. The Undergraduate Academic Council will review those sections of the report pertaining to the B.S. program in Geological Sciences in the 1983 Fall Semester.

If you have any questions about the attached report, please let me know.

R.M.
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*Returned to
 SED for
 necessary
 action
 Kevin Roberts
 1/28/84
 198307071515*

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MEMORANDUM

TO: Graduate Academic Council and Undergraduate Academic Council
FROM: Committee on Program Review *Robert M. Garland for*
DATE: 4 May 1983
SUBJECT: Report of the Review of the Undergraduate and Graduate Programs
in Geological Science

This review followed the usual pattern with the preparation of an internal SELF-STUDY document by the Department of Geological Sciences and the selection of distinguished external evaluators by the Committee for Program Reviews. Professor Clark Burchfiel of M.I.T. and Professor Bruno Giletti of Brown University served as external reviewers and conducted extensive on-campus interviews on February 22 and 23, 1983. This Committee Report takes into consideration the Departmental SELF-STUDY, the Burchfiel-Giletti Report, written responses to that report by Dean Daniel Wulff and Professor Winthrop Means, Chair, Department of Geological Sciences, and a meeting of the Committee with the two evaluators.

Status of the Department

The Department offers three academic programs: the B.S., M.S., and Ph.D. It has nine full-time faculty members, of whom seven are tenured. One tenured professor, Peter Benedict, is scheduled to retire in 1983. The Department emphasizes two specialized areas of geology in its curriculum and research activities: tectonics and geochemistry/ petrology. The recent departures of Professors John Dewey and Jeff Fox were significant losses to the tectonics strength in the Department, especially as the bulk of the doctoral students are concentrated in that specialization.

Student enrollments in the undergraduate and graduate programs have been relatively stable over the past four years:

<u>Majors</u>	<u>1979-80</u>	<u>1980-81</u>	<u>1981-82</u>	<u>1982-83</u>
Undergraduate	52	45	53	47
Graduate	28	29	22	26

The department has received an average of twelve university assistantships over the past three years. In the last four years the Department has awarded 68 B.S. degrees, 18 M.S.'s, and 6 Ph.D.'s.

The Burchfiel-Giletti Report

The University received an excellent written report from Professors Burchfiel and Giletti. Their lengthy analysis is a model of discriminating perception, realistic appreciation, and thoughtful advice.

The reviewers observe that Albany has a medium-size department that has chosen to specialize in two areas, tectonics and geochemistry/ petrology, rather than cover most of the sub-fields in the discipline. They consider this choice successful and conclude that the department has "a critical mass of both faculty and students so as to be viable to teaching and research." Nevertheless, they believe that the faculty's success in teaching and research is seriously strained by its present size and specialization imbalance. The majority of the faculty specialize in geochemistry/petrology. The majority of the graduate students specialize in the tectonics area.

Before discussing the key concerns of the External Report, the Review Committee is pleased to acknowledge the evaluator's final assessment of the faculty and students:

"The department has acquired what we consider is an outstanding faculty, which is well known for its research efforts. It has attained a fine international reputation, and is attracting excellent graduate students in specialized fields. The faculty have an international scope in both their teaching and research. The Department has a reasonable balance between graduate students and undergraduate majors. Further, there is a good mix, at present, between faculty whose focus is mainly on research and graduate teaching, and faculty whose focus is principally on the undergraduate teaching level. In reviewing the curriculum and talking with the undergraduates we found the Department quite healthy. The undergraduates felt they were getting good instruction, the faculty was very helpful and approachable, and the general atmosphere was good."

Having firmly and succinctly attested to the high quality of the faculty and students, Professor Burchfiel and Gilette devoted much of their report to providing consulting advice to a department that has secured their confidence.

The reviewers feel that a major gap currently exists in the department's curricula: coverage of soft-rock geology. It has been inadequately covered in the past by part-time appointments; its inherent disciplinary importance demands stable, integrated coverage rather than patchwork efforts. Their strongest recommendation in the report calls for the next faculty appointment to have expertise in soft-rock/tectonics with a field (rather than laboratory) orientation.

A second area of concern focused on the shift in faculty resources as they impact upon graduate students. The departure of Professors Dewey and Fox has resulted in the imbalance mentioned above between the majority of faculty being in geochemistry/petrology and the majority of graduate students in tectonics. This disparity has also caused serious problems in student advising and tectonics field research for graduate students. They recommend that the graduate admissions policy in geology be weighted towards fewer admissions for applicants wishing to concentrate in tectonics and more admissions for those desiring advanced training in geochemistry/petrology, a distribution that should more accurately reflect the current state of faculty strength.

The reviewers noted that communication problems existed between the faculty and the undergraduate and graduate students. (At the graduate level, the departures of Professors Fox and Dewey was thought to be significant in some student feelings of resentment and unhappiness.) The Department has acknowledged this state and has taken steps to ameliorate the conditions mentioned in the report. It should be noted that both the reviewers and this Review Committee, although recognizing the need for improvement in faculty-student communications, do not see this as a particularly serious problem or one uncommon to other departments.

Research emphasis in the department has increased in laboratory-based work while the emphasis on field studies is declining. The reviewers believe that this growing imbalance will have a negative impact upon the department's instructional programs, especially the tectonics concentration. Increased field studies would have a positive influence on the undergraduate program and foster more productive faculty/student contacts. Adequate supervision of field research activities is quite expensive; the Committee acknowledges that this is a thorny area for improvement given the difficult financial posture of the university today.

Finally, support facilities for the program in geological sciences, including scientific equipment, library, computer, and technical shops, were found reasonably adequate; but the reviewers left the impression that any diminution of present support would have an immediate effect on teaching and research in the department.

Conclusion

In defining a high-quality, modern department in the geological sciences, Professors Burchfiel and Giletti have written:

"We feel that any department capable of addressing the problem of the 1980's and beyond should have several important characteristics. The first is a sound curriculum both at the undergraduate and graduate levels. Second, it

should be engaged in important research activities which will contribute to the understanding of the earth, and be cognizant of the trends that the science is taking. Additionally, it should keep current with the major progress and contributions of others in the field; and be in reasonable contact beyond the university, with an involvement in community service locally, nationally, and internationally."

It is their assessment that our Department of Geological Sciences has satisfied those criteria. The Committee for Program Review is pleased to report that it concurs with the reviewers' judgement. It commends the Department of Geological Sciences for the excellence of its undergraduate, graduate, and research programs.

While acknowledging that much of the consultative advice of the reviewers depends on the availability of additional or replacement resources, (administrative actions that lie outside the providence of this Committee) the Review Committee does wish to make known that it found persuasive the reviewers' comments regarding the need for broader coverage of geological topics in the undergraduate curriculum, the need for a faculty member with competence in soft-rock geology, and the problems associated with the faculty imbalance between tectonics and geochemistry/petrology. These should be key items on any agenda for discussion between the Department and the administration.

Recommendations

1. The Department should continue its efforts to increase effective communications between faculty and students and to increase student participation in appropriate Departmental discussions and decisions.
2. The Department should examine its graduate admissions policies to see if changes are needed to have student admissions coincide more realistically with current faculty areas of expertise and time available for field research, supervision, and research advisement.
3. The Committee urges the Department Chair to discuss with the University administration the concerns raised by the reviewers dealing with need for faculty in soft-rock geology and geochemistry/tectonics, adequate support for field research activities, and satisfactory coverage of the undergraduate curriculum.