



CALIFORNIA STATE UNIVERSITY, FULLERTON

Office of the Dean

College of Natural Sciences and Mathematics

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4 March 2019

TO: Su Swarat, Director of Assessment and Educational Effectiveness

FROM: Marie Johnson, Dean 
College of Natural Sciences and Mathematics

SUBJECT: Dean's Evaluation: Department of Chemistry & Biochemistry Program Performance Review

The Department of Chemistry & Biochemistry conducted a Program Performance Review (PPR) in AY 2018-2019; the department's self-study, the external PPR committee report, and the Chair's response to the external review are attached to this document.

The PPR included a comprehensive review of the department's current standing with respect to programs, faculty, student support, and resources as well as an outline of long-term plans. The external review committee was comprised of four highly qualified individuals representing diverse viewpoints relevant to the Department's mission and goals. The review committee included one member from another department in the College of Natural Sciences and Mathematics (Merri Lynn Casem, Biological Science, CSU Fullerton), one member with expertise in science education from another college at Cal State Fullerton (Erica Bowers, Department of Literacy and Reading Education, College of Education, and Director, Faculty Development Center, CSU Fullerton), one chemistry faculty member from a sister CSU (Linda Roberts, Chemistry, CSU Sacramento), and one chemist who is a professor in the College of Pharmacy at Marshall B. Ketchum University, Fullerton, CA.

Program Strengths

Faculty, staff, and Chair commitment. The department faculty members and staff are dedicated, hardworking, and student-focused. The department has a strong recruiting and hiring record. The Chair was especially singled out for his inclusive, supportive leadership style which has improved morale for faculty and staff.

Research culture. Department faculty members are research active, vigorously pursue external funding, and achieve award success. The faculty are dedicated to the mission of engaging every undergraduate and graduate student in research experiences. The department demonstrates flexibility and innovation in maximizing the use of space for both research and teaching requirements.

On-going curriculum reform. Department faculty members are engaged in on-going curriculum reform with a focus on sustainably managing the required student research experience and increasing student preparation for industry and research careers. The department is moving towards student-centered active learning pedagogies. Assessment processes are robust and guide curriculum innovations.

Student focus. The department has an excellent advising program for all students. Undergraduate and graduate students commented very positively on the education they are receiving, especially commending the department culture and the Chair. The department has an active internship program and a track record of success in placing graduates effectively into research or industry.

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Recommendations

The external review committee developed a set of nine recommendations for the department, six recommendations for the dean, three recommendations for the provost, and one recommendation for the Academic Senate, some of which overlap. Implementing these recommendations would require an increase in resources (faculty, space, funding) and changes to or creation of department and college-level policies.

Additional hires. The review committee recommends hiring additional full-time faculty to keep pace with the growth in majors. While it is true CSUF has largely operated under a replacement only hiring model, the most pressing issue preventing faculty hiring is space. A successful hire requires identification of both office and laboratory space, both of which are highly constrained. The PPR delineates a vision for converting teaching labs to research labs in DBH and creating teaching labs in MH. This vision requires MH renovation to be a system-wide priority with associated multi-year funding from the Chancellor's Office. Long time professor of biochemistry, Dr. Maria Linder, organized NSM faculty to submit an NSF pre-proposal to design a renovation of MH basement space into a college wide advanced instrumentation center. If funded, designing such a space would allow us to articulate and advance our collective college research vision. The design could perhaps create additional space by consolidation and increased efficiency. In addition, a modest investment of university funds in renovating MH 5th floor space would allow additional faculty office space to be created. Given the very real space constraints, the Chair suggests that the simplest short-term fix is to hire full time lecturers. It has been NSM practice, but it is not required by the CBA, to provide single occupancy offices to such hires.

