

Thoughts about implementing a Professional Science Teaching Track in the College of Sciences

Rationale

There are at least six reasons for creating/implementing a professional science teaching track in the College of Sciences at this time:

First, a cadre of highly successful teachers will better prepare our students to move forward, thereby increasing graduation rates, reducing years-to-graduation, etc.

Second, a cadre of highly successful teachers will help us recruit majors for our disciplines.

Third, a cadre of highly successful teachers will allow us to create innovative multi-disciplinary courses that speak to perceived national needs (e.g., courses like “climate change: its causes and effects,” “natural disasters: causes and effects”).

Fourth, a cadre of highly successful, innovative teachers can promote a generalized improvement in science instruction in the College.

Fifth, a cadre of highly successful teachers can improve the teaching credentials of our master’s and doctoral graduates.

Sixth, a cadre of highly successful teachers within the College meets the expectations of our “public” (students, parents, employers, legislators) in both appearance and substance.

Implementation

Part One: Expectations regarding activities

The thorniest, most complex problem is that of equalizing demands. We must assure that everyone that looks at this proposal sees the three tracks (the *de facto* research emphasis, the proposed teaching emphasis, and the nominal balanced track) as entailing equitably-assigned loads, and offering equal opportunities for advancement. If this is to work, we cannot permit anyone to look at the proposal and say “Group X has it easier than Group Y.” We want to have multiple tracks to but not multiple “levels.”

In the area of teaching *per se*, teaching track faculty holding tenured positions would carry a heavier-than-average teaching load. Given a balanced 40-40-20 distribution of effort with an 18 WLC nominal load as the default, the teaching track distribution might be 10-60-30, for research, teaching, and service, respectively. The load for this track would be $1.5 * 18 = 27$ WLCs. This converts to a 5-4 teaching load, which is daunting in anyone's estimation. The following elements would contribute to the satisfaction of this apparently onerous load.

- . Large classes. These people are supposed to be specialists and we would want to put them into our foundational courses from which our majors are drawn, i.e., with the goal of attracting majors. Further, they are supposed to be not only popular instructors but also they are also supposed to be very effective instructors (as measured, for instance, by success of their students in subsequent courses). Again, we would want to put them into this sort of course. (This model requires that departments address the idea of how to determine who is a "successful" teacher as well as who is a "popular" teacher.) These large courses carry high work load credit multipliers.
- . "How-to-teach" courses for graduate students. At the moment only BIO-Neuro and BIO-CMB PhD programs explicitly require their students to take such a course, although in practice Chemistry and Computer Science have such a requirement for many students. If it would be of benefit for even more of the College's PhD students (and perhaps some Master's students) to have teaching experience, perhaps we can talk about making TA-experience (and taking the relevant course/courses) a requirement for receiving part of the University-provided stipends. This policy change relates to moving departments toward use of PhD students instead of NTT's whenever possible, thus allowing us to provide more financial aid to grad students while improving their market appeal. Once the grad students have completed the "how to teach" course/courses, they should be supervised in their initial teaching efforts, partly by the faculty member whom they are assisting, but also by people who are specialists in the art and science of pedagogy. During this phase, they should be registering for a teaching-related independent study, under one of our teaching specialists, each time they have a TA-ship. (Incidentally, the TA experience might be expected to change as each student matures, initially grading and giving the occasional lecture and over time moving toward being appointed instructor of record in discussion sections and laboratories, culminating finally in serving as instructor of record for undergraduate courses.) Graduate course work carries a 1.5 WLC multiplier and work load credit for supervision of graduate students is awarded .083 WLC per student semester hour (12 graduate semester hours = 1 WLC).

- .Following the analogy of the current workload policy, which allows a 3 WLC reduction for researchers if they obtain a rating of “outstanding in research” the previous year, we would allow 4.5 WLC reduction for obtaining “outstanding in teaching.” There should be several ways one could obtain this rating. The most obvious is to be outstanding in the classroom by the criteria employed by the discipline. In addition, part of the “outstanding in teaching” rating could be earned by publication related to either pedagogical research or practice, and submitting/receiving research or training grants in teaching. Both of these would probably necessitate some changes in various departmental merit standards, a project that is currently underway. (It should go without saying that these folks could, in those grant proposals, make provision to buy themselves out of part of their teaching obligation.)
- .Regular undergraduate/graduate courses and seminars in their areas of expertise (note that they are expected to have and maintain an area of content expertise within the discipline).

