



CALIFORNIA STATE UNIVERSITY, FULLERTON

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To: Dr. Marie Johnson, Dean
College of Natural Science and Mathematics

From: Dr. Adam D. Woods, Chair
Department of Geological Sciences

Subject: Department response to External Evaluation Report for The Department of Geological Sciences PPR

Initial Remarks:

The review committee for the Department of Geological Sciences 2021-22 Program Performance Review consisted of three members with diverse backgrounds and experiences. The committee members were:

- Dr. Merri Lynn Casem, Professor and Chair of Biological Sciences, CSUF
- Ms. Christine Irwin – Alumnus and Earth Science Educator
- Dr. Claire Todd – Chair, Department of Geological Sciences, CSU San Bernardino

We appreciate the great deal of time and consideration that the external committee put into evaluating our PPR and in visiting our department. We are pleased that the committee recognizes our department's commitment to student success, collegiality amongst faculty and staff, and our connection to both our alumni and external employers. We also appreciate that the committee noted our commitment to providing field and research-based experiences to our students, and that they recognize that continued support by the university and college is critical to keep these programs in place.

Response to Areas of Opportunity:

1. *Build on the department's commitment to DEI:*
 - a. *Provide professional development opportunities specific to DEI for tenured/tenure-track, part-time faculty and graduate teaching assistants.*
 - *Leverage existing GEOL faculty expertise (Bonuso – Elevar workshop) as well as CNSM and campus resources.*

We agree that building on our commitment to DEI is important, and we will continue to look for ways to bring DEI development opportunities from internal and external sources to all of our teaching faculty, including graduate teaching assistants (TAs) and lecturers. The tenure-track faculty and staff are currently completing URGE

training (Unlearning Racism in the Geosciences), and we would like to expand this opportunity to part-timers and TAs next fall. We did not initially include these groups because the recommended group size is 15 participants or fewer in order to encourage discussion. We have plans to implement a departmental DEI committee beginning in the 2022-23 academic year that will look for and arrange more training opportunities for faculty and staff, lead discussions of papers related to DEI, and provide opportunities for our faculty to share experiences from DEI workshops and focus groups (like the Elevar workshop attended by Bonuso).

b. Develop more nuanced measures of success for students, faculty, and staff.

We will develop an annual climate survey in consultation with the departmental DEI committee that we will send out to all students, faculty, and staff to identify and resolve any DEI-related or other issues in the department. We are currently revising our DPD and DSLF, and will include credit for DEI training for tenure track faculty and lecturers. We will update our undergraduate and graduate student handbooks to include DEI resources, and will revisit and revise our student code of conduct. Finally, Drs. Bonuso and Isava are developing a peer mentoring program whereby upper division students mentor lower division students to help guide them through the major, and will include a DEI component.

c. Use institutional data to identify equity gaps, and to prioritize work in specific classes or in support of specific student groups.

We will look for and address equity gaps in our GE and majors offerings, as well as in our department in general, using Tableau and our annual departmental climate survey. In addition, professors will be encouraged to look at their own equity gaps via Tableau, and will be directed to FDC and external resources to help them address those gaps.

d. Align DEI-related goals with student learning, recruitment, and retention goals

The departmental DEI committee, in coordination with the NSM DEI committee, will work with faculty to integrate DEI goals into our learning, recruitment, and retention goals. In addition, our peer mentoring program will help address equity issues, especially those related to retention.

e. Engage lecturers in departmental DEI efforts to establish a culture of inclusion throughout the department.

We will invite lecturers to be a part of the URGE program, and will include lecturers in other future DEI efforts, including training and workshops. We will encourage and credit DEI training as part of our evaluation of lecturer portfolios, and will update our DSLF to reflect the importance of DEI training. Finally, the Department Chair, GE Coordinator and DEI committee will work with all GE instructors to make our GE classes more inclusive.

f. Integrate DEI-related approaches into future hiring plans.

We take DEI approaches very seriously when hiring new faculty. All applicants must complete a required diversity statement as part of their faculty application packet, and we include discussions of this document during interviews, and base our hiring decision, in part, on each candidate's DEI philosophies and approaches. We will continue to require this statement for faculty applicants, and will work in consultation with our DEI committee and the NSM DEI committee to evaluate and update our rubric related to candidate diversity statements.

