

University of Washington

Department of Biology

Ten Year Review, Winter 2019

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Executive Summary

"The mission of the Department of Biology at the University of Washington is to discover and disseminate knowledge of the living world through research, teaching, service, and public outreach. Our goal is to become the world's preeminent, truly integrative, biology department"
(From the Biology self-study).

I. Research and the Faculty

The Department of Biology prides itself on its integrative approach to biology, "from molecules to ecosystems". This is an appealing idea, counteracting the increasing specialization of the biological sciences, broadening the horizons of graduate students and postdocs, and opening up many opportunities for collaborative research within the department and with other units. The academic credentials of the faculty are impressive, and the department is strongly connected with other units on campus through joint appointments and graduate students. A unique strength of the department is the Biology Education Research Group (BERG), a nationally renowned, predominantly grant funded group of Lecturers and Postdocs conducting evidence-based pedagogical research and driving teaching innovations within Biology and other STEM units. While the department has not been able to grow its tenure-track faculty, as was recommended by the 2008 review, it has been extraordinarily successful in raising funds for new faculty hires. Grant direct costs (adjusted for inflation) have stayed approximately level since the last review in 2008. In view of the tighter funding environment this should be considered a success.

Recommendations

1. The department should consider at least some targeted searches. Forming research clusters would facilitate graduate recruiting and make it easier to acquire and support instrumentation.
2. The department should revise its Web site, identifying specific strengths while also emphasizing the cross-cutting themes of integration across scales and quantitative approaches.
3. The department should create tenure track faculty lines for biology education research; the current model is not sustainable nor competitive.

II. Undergraduate Program

It is clear from the self-study and the committee's site visit that the department takes its teaching mission seriously and does an excellent job. The Biology undergraduate courses are shining

examples of effective and student-focused teaching at the UW. The advisers, instructional staff and Lecturers responsible for much of the undergraduate instruction, especially at the introductory level, are dedicated and passionate about teaching. Undergraduate instruction greatly benefits from the work of the BERG. In addition to reforming its lecture-based courses, the department has also focused efforts on providing Biology majors an opportunity to engage in hands-on research through course-based undergraduate research experiences (CUREs).

Recommendations

1. The department should develop creative ways to facilitate communication between the Lecturers and the instructional/teaching staff and the rest of the Biology faculty. This is especially important, given their location in separate buildings and the way instruction is partitioned in the department.
2. The department should ensure office space for Lecturers that allows for confidential conversations with students.
3. The department should devise a multi-pronged communication strategy to communicate community building events and, especially, internal and external research opportunities to the student population.
4. The university should consider finding funds to renovate Hitchcock Hall such that the Lecturers and instructional faculty have comparable office space to the faculty in the new building.

III. Graduate Program

The disciplinary breadth of the UW Department of Biology research is an unusual and important strength for graduate education, as most universities have established multiple more specialized departments. The graduate students and postdocs without exception expressed an appreciation and enthusiasm for the exceptionally diverse and interdisciplinary nature of the department and their consequent exposure to a broad range of highly collaborative biology research, and to the BERG program housed within the department.

While the overall picture is positive, the shrinking size of the graduate program is a reason for concern. Instead of increasing, as recommended at the time of the 2008 review the program has shrunk to 80 students in 2018 and is expected to shrink further to about 60. The main reasons are financial: increasing TA salaries, decreasing TA budgets, and flat inflation-adjusted research funding. University policies that do not reduce tuition for candidates and do not cover gaps in funding for stipends, tuition, and benefits from federal fellowships also contribute to difficulties in supporting students. The breadth of the department's research, while in general a big plus, also brings its own challenges. For example, there is no core graduate curriculum - a fact that was already noted in the 2008 review. The fragmentation of graduate instruction and the lack of a research talk forum in which all students and Postdocs participate run counter to the

department's aim of being integrative. They also make it hard for graduate students and Postdocs to develop a sense of community. In addition, subcultures for graduate admission and first-year experiences differ substantially about subdisciplines, making it harder to have a single process that works for all. Finally, funding rotation students can be a financial challenge for some research groups who may lack sufficient grant support.

