Geological Sciences Program Review 2016-17

Closing MOU **September 28, 2017**

Overview

Degree/Certificate Programs Reviewed:
Geology, Bachelor of Science
Geology, Master of Science
Geology, Dr. of Philosophy
Geological Engineering, Bachelor of Science
Geological Engineering, Master of Science
Geophysics, Bachelor of Science
Geophysics, Master of Science
Geophysics, Dr. of Philosophy
Geo-Engineering, Dr. of Philosophy

Department Chair & Dean: Wendy Calvin, Chair; Jeff Thompson, Dean

External Reviewers & Affiliation:
Dr. Dawn Sumner, Chair, Earth and Planetary Sciences, UC Davis
Dr. Peter Fawcett, Chair, Earth and Planetary Sciences, University of New Mexico
Dr. Peter W. Reiners, Dept. Head, Geosciences, University of Arizona

Date of External Visit: April 6-7, 2017

Review Process Summary

The Geological Sciences programs were scheduled for regular program review in 2016-17 as mandated by the Board of Regents and University policy. A self-study document for the program was developed by the program faculty and completed in Spring 2017. The report was provided to three reviewers before they conducted an on-campus visit on April 6-7, 2017. The external reviewers reviewed the programs and met with relevant faculty, staff, students and administrators to determine the department's accomplishments, examine strengths and weaknesses, and identify opportunities as its plans for the future. A final report was issued by the site visitors shortly after the review visit. In accordance with institution practice, responses to the review were solicited from the department and the dean. A final meeting of all parties took place on August 25, 2017. This documents represents the final MOU of recommendations and findings from the review.

Signatures

Executive Vice President & Provost: _____ Date: 9/25/17

Vice Provost, Undergraduate Education: _____ Date: 10/3/17

Major Findings and Conclusions

1. General: Excellent and world-renowned faculty and students; world class research and exciting teaching programs; publications in top journals; great setting to do geosciences; excellent MacKay reputation
2. Particular strength in economic geology; distinctive mining engineering program
3. Strong graduate programs
4. Undergraduate student recruitment through the Mackay School is excellent
5. Breadth of undergraduate degree options is a strength
6. Strong undergraduate research program with accessible faculty
7. Excellent *Field Camp*
8. Excellent undergraduate advising with dedicated advisors
9. Very good placement of graduates in both graduate schools and industry
10. DGSE/NSL/NBNG shared graduate program is a strength
11. Positive junior faculty who appreciate the leadership of the chair

Next Steps for this Program/Department

1. A strong graduate program could be improved; enrollment numbers have fluctuated. Recruitment of graduate students is often by word-of-mouth, and faculty are not coordinated in this effort.
   Recruiting efforts should focus on the Ph.D. program. The graduate studies committee is currently focused on admissions evaluations, but should expand to look at recruitment and the curriculum. A joint website is recommended for all geological sciences programs, similar to what Molecular Biosciences has implemented. They should inquire with Marketing & Communications about receiving a report of the traffic to their website and also get advice from the graduate school about curriculum, recruitment, and advising.
2. Course scheduling is inefficient and uncoordinated. The unstructured graduate curriculum leads to inefficiency and uncertainty in graduate student progression and excessive time to degree.
   The chair should reestablish department curriculum committees to take on this task.
3. The current required credit levels for graduate degrees may be too high, and Ph.D. students take courses until they defend.
   The department should review the requirements at peer and aspirant institutions.
4. The reviewers saw the need for better integration of the teaching and research missions of the department, Nevada Seismo Lab, and Nevada Bureau of Mines and Geology.
   These units are working on regular joint meetings. They are talking about doing more joint work with the undergraduate curriculum. The tensions of the past are gone, and they are much more collaborative, especially the junior faculty. They are coordinating well on hires too. Currently teaching assignments are done by the chair, but they will work on establishing a "teaching oversight committee" with representation from all units to perform an evaluation of the teaching of the faculty. Teaching evaluations should be routed through the DGSE chair, and then to the respective directors in the appropriate unit. This information would then be incorporated into the annual evaluation of the relevant faculty member.
5. The reviewers suggested that expansion of service to the Core Curriculum/General Education could justify new GTA positions. Those positions could be used in recruiting excellent graduate students not tied to PI-provided RA positions.
   The department has 2 proposals with the Courses & Curricula Committee that could fulfill Core 9 objectives.