- 2. Consider how future hires could reflect changes in the field and align with student interests in the intersection of geology and earth science with global climate change, and a move away from the historic focus on oil exploration.*

We agree with the committee's position that the future of the geosciences has moved away from the traditional focus on oil and gas exploration and towards better understanding global climate change and ameliorating the worst effects of global warming. Our discussion of future hires and trends in the geological sciences at our August 2021 retreat and Fall 2021 faculty meetings led us to focus our upcoming search on hiring a resource geologist that studies the processes that lead to the accumulation of metals and rare Earth elements, which are key ingredients in green technology, but are either rapidly running out (e.g., rare Earth elements found in the Mountain Pass area south of Las Vegas), or are in the early stages of development in the United States (e.g., lithium mining near the Salton Sea). This person would be able to provide training in mineral exploration techniques to our students that are in-demand in the green energy sector, while teaching majors classes that are part of our established geology curriculum (Earth Materials, Optical Mineralogy). Other new hires would focus on Engineering Geology (one of the largest employers of CSUF geology alumni), and, if approved, Remote Sensing, which uses satellites to measure various aspects of our planet and is an important component of climate change research.

3. *Develop a more refined assessment plan.*
 - a. *The measures described in the self-study are general and may lack the resolution needed to identify actions that would improve student learning.*
 - b. *A more refined assessment plan could support DEI and student success initiatives identified by the department.*

We will break down our SLOs into incremental outcomes that the students can progress through during their degree program. We believe that this approach will provide a higher resolution determine if our SLOs are being met, and if not, allow us to react nimbly and make necessary changes. We believe that this more refined assessment plan will also allow us to support student success and DEI initiatives.

- c. *Leverage the expertise of recent hires to lead these assessment efforts.*
 - *Recognize scholarship associated with this work in the RTP process.*

We will incorporate the assessment ideas of our newest hires (Metcalf and Isava) into our departmental assessment efforts. Leading assessment efforts will be considered a service leadership role, and we will update our DPD to reflect this during our current revision. In addition, any publications that result from assessment of our GE students or majors will be counted towards the SCA publication requirement in our revised DPD.

4. *Include introductory courses such as GEOL 101 in recruitment, student success and DEI initiatives*
 - a. *Evaluate possibility of moving GEOL 101L to a “low cost/no cost” course by eliminating or reducing the lab manual cost for students.*

While many of our faculty have moved to open education resources (OER) in their GE classes, not all faculty may be aware of what is out there. The Chair and GE Coordinator will encourage our faculty to examine the resources that are available via OpenFullerton, along with MERLOT, and encourage faculty to at least include an OER option in their syllabi. In addition, the GE Coordinator will work our Geoscience Education specialist (Isava) and the TAs to choose OER labs for use in GEOL 101L classes.

- b. *Examine the alignment of the GEOL101L lab manual with the current lab curriculum. The use of the lab manual differs between sections suggesting that the lab-based instruction experienced by the students is also variable.*

We have used a Geology lab manual written by one of our own faculty for the past decade. This lab manual only includes 6 labs, so GEOL 101L instructors are asked to

find or develop their own labs for the remainder of the semester. This approach allows GEOL 101L instructors to make the class their own and gain experience developing educational materials, and has generally worked well, but can be overwhelming to graduate TAs who have little teaching experience. In addition, several of our TAs have recently asked to use OER instead of the lab manual to provide a no cost option to students. The department supports the use of OER in our GE classes, but agrees that it would be better to have a standard set of labs for the class, and perhaps only ask the TAs to find or develop 1 or 2 labs on their own, as opposed to 6 or 7. The GE coordinator will work with our Geoscience Education specialist (Isava) to find online lab materials and develop a curriculum and set of labs that will be used across all lab sections and will align with the learning objectives of the class.

- c. Ensure that student learning objectives for GEOL 101L align/supplement student learning objectives in GEOL 101 lecture. This would promote consistency and student success in GEOL 101L.*
- d. Communicate broader departmental goals to GEOL 101 and 101L instructors.*

The GE coordinator will work to align learning objectives for GEOL 101L with those from GEOL 101 and provide standardized learning objectives to GEOL 101 and 101L instructors. The GE coordinator will work with TAs and new lecturers to develop their syllabi prior to the start of classes to ensure continuity of learning objectives across all GEOL 101 and 101L sections.