Recommendations

1. The university administration should greatly reduce tuition after advancement to candidacy for PhD students. This is standard practice at most Research 1 universities.
2. The university administration should provide central support to cover any stipend differential, tuition and benefits for students and postdocs who succeed in obtaining independent fellowship support from the NSF or NIH.
3. The department should assemble a group of senior faculty members to generate an application for NIH T32 funding to provide Training Grant support for their best PhD students who do not obtain independent fellowship support.
4. The department should consider admitting more cell and molecular biology students knowing that only a minority will accept, with more targeted interviews and recruitment for ecology and evolution students.
5. The department should require all incoming graduate students to fulfill their teaching requirements by working as Teaching Assistants during their first year of graduate school, while at the same time completing their tutorials and rotations. This will eliminate the need for faculty to pay for rotation/tutorial students from their own grants and will also serve as a community building exercise for the first-year graduate student cohort.
6. The department should consider establishing a required core curriculum for graduate students.
7. The department should consider establishing a weekly department-wide internal research talk symposium, with requirement for participation.
8. The department should provide modest financial support to promote a sense of community among their substantial postdoc population.
9. The department should consider establishing an ad hoc committee from all sectors of the department to consider additional mechanisms to further the sense of community.

IV. Governance, Administration, and Climate

Overall, the department seems to function extremely well. The staff is highly dedicated and competent, and the leadership is uniformly well regarded. The department's governance structure relies heavily on standing committees for discussion of pertinent issues and recommendations to the Chair. This approach has strong benefits but also costs, including some lack of clarity on departmental decisions and actions for many members of the department.

The department has a clearly stated commitment to diversity, equity and inclusion, with a Diversity/Equity Committee and a well-crafted mission statement. Almost 50% of the full

professors are female, and they are well represented in decision making roles. However, we heard concerns about departmental climate from members of almost all the non-faculty constituencies in the department. While we were not given any specifics, the concerns seemed mostly triggered by a few faculty members whose behavior is experienced as unsupportive or even as abusive. There was a lack of trust that filing a complaint would trigger any remedial action by leadership and that complainants would be protected from retaliation. Based on our short visit, we cannot reliably quantify the prevalence of problematic behaviors or to what extent the apparent lack of trust by some has any basis in fact or is due to lack of communication; regardless the consequences for morale are similar. We did not see any evidence that the leadership is condoning inappropriate behavior or is trying to sweep complaints under the rug.

Recommendations

1. The department should establish clear and well publicized pathways for reporting concerns, both anonymously and non-anonymously. These pathways should be publicized on a regular basis.
2. The anonymous drop box for concerns should be monitored by the Diversity and Equity Committee, not the department administrator, as a matter of principle. A regular report on the types and frequency of concerns and actions taken should be made to the department, within the constraints of preserving anonymity.
3. The department should develop a formal non-retaliation policy and communicate it regularly.
4. The department should establish a way for students and postdocs to easily communicate problems with their faculty advisor.
5. The department should regularly communicate actions taken in response to the climate survey, the graduate student letter from spring 2018, and other student concerns, in fora that allow robust discussion and feedback.
6. The department should have a robust discussion of departmental governance and consider different options that could be more inclusive, while maintaining efficiency.
7. The department should lobby for university-level policies to provide parental leaves for graduate student and postdoc parents. In other institutions, this has been at least partially covered by small taxes on grants that fund graduate student research assistants and postdocs.

V. Conclusion

The Review Committee recommends that all degree programs be continued and that the program next be reviewed in ten years.

Process

The Review Committee received its charge in May 2019; see Appendix A for the charge letter. The Department of Biology delivered its self-study in December 2019.

The two-day site visit took place 17-19 January 2019; see Appendix B for the agenda. The schedule afforded ample opportunity for the Review Committee to pursue candid conversations with representatives from all constituencies, including faculty, staff, and graduate and undergraduate students. An exit discussion at the end of the second day of the site visit gave the Review Committee an opportunity to share initial observations with the leadership group from the department and representatives from the UW offices coordinating the review. A final executive session allowed the Review Committee to converse with University administrators to whom the department reports.

In addition to the documents mentioned above, the Review Committee had access to the documentation from the 2008-2009 review.