6. The reviewers also suggested that additional Graduate Teaching Assistants are needed to support the existing courses.

   The department was allocated two additional assistants in 2016-17. The dean has requested the department to do a survey of university geoscience departments to determine best practices for GTA assignments and workload.

7. The reviewers recommended that course scheduling be delegated to an associate chair or faculty member with this service assignment.

   As an interim step, the undergraduate curriculum committee with this responsibility will be reestablished. The department is also looking at a "chair elect" model that could address this work. The department is asked to be prepared to report on how the committee is working as well as the result of their exploration of a chair elect and/or associate chair model during the mid-point evaluation for this review.

8. The reviewers were impressed with the quality of the Field Camp but were also concerned that this service role is an imposition on untenured faculty.

   The department has a commitment from a faculty member in NBMG to take responsibility for the camp for the next few years and will explore other methods for ensuring the camp continues but does not burden untenured faculty.

9. *All colleges have been directed to ensure that formal mentoring plans and programs for junior faculty are in place by next fall. The dean has directed all College of Science chairs to prepare a formal mentoring plan for incorporation in the college's plan. This plan should address not only assistant professors on the tenure track but also associate professors who should seek promotion to full professor.*

10. The department was advised to clarify faculty roles in fundraising/development with alumni and others.

    The college development officers are ready to work with faculty on how they can be an asset for development for the department and programs. The first step should be a meeting with the dean and his development officers to discuss possible other areas for fund raising.

Vital Statistics on NSHE Reports

Geology, B.S.

Number of students with declared major in the program area:	83
Number of graduates from the program, 2014-15:	9
Number of graduates from the program, 2015-16:	20
Number of graduates from the program, 2016-17:	13
Headcount of students enrolled in any course related to the program (duplicated):	2,228

Geology, M.S.

Number of students with declared major in the program area:	18
Number of graduates from the program, 2014-15:	12
Number of graduates from the program, 2015-16:	4
Number of graduates from the program, 2016-17:	7
Headcount of students enrolled in any course related to the program (duplicated):	172

Geology, Ph.D.

Number of students with declared major in the program area:	16
Number of graduates from the program, 2014-15:	0

Number of graduates from the program, 2015-16:	4
Number of graduates from the program, 2016-17:	0
Headcount of students enrolled in any course related to the program (duplicated):	113*

Geological Engineering, B.S.

Number of students with declared major in the program area:	90
Number of graduates from the program, 2014-15:	13
Number of graduates from the program, 2015-16:	20
Number of graduates from the program, 2016-17:	20
Headcount of students enrolled in any course related to the program (duplicated):	361

Geological Engineering, M.S.

Number of students with declared major in the program area:	3
Number of graduates from the program, 2014-15:	1
Number of graduates from the program, 2015-16:	0
Number of graduates from the program, 2016-17:	3
Headcount of students enrolled in any course related to the program (duplicated):	17

Geophysics, B.S.

Number of students with declared major in the program area:	20
Number of graduates from the program, 2014-15:	5
Number of graduates from the program, 2015-16:	2
Number of graduates from the program, 2016-17:	5
Headcount of students enrolled in any course related to the program (duplicated):	113

Geophysics, M.S.

Number of students with declared major in the program area:	7
Number of graduates from the program, 2014-15:	0
Number of graduates from the program, 2015-16:	1
Number of graduates from the program, 2016-17:	0
Headcount of students enrolled in any course related to the program (duplicated):	3

Geophysics, Ph.D.

Number of students with declared major in the program area:	11
Number of graduates from the program, 2014-15:	3
Number of graduates from the program, 2015-16:	1
Number of graduates from the program, 2016-17:	1
Headcount of students enrolled in any course related to the program (duplicated):	1*

Geo-Engineering, Ph.D.

Number of students with declared major in the program area:	11
Number of graduates from the program, 2014-15:	3
Number of graduates from the program, 2015-16:	1
Number of graduates from the program, 2016-17:	1
Headcount of students enrolled in any course related to the program (duplicated):	6*

*While each of the Geo(xxx) ph.d. plans has its own unique program code, cross-course taking occurs at a high level in these programs.