

**Department of Chemistry Response
to the
2011 Report of the Ten Year Review Visiting Committee**

January, 2012

Introduction

We thank the Visiting Committee for its work and thoughtful report. The Department of Chemistry accepts all of the recommendations therein. We provide here additional perspectives on the two main areas identified for improvement.

A central finding of the report was that our undergraduate program has been damaged by explosive growth unmatched by an increase in resources. So far as we know, the depth of this problem is unique to UW Chemistry among chemistry departments nationally. Though exacerbated by the "Great Recession", this problem is much longer-standing, having emerged over the past two decades. We have grown to become the largest chemistry instructional program in the nation, with an annual budget millions of dollars lower than peers doing a fraction of the job. The solution is simple. A significant increase in resource base or a reduction in program size is imperative.

The second area for improvement is not unique to UW Chemistry, but rather is representative of a national problem: the faculties of physical sciences, engineering, and mathematics in our nation's research universities show a "profound skewing" of gender and racial demographics. We suggest below ways to advance our progress in this arena.

The Resource Base for the Chemistry Undergraduate Instructional Program

For the past twenty years, the undergraduate instructional program in Chemistry has grown relentlessly. From 50 bachelor's degrees produced in 1990-91, our program has grown seven-fold to produce nearly 350 degrees in 2010-11. During this time, student credit hours at all levels of the program grew, from about 37,000 to nearly 60,000, an increase of nearly 60%.

In contrast, though the tuition dollars our programs generate have greatly increased, the resource base for the program has been stagnant, despite having started at a modest level. The tenure line and lecturer faculty counts are today about the same as twenty years ago (33 and 3 FTE, respectively). The TA count has risen only slightly (from about 67 to 83). The result is well summarized in the report: "The quality of the undergraduate academic experience has been compromised in order to meet the challenges of the large undergraduate demand for chemistry..."

The review committee supports the central conclusion of the self-study, that the instructional program size is far out of line with the resource base, and that a significant correction is in order. The committee endorsed the specifics of our request, that we grow to a tenure line faculty of 40 FTE, to a lecturer count of 5 FTE, and that the TA count be dramatically increased to 120 half-time TAs during the academic year. Furthermore, the committee endorsed the improvements to the instructional program made possible with these new resources, including lower class sizes, increased diversity of upper division course offerings, and improved access to over-subscribed courses.

While it is Chemistry's strong preference to continue to provide unfettered access to our undergraduate program, we recognize that the UW may choose not to expand our resource base, rendering this untenable. In that case, down-sizing the instructional program will be necessary. The data in our self-study suggest the scale of the down-sizing needed to align our program size and budget. This would require that the Department reduce our annual lower division program by about 20%, or about 750 to 800 student enrollments in every quarter during the academic year. It is not obvious how this could be achieved without causing chaos on campus, because it would constrict the chemistry freshman and sophomore course "gateway" to majors campus wide. Additionally, the upper division, majors program would need to be reduced by about two-thirds, or by about 1000 majors. The latter would shift about 230 degree recipients per year from Chemistry to units elsewhere within the UW. We would strongly prefer to avoid such Draconian measures.

At a time when the academy is called upon to produce STEM (science, technology, engineering, and mathematics) graduates, it would be ironic for UW, a leading producer of STEM degrees, to stand down. We hope that course can be avoided. We hope that the Graduate Council will endorse in the strongest terms the committee recommendation for a significant investment in this program.

Faculty Diversity

As noted above, women, African Americans, and Hispanics (and others) are significantly underrepresented on the faculties of physical sciences, engineering, and mathematics at research universities in the U.S. At least three factors have slowed correction of this situation: (a) turnover of faculty lines is slow, with just a few percent of lines opening each year, (b) the pool of applicants for these faculty lines is underrepresented in these groups, and (c) laws (e.g. WA I-200) prohibit preferential treatment on the basis of race, gender, or ethnicity in hiring. The latter precludes "searching for a

woman" or "interviewing at least one half underrepresented candidates", which the UW Attorney General's office indicates are prohibited. Given these realities, current approaches here and elsewhere to diversify the faculty have focused on three areas: outreach to maximize the presence of underrepresented persons in the applicant pool, attention to eliminating intentional or unintentional bias during the candidate screening process, and assurance that our workplace is welcoming and supportive (impacting recruitment and retention).