I. Research and the Faculty

Strengths

The Department of Biology has an impressive faculty, as indicated by the many awards and honors (e.g., four NAS members, seven members of the American Academy of Arts and Sciences, four MacArthur Fellows, 15 Guggenheim Fellows). It is also an endangered species—across the US, biology is increasingly organized into separate departments of molecular/cellular biology and ecology and evolutionary biology. A frequent casualty of that realignment is the loss of organismal biology. The department has made a very deliberate choice to focus on the organismal level, its extensions into both higher and lower levels of organization, and integration across scales of organization. This is hugely important and gives UW a central national role in maintaining education and graduate training in integrative biology. A related strength is the great diversity of research areas covered by the faculty and the strong connections to other units on campus. One third of the faculty members have joint appointments with other units, and these faculty attract a considerable number of graduate students to work in their labs who enter through other units (32 out of 110 currently). These numbers suggest a high level of connectedness that provides some support for the claims of the department to be “post-disciplinary”. This connectedness includes the six faculty with joint appointments in the Burke Museum of Natural History and Culture, who are an especially important link for the department. The faculty uniformly spoke to the intellectually stimulating effects of the diversity of areas and approaches.

Another unique research strength in Biology is the Biology Education Research Group (BERG). The BERG is nationally known and highly influential for its research, and this research feeds back into the undergraduate program. In turn, the undergrad program is a living laboratory for innovations in pedagogy, making this an extremely impressive integration of research and teaching. Several faculty members noted that the Lecturers in the BERG have bigger grants and more invitations for talks than many of the tenure-track faculty. We note that the opportunities for such funding seem to be continuing to grow.

The department has a brand new 160,000SF Life Sciences Building with attached greenhouse, that is well-designed to support the department’s focus on integration and collaboration. Construction of new building was identified as a priority in the 2008 10-year review, and we applaud the college/university administration for following through.

Although the 2008 review recommended "steady growth of the faculty ... at a level of 2-3 new hires per year for the next five years", the department has remained the same size, at 34 FTE. However, the department has been extraordinarily successful in raising private donor funds for new faculty lines, in part due to impressive participation of faculty in development efforts.

Challenges/opportunities

Some of the biggest strengths of the department are also the source of its challenges. As part of its dedication to breadth, the department generally runs open searches and seeks to hire the best people regardless of research area. Open searches have many benefits; for example, they tend to attract a more diverse candidate pool. However, a consequence of this policy is a lack of strong clusters of researchers. This makes it harder to recruit graduate students, especially in fields that typically do rotations, and to offer specialty graduate courses. It also makes it more difficult to provide and maintain advanced instrumentation because the numbers of users of any particular instrument may be small.

A related concern is that the current website makes it difficult for outsiders to assess the research strengths of the department and to understand what is meant by terms like “integrative” or “post-disciplinary”. While the department is obviously attracting good graduate students, it could do a much better job of emphasizing key strengths and at the same time reaching those who genuinely want integrative training (see Section III of this report for recommendations on improving integrative training).

The BERG also presents a major challenge and opportunity, because it seems unlikely that the strength of this group can be maintained without tenure-track positions. First, as more departments across the country buy into the importance of embedding disciplinary education research in departments, hiring strong researchers expected to attract extramural research funding is getting more competitive. An increasing number of institutions hire these researchers into tenure-track positions (e.g., in Biology at University of Minnesota). Second, Lecturers have high teaching loads, yet even those with substantial grants and research obligations receive at most a two course release. This is understandable given teaching needs but makes it very hard to sustain high profile research programs.

Recommendations

1. The department should have a discussion about the appropriate balance between completely open searches and more targeted searches. We understand that this process has started, but we perceived a lack of clarity among faculty about next steps.
2. The department should restructure the website with fewer categories of research strengths rather than the long list that currently exists, add descriptions, and emphasize the cross-cutting themes of integration across scales and quantitative approaches (examples would help). Going through this is also likely to help in focusing goals for future faculty recruiting.
3. The department should create at least two tenure-track faculty lines for researchers in biology education. This could involve transitioning at least one of the current Lecturers to a tenure-track position.

