

**Department of Chemistry and Chemical Biology**  
**Academic Program Review- Action Plan**  
**Feb. 10, 2014 draft**

The external review committee report, received in July 2013, started with several general observations of key impediments to proper functioning of the department:

**Observations:**

- 1) There is a *serious culture problem* in the chemistry department.
- 2) *The size of the faculty is too small.*
- 3) *Inadequate infrastructure, resources and space*, affecting both of the above issues.

The report then continued with additional comments and specific recommendations woven into the text. Individual recommendations have been separated out and numbered for convenience:

**Recommendations:**

I. *In order to grow the department graduate faculty to at least the minimum size of 20 it is necessary for the University of New Mexico to engage in a significant recruitment program.*

Given that four tenured professors are considering retirement in the next 4 years, it will be necessary to hire at least eight faculty over that time period to reach the minimum size of twenty. As noted in the CCB strategic plan, “The most serious and immediate threat to the department is that an inability to increase the current low number of research active faculty will lead to a spiraling decrease in research activity and graduate student numbers and further faculty loss. ...Avoiding this spiral will require improving the departmental “culture” and interpersonal dynamics, increasing external research funding and research capabilities within the department, and finding creative mechanisms to hire new faculty above and beyond the historical average of 1 per year.”

The department must commit to improving its internal “culture” and to actively seeking external resources (e.g., COBRE) to supplement UNM start-up funds. It must also be flexible in finding and recruiting potential faculty who have lower start-up costs and who will make use of existing departmental assets (e.g., hiring faculty who will take advantage of EPSCoR funding).

In turn, we ask that the Dean and the Provost commit to providing salary lines to replace all departing faculty over the next four years, and to provide four additional faculty lines to bring the total research faculty to minimum “critical mass” at the end of that time. New faculty will be hired into CCB’s research focus areas identified in the new strategic plan- Biological Chemistry, Catalysis and Electronic Materials. We anticipate that the new hires will provide natural research links to other UNM departments and to the national labs.

II. *It is important to factor into the recruitment program the need to provide effective mentoring of the new faculty.*

The department has implemented a new mentoring program based on committees of senior faculty from within and without the department. Informal mentoring by individual faculty will continue, but junior faculty are expected to meet with their mentoring committee at least annually to discuss their progress toward tenure, in addition to meetings with the chair and individual faculty.

III. *It is important for the department to recruit more female faculty and more minority faculty. While the department has many minority students, the number of minority and female faculty is small.*

CCB will develop strategies for pro-active recruiting of qualified female, Hispanic and Native American applicants. The department will work with on-campus offices and with professional organizations (SACNAS, COACH, etc.) to develop recruitment strategies appropriate to UNM.

In turn, we ask that the Provost's office provide resources for recruiting and hiring a diverse faculty, including faculty start-up funds.

IV. *It is essential that new faculty be hired with competitive start-up packages, recognizing the different start-up needs in the various areas of chemistry.*

Start-up packages for assistant professors at state universities in the Great Plains are typically- \$400K to \$800K, depending on specialty, and senior hires receive larger packages. CCB's current F&A return is inadequate to fund a substantial "share" (25-30%) of these packages given hiring needs. CCB is pursuing other options, notably external awards like the COBRE which can contribute to start-up costs. Nonetheless, the department will continue to rely on the college and provost's office for additional start-up support.

V. *The accomplishments of senior faculty should be evaluated and significant accomplishments recognized. It is important that faculty who are achieving at a high level are recognized and that this should be done before any counteroffer issues arise.*

The department has begun to note and publicize significant faculty achievements. Over the next year, CCB will commit to devising a more regular evaluation plan for the evaluation of faculty and the determination of workload (by end of 2014).

In turn, we ask that the college and the Provost will find funds for more competitive salaries for successful mid-career and senior faculty. As noted by the APR committee, CCB assistant professor salaries are comparable to those at peer institutions, but salaries at higher ranks are often much lower than those at peer institutions. This pattern risks losing the considerable investment that UNM has made in successful senior faculty.