Considering all these factors, an outstanding teaching track faculty member could meet the minimum teaching load with three large undergraduate classes, one smaller undergraduate class, one graduate class, and six two-hour independent study students (i.e., supervising the graduate TA's), that is, a 3-2 organized class load, an expectation not as fearsome in aspect as it originally appeared, and quite reasonable when paired with a much-reduced research expectation

In the area of service, the heavier-than-average expectation would entail normal faculty service activities *plus*

- .Conducting the obligatory orientation sessions for new TA's.
- .Conducting two workshops per year for faculty (where we might encourage the departments to award credit toward teaching component of the merit evaluations for faculty attendance at these workshops.) Best practices and innovative techniques will be addressed in these workshops,
- .Mentoring of new faculty, jointly with a research mentor (both of whom would receive service credit).
- .Involvement in instructional improvement projects for which WLC reductions are awarded by the College.
- .Helping to design and carry out department-wide/college-wide assessment procedures to identify “successful” teachers.

Relationship to efforts to increase graduation rates. Over the next few years, CoS faculty will participate in a broad-based University-wide attempt to increase the speed with which our students progress toward degrees. At the current time not all facets of this effort are known or even knowable (although several are spelled out in the College Graduation Improvement Plan). Our ignorance notwithstanding, it is a reasonable guess that while the participation of many CoS faculty will be necessary, the members of the professional science teaching track would be expected to play a large role in the effort as a part of their relatively heavy service and teaching commitments.

In the area of research, there is a modest expectation focused mainly on activities designed to keep the faculty member current in some sub-part of the discipline. These activities are necessary in order to assure that they will continue to teach up-to-date courses and will be able to participate fully in curricular revisions and promotion-tenure discussions.

Part Two: Entry and exit

Initial movement toward joining this group would be faculty-initiated. Once faculty member has expressed an interest, the support of DFRAC would be required, based on a review of the relevant assessments. Then the Chair's concurrence and that of the Dean would be required. Generally, support for a faculty member's nomination would take the form of (a) a history of high course-instructor evaluations and (b) evidence that this faculty member's ex-students in course XXXX performed at a higher level in subsequent courses in than ex-students of other instructors in the same course. Further support for membership would take the form of a thorough examination of course content, examinations, and other materials, and (probably) evaluation of lectures (either live or videotaped). (DFRACs may choose to augment these variables with others of their own devising in order to assess candidate's ability to meet the department's particular instructional needs.)

Initial appointment to this track would be probationary. At the end of the first year (two?), if either the faculty member or the discipline wished to do so, the appointment could be terminated, and the faculty member's duties would revert to what they had been before the appointment. After the expiration of the probationary period, appointment to this track would be expected to be permanent for all intents and purposes, and would ordinarily be terminated only by mutual consent. This would permit both the faculty member and the discipline to engage in longer-term schedule planning.

Should a faculty member in this track wish to move into another track, and if it were determined by that it would be in the best interest of the students and department, an individually-negotiated exit strategy would be created. This would require concurrence of Chair and Dean.

Part Three: Merit.

The underlying principle in this domain is that merit opportunities should be equally available to individuals following the all the tracks, including the professional science teaching track. That having been said, there is a cross-cutting rule that must be noted. Specifically, it is likely that some of the members of the professional science teaching track faculty will be non-tenure track. As such, their merit reviews might differ somewhat from tenured faculty in this track. Each department, however, is expected to have merit evaluation guidelines for both tenure track and non-tenure track faculty.

Participating departments will have to develop merit guidelines which distribute merit adjustments equitably in light of different assignment weights for tenure track faculty in the professional science teaching track.

Part Four: Promotion

[This is likely to be the most problematic aspect of implementation. Unless we have broad-based senior faculty buy-in, we could well have a situation where tenured faculty elect to follow this track, do well, but then are not recommended for promotion because senior faculty cling to a more traditional model. For the same reasons, we also have to have Provost and President level buy-in.]

As above, the underlying principle in this domain is that promotion opportunities shall be equally available to individuals following all the tracks. However, no Assistant Professors will be appointed to the professional science teaching track (tenure track), nor does this policy envision appointment of individuals holding titles below Lecturer III (non-tenure track) to this track. Thus, grant of continuing tenure does not figure in this policy. Rather, the promotions involved are from Associate Professor to Professor or from Lecturer III to Senior Lecturer. Participating departments will have to develop promotion guidelines which assure that equitable promotion opportunities for tenure track faculty in the professional science teaching track, as well as promotion guidelines governing promotion of non-tenure track faculty.