II. Undergraduate program

Strengths

The Department of Biology is one of the mainstays of undergraduate science education at the UW. Forty percent of UW students take at least one Biology course, and with about 600 graduates annually the Biology major is the largest STEM degree program in the state. It is clear from the self-study and the committee's site visit that the department takes its mission seriously and does an excellent job. The Biology undergrad courses are a shining example of effective, evidence-based and student-focused teaching at UW.

The Biology Education Research Group (BERG) is a nationally renowned group of educators performing evidence-based pedagogical research and driving teaching innovations within the department. It was clear that the work performed by the BERG faculty is appreciated and recognized within the department at an administrative and a collegial level. The committee was excited to see that incoming tenure-track research faculty are paired with Lecturers in a co-teaching environment resulting in the effective dissemination of teaching practices developed by BERG for the upper level undergraduate classes. In addition, the teaching tools developed by BERG are being used across other STEM units in the University. These efforts are often externally funded through the NSF (CAUSE) and other government agencies.

The undergraduate teaching group consists of (i) undergraduate advisors (ii) instructional staff for the 100/200 level classes (iii) Lecturers and BERG faculty and (iv) tenure-track professors. The committee met with representatives from all these groups and found everyone to be mission driven and passionate about teaching. The undergraduate advisors are to be commended for meeting quarterly with the large undergraduate student population to assess their academic progress (4000+ student meetings/year). The instructional staff are goal-orientated individuals who enjoy working together to ensure that the 100 and 200 level classes are running smoothly and professionally. From the committee's site visit, it was clear that the undergraduate program in the Biology department is truly exceptional.

It was wonderful to hear that the superb teaching is recognized and appreciated by the undergraduate students. The committee met with a dozen undergraduates who mentioned how the active learning environment in the UW Biology classes was beneficial to their learning of the subject matter and it motivated them to continue their study of biology. The students spoke about their research and it was clear that they were engaged in a meaningful research projects. The committee was also delighted to learn that the undergraduate students had heard of the BERG faculty and their innovations. Overall, the meeting with the undergraduate students confirmed the committee's view about the effectiveness of the UW Biology undergraduate program.

Challenges/opportunities

From all the discussions mentioned above, the committee thinks that it is imperative that the department and the University leadership work together to devise a way in which the BERG faculty can be sustained permanently. Currently, the BERG faculty are Lecturers who do not have tenure-track appointments. However, they have been extremely successful in getting external funding (~\$7.8 M) to conduct evidence-based pedagogy research. The BERG faculty run an active research group consisting of postdoctoral fellows and undergraduate students. These faculty members are currently pursuing their research (mentoring, writing papers, submitting grant applications, etc.) and doing the bulk of the teaching in the department. This is an unsustainable situation. Also, it is known that Biology departments at other large research universities are hiring tenure-track faculty in the field of biology education research. Given the conditions described above, the committee recommends that the department create tenure-track positions in the field of biology education research (see Section I, Recommendation 3). This will ensure the continued success of the BERG and indeed the entire undergraduate Biology program.

The majority of the department is in the new Life Sciences Building, while the advisers, support staff, and Lecturers responsible for the bulk of the undergraduate instruction, as well as the BERG, will still be housed in Hitchcock Hall. This spatial separation between biology research and graduate instruction on the one hand and undergraduate instruction and educational research on the other hand, while unavoidable given space constraints, puts an additional barrier for communication between these groups. Moreover, the Department administrative staff is housed in yet another building. The lack of regular communication could lead to a misperception of being undervalued by segments of the department staff.

One of the challenges of being the largest undergraduate major on campus and a truly diverse department is fostering a sense of community among the large population of undergraduate students who are Biology majors. The committee recognizes the enormous work done by the department staff to advise the undergraduate students. At the same time, there is a concern that not all of the professional development opportunities and community building events are being effectively communicated to the undergraduate student population.

Recommendations

1. The department leadership should think of creative ways for facilitating communication between the instructional/teaching staff and the rest of the Biology faculty and fostering a sense of community.
2. The department should make sure that Lecturers and undergraduate advisers have adequate office space allowing for private conversations with students.
3. The department should devise a multi-pronged communication strategy involving email postings and announcements in the large 100 and 200 level classes to advertise the amazing research opportunities available to the students in their department and at NSF-REU sites across the country.