VI. *Effective graduate student recruitment requires a model where graduate faculty are involved in actively recruiting for the department as a whole.*

The department will re-evaluate its recruiting strategies, which have focused on numbers of incoming students, and develop more appropriate methods of recruiting high-quality students into areas of departmental need.

VII. *(W)e recommend that every faculty member have an annual evaluation and a meeting with the chair.*

All assistant professors had an official evaluation meeting and letter in 2013. In 2014, meetings and letters for tenured faculty and lecturers will be added to the process.

VIII. *The current professional staff is inadequate to support the department's research efforts.*

Before 2008, the department had 6 research staff, including a full-time safety officer; the current research staffing is 2.75 FTE, with safety issues delegated to the building manager. Consequences include limited access to instruments, class disruptions due to instrument repairs, and difficulties maintaining chemical safety and training programs. In the very short term, a position must be created for a chemical safety officer, and with the renovation of Clark Hall an additional instrumentation technician should be hired to maintain and operate departmental instruments and facilities.

IX. *Chemistry departments need major shared instrumentation... and the institution needs to be prepared to provide these (matching) funds in order for the department to be viable in the future*

The college and VPR have typically been able to provide adequate matching support for external equipment grant proposals. However, the current shortage of research staff in the department could become a problem in future proposals.

X. *We strongly recommend that the department look at the proposed interdisciplinary laboratory space extension to the new physics and astronomy building for additional space.*

CCB has been and will continue to be involved in the planning of the planned PandA building, with the intention of placing appropriate faculty laboratories in the interdisciplinary space.

XI. *In the long-term a new building is needed for the department,*

The APR visiting committee argued in their report that renovations of Clark Hall will not be an adequate long-term solution based on the experiences of other universities. New approaches to research and new attitudes toward lab safety will require a new building incorporating modern lab design. Additional space in the PandA building is not likely to be suitable for synthesis-intensive chemistry research.

The department will work with the Provost's office and campus planners to delineate departmental needs and to justify the construction of a new research laboratory building for chemistry (and other units as appropriate).

*XII. The department should develop a new strategic plan*

A strategic plan has been developed by the chair in consultation with the elected advisory committee and has been distributed to the faculty as a whole. Further discussions are planned, but the December 2013 draft of the strategic plan is the basis of this action plan.

*XIII. We recommend that the department evaluate the merit of establishing an external advisory board.*

The strategic plan notes that "CCB will establish an external advisory board (EAB) which includes departmental alumni and local residents as well as chemical scientists from other parts of the country. The EAB will meet once every year or every other year to a) advise the department chair and faculty on strategic directions in research, education and outreach, b) evaluate overall departmental progress and accomplishment and in some cases the outcomes of specific policies and initiatives and communicate these evaluations to the chair and to the Dean of Arts and Sciences, and c) represent the views of various external stakeholder groups, including departmental alumni, New Mexico chemical employers, the New Mexico public, and the national community of chemical researchers and educators."

The composition of the EAB should be complete by the end of AY 2014, and the first meeting should be held in Fall 2014.

*XIV. (W)e encourage the entire upper administration to meet with the faculty and show that there is indeed support for the chemistry program.*

The Dean of A&S spoke at a CCB departmental meeting in Fall 2013. We plan to ask the Provost to speak after the Strategic Plan and the APR action plan have been submitted to his office.

*XV. The department should institute a smaller section of introductory chemistry for chemistry, biochemistry and chemical engineering majors.*

Discussions on re-starting the CHEM 131-132 sequence for this purpose are underway, with CHEM 131-132 to be offered in AY 14-15 and full implementation scheduled for Fall 2015. The new curriculum will emphasize the role of general chemistry concepts in modern research, particularly research in CCB and other UNM departments. The departments of chemical engineering and biochemistry will be consulted, and potentially asked to contribute to a team-teaching effort in this sequence.