It is important to place the current diversity of the UW Chemistry faculty in a national context. The most recent data set available to us (2007) reporting the number of black chemistry faculty members at the top 50 chemistry departments nationally showed UW Chemistry *as among the leaders*, with nearly 5% black members compared to national average of about 2%. Unless the national average has changed substantially, retirements of UW minority members leave us near the national average. As of fall 2011, UW Chemistry had about 12% female faculty members compared to a national average of 16%, leaving us 1.25 FTE female faculty members short of the national average. In short, while we would of course prefer a stronger record, our situation is not far out of line with the national norm. Indeed, one expects local variations of about this size around the national mean to result from unbiased recruitment processes. It is particularly noteworthy that, at this time, we have an offer out to an outstanding female tenure-track faculty member; if she accepts, our female faculty count will be nearly equal to the national average.

One area in which there is considerable room for local improvement is indicated by the challenges we have faced in recent recruitment and retention experiences involving females. The review committee noted the small number of underrepresented persons among our junior faculty (just one, or about 10%). The committee was perhaps unaware that the searches that yielded this group involved interviewing 27% underrepresented members (mostly females, who comprise just 12-16% of the applicant pool), and that 22% of those selected to receive offers during that period were female. We succeeded in recruiting just one of the eight females so identified. This disappointing recruiting record is compounded by retention difficulties: Since 1990 we have lost 3 female members at the assistant professor stage. Had this recruitment/retention record been even modestly improved, the review committee might well have found itself lauding UW Chemistry for a well above average record in diversifying our junior faculty!

What contributed to this weak recruitment and retention record? A recent report from the UW Graduate School includes a quotation from a graduate program advisor addressing graduate student recruiting at the UW. The advisor states, "We compete with the top programs in the country and have little to offer extra to top URM [underrepresented minority] applicants. We just don't have the perks that help us compete." The same is true for hiring and retaining faculty in Chemistry, except that the costs are elevated by a factor of 10 to 100! While it would be wrong to place all of the blame on the financial terms of our offers and the limited family-support provided by the UW environment, there is little doubt that the weakness of these has negatively impacted our recruitment and retention record. The weakness of all of UW faculty salary levels, the size of start-up packages, tuition waiver programs for family members, access to child-care services, and partner accommodation programs have limited our ability to recruit URMs. The recommendation of the review committee that "the Chair, the Faculty, the Dean, and Provost work together to rethink and remedy this issue" is apt, as considerable investment will clearly be required to strengthen these UW programs. Importantly, these investments will benefit all UW faculty members, not just URMs.

In conclusion, we accept all of the recommendations in the report concerning the area of faculty diversification. We are confident that progress will be made soon. We take as a very positive sign that the committee was unable to identify any obvious shortcomings in our hiring processes or work environment. We do not lack the resolve to diversify our faculty. We believe our greatest opportunities for improvement and thus greatest efforts should be focused on increasing the fraction of underrepresented groups in the applicant pool and improving the attractiveness of our offers. A partnership including all levels of the administration will be required to achieve the latter of these two goals.

Other Recommendations

We also embrace (and in some cases have begun to address) the secondary recommendations involving:

- funding competitive start-up packages for faculty,
- continuing the program of renovation of instructional laboratories in Bagley Hall,
- planning for leadership succession,
- developing a climate survey to identify areas for improvement, and
- documenting various administrative policies to assure they are broadly understood.

Again, we sincerely thank the review committee for its efforts.