- 5. *Evaluate the role of the B.A. in Earth Science in your program*
 - a. Identify ways to improve engagement with BA students, particularly those who do not take advantage of the optional thesis opportunity.*

This has been a topic of discussion at several of our faculty meetings, and the department is looking for ways to include BA students in smaller-scale research projects with faculty members, perhaps through our GEOL 381 class (Data Collection and Analysis for Earth Scientists). In addition, the peer mentoring program being developed by Drs. Isava and Bonuso will help provide a greater sense of community amongst all of our majors. Finally, the department will encourage our Geology Club, which became dormant during the pandemic, to become more active and plan a variety of events that include all students (camping trips, hikes, bowling nights, study sessions, etc.) and builds community.

- b. Leverage pre-service teachers with community outreach to enhance visibility of the CSUF GEOL major and GEOL career options to K-12 and community college students. The proposed Peer Mentor program could play a similar role, in addition to supporting GEOL major student success.*

This is an excellent idea! Students in our peer mentoring program that is being developed by Drs. Isava and Bonuso will be encouraged present on geoscience topics that they are passionate about to K-12 students and community college groups as a way to spread the word about our department to people who might not otherwise know that the geosciences are a career option. Students from our GEOL 410 (Planet Earth for Educators) classes will be encouraged to do something similar, but for community college preservice teachers, or high school students interested in pursuing a career in education.

- c. Revisit the learning outcomes for the BA degree, which are nearly identical to the BS outcomes. Changes may not be required, but the two degrees appear to serve a different student population with different career goals from BS students.*

We will make this a priority during the 2022-23 academic year and will devote time to this during our faculty meetings.

6. *Establish a MA program (project-based vs thesis) to create options for students who otherwise end up in Environmental Science and for professional development for career advancement.*

We plan to dedicate part of a retreat in summer 2022 to discuss the outline of a non-thesis option Masters degree and explore how to add this program to our department.

- a. Explore options for additional support for graduate students including but not limited to tuition fee waivers to ensure equitable and inclusive access to the degree program.*

We have initiated discussions with our Dean and other NSM chairs to stress the importance of a fee waiver to attracting and retaining graduate students, and will continue to advocate for college and university support of the graduate program. In addition, the geology faculty has discussed developing a departmental fund that could be used to help offset the cost of tuition fees via scholarships.

Response to Areas of Concern:

1. *More intentional coordination of GE courses; our review suggests the following:*
 - *Inconsistency in the implementation of course-specific student learning outcomes. Lecturers may benefit from improved guidance in the development and delivery of their courses.*

The philosophy of the department has long been to allow GE instructors to design their own curriculum for their classes. However, we recognize that this policy leads to variability in what is taught in each section of a particular GE course. The GE coordinator will work with GE instructors prior to the beginning of the semester to go over learning outcomes and will help new instructors develop their classes with an eye towards standardization that still allows some freedom for instructors to make the class their own.

- *Inconsistency between lab sections resulting from absence of oversight; in particular, the use and requirement of a lab manual for introductory courses varies across sections.*

The GE coordinator will work more closely with the TAs and lecturers to administer greater oversight of GEOL 101L, and will provide OER and a schedule of labs for the course so the instructors are all teaching the same labs at the same time. The GE coordinator meets bi-weekly with the TAs in the fall to go over instruction strategies, and this also serves as a forum where the TAs can share their experiences and problem-solve.

- *Consider the use of peer-observations and feedback especially for new lecturers.*

We currently conduct peer evaluations of all teaching associates, new lecturers, and those on 1-year appointments every semester, while Associate Professors and lecturers on 3-year appointments are evaluated annually. We will make sure that all instructors know they have the ability to request a peer evaluation at any time.


- *Consider the role of GE lecturers and curriculum in the department's recruitment and DEI-related goals.*

As noted above, we have plans to implement a departmental DEI committee beginning in the 2022-23 academic year. One of the goals of this committee will be to review our GE curriculum and look for ways to reach a more diverse group of students who could become potential majors. In addition, the DEI committee will

make all faculty aware of DEI training and opportunities on campus and from external sources (e.g., URGE). Our revised DSLF will allow lecturers to receive credit for completing DEI training. We will include the lecturers and TAs in future rounds of URGE.

We appreciate the time, effort, and careful consideration that the external PPR committee put into conducting its assessment and writing its report. We will strive to implement policies and actions that address their concerns as described above.

Sincerely,



Adam Woods
Professor and Chair
Department of Geological Sciences