The review committee notes that the department is understaffed and particularly needs an IT/equipment specialist. This predicament results from the concomitant growth in majors and proliferation of technical equipment within the department's teaching and research labs while staff positions have remained constant. *If only one action were taken as a result of this PPR process, baseline funding to hire an additional technical staff person will have the farthest-reaching effect on department morale and the ability of the faculty members to sustain high quality student-faculty research.*

Professional development. The need for professional development of junior faculty, mid-career faculty, and staff were all highlighted. Junior faculty currently participate in a long-standing, robust mentorship program. Mid-career faculty may need guidance regarding which university-level committees best match their skills and interests. Providing opportunities for travel to professional development conferences to help build a cohort of future administrative leaders or to increase a staff member's skillset is an ideal but difficult with limited funding. In its recommendations to the dean, the review committee stated faculty need to be supported in their external grant writing efforts. The college is currently searching for a Research Grants Specialist and will work to optimize operations with both the Office of Grants and Contracts as well as Auxiliary Services Corporation, all actions undertaken to help faculty compete successfully for external funding. The committee also recommended that the dean ensure all faculty are aware of campus resources for students in-crisis. To implement this suggestion, a representative from the Dean of Students office could be invited to a department meeting to update faculty about such resources.

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Workload and inequities. New faculty are given three WTUs release for each of their first four semesters in order to prepare their new courses. Additional release for teaching preparation may be funded by an FEID grant but is difficult to cover within the department or college budget. The department may benefit from a college wide discussion of the appropriate amount of assign time for course coordinator duties, starting Teaching Assistant salaries, and assignment of Graduate Assistants to large enrollment classes. An increase in any of these areas will require additional funding.

Department Curriculum Committee. The external review committee made three specific recommendations to the department Curriculum Committee: a) include representation from each caucus; b) consider ways to align multi-section large enrollment classes; c) revise graduate course offerings to decrease time to degree. The first recommendation may be problematic in that the department Curriculum Committee is currently staffed by self-selected volunteers. The second recommendation is underway for Chem 120B and Chem 301A. Expansion to Chem 120a should also be explored. Such efforts have the potential to increase student success in the aligned courses and commonality of student experience, which will benefit students in follow-on chemistry courses. In addition, clarification and alignment of course materials will directly address part time lecturer concerns about a lack of support as new faculty. The third recommendation is currently being pursued under the direction of a newly elected graduate program advisor. Time to degree is also a factor of faculty availability to teach 500-level courses and graduate program cohort size. More faculty and larger graduate cohorts increase the ability to teach required advanced level courses to a large enough number of students to be economically feasible. Again, the number of both faculty members and graduate students is limited by availability of lab space.

A related curriculum recommendation concerns the future of Chem 115 Introductory General Chemistry, a four-unit course for underprepared students that does not fulfill chemistry requirements for majors or minors in the physical or biological sciences. The department is encouraged to explore offering Chem 115 and/or the McGraw Hill ALEKS program for Chemistry on-line and/or face to face either in conjunction with Chem 120a or in summer or intersession periods. Such a change would be in-line with the current CSU approach to students with underprepared mathematics skills. Such students no longer enroll in remedial courses but instead take supported college credit granting courses from Term 1.

Department Safety Committee. The external committee recommended reviewing department safety practices. As noted by the Chair in his response, many of these suggestions may be implemented by the existing Laboratory Coordination and Equipment Committee. Restricting undergraduate access to research labs to typical weekday work hours is not feasible but is a good reminder that on-going, effective safety training is a must. The suggestions to hire TAs for organic chemistry labs and to expand stockroom hours to cover evening lab courses have budgetary implications.

RTP Standards. The committee was specifically asked to consider the current RTP requirement of one externally funded grant for a positive tenure decision. The committee reported that all levels of faculty support this requirement. The Chair notes that the entire RTP document is being redrafted with several sections already agreed upon and others on-going. The plan calls for full implementation of the new standard in Fall 2020.

Summary. The Department of Chemistry & Biochemistry is a strong, collegial unit with excellent leadership. Financial models that allow an additional technical staff person to be hired and a plan for sustained equipment repair and replacement are necessary for the department to continue to excel.

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