4. The university should consider finding funds to renovate Hitchcock Hall such that the Lecturers and instructional faculty have comparable office space to the faculty in the new building.

III. Graduate Program

Strengths

Disciplinary Diversity. The disciplinary breadth of the department's research is an unusual and important strength for graduate education, as most universities have established multiple more specialized departments. The graduate students and postdocs without exception expressed an appreciation and enthusiasm for the exceptionally diverse and interdisciplinary nature of the department and their consequent exposure to a broad range of highly collaborative biology research. Moreover, this integrative and diverse research environment includes an unusual strength in biology education research, with a substantial fraction of the postdoctoral community consisting of individuals with PhDs in biology who have chosen to pursue education-oriented careers, as postdocs in the BERG program. The presence of these BERG postdocs enriches the perspectives of both the PhD students and biology research-oriented postdocs within the department, while the BERG postdocs benefit from their embedded presence within a high-quality department that values both education and research. Finally, the graduate students expressed gratitude for the competence and attention of the departmental staff.

While a clear strength, the breadth of the research program does present obvious challenges for graduate education. One key dilemma that results from the diversity of the department follows from the existence of two very different cultures within one department with respect to graduate recruitment and the choice of a lab and mentors by incoming graduate students. While the ecology and evolution groups, including those with joint appointments as curators in the Burke Museum, are accustomed to recruiting PhD students who come to the department with well-defined interests in a specific lab, the more cellular and molecular groups embrace a tradition in which incoming PhD students explore their options through extensive rotations before choosing a lab for their thesis work. Balancing these two cultures of biology research within a single department is challenging, and the department appears to have come up with a hybrid approach that has helped bridge this cultural divide. Students can now choose to participate in full 10 week (quarterly) rotations, or in 5 week tutorials, with all incoming students required to complete three such explorations. This hybrid approach appears to have been effective in meeting the needs of both groups of faculty, while at the same time exposing all of the incoming students to a range of research areas. While this innovation has helped bridge the differing approaches to graduate education within the department, concerns remain that can perhaps be addressed with further adjustments, as discussed below.

Challenges/opportunities

A. Declining graduate student enrollment. While the Department of Biology continues to excel in its diverse and interdisciplinary approach to graduate education, there is universal agreement among all constituents that the department is rapidly approaching a crisis with respect to sustaining a critical mass of PhD students needed for a successful graduate research program. In the past the department has had about 100 graduate students at any one time. The previous 10-year review recommended that the department strive to increase that number to 120, but in fact over the last few years the number of entering students has dramatically decreased, as documented in the self-study. At the current rate of enrollment, with a time to completion of about six years, the department is headed toward a total enrollment of about 60 students. This decline is clearly the single most important concern held by all faculty as to the future well-being of the department. While one can speculate as to the potential viability of a research program that does not depend on PhD students—but rather more on postdocs and technicians, and on TAs recruited from elsewhere in the University—a critical mass of young and ambitious PhD students remains central to the well-being of academic research institutions and departments as we now understand them.

There also is a clear consensus that the decline in enrollment of PhD students is not due to lack of qualified applicants, but rather a consequence of financial disincentives that greatly discourage the department from admitting more students. Some of these financial pressures are internal, particularly the recent unionization of the graduate students that has led to substantial increases in the stipend level. These increases, combined with the requirement that faculty cover tuition costs for PhD students until they complete their degrees, has made it more cost-effective for faculty to recruit more postdocs and fewer PhD students. As a result, the number of postdoc researchers has increased substantially at the expense of PhD student numbers.

An additional internal financial disincentive for graduate student recruitment has been the recent decreases in the number of Teaching Assistant positions funded by the University. As many of the faculty depend on TA positions to fund their PhD students (covering both stipend and tuition), the decrease in TA slots by the University has further decreased the willingness of faculty to recruit new PhD students.

Another disincentive for graduate student enrollment has been the lack of internal support for graduate students who succeed in obtaining external federal fellowship support (primarily from NSF). External fellowships do not always cover the full amount of stipend, tuition, and benefits needed, which can place a burden on faculty without other appropriate sources to cover the differential. Indeed, some faculty members have apparently discouraged their PhD students from even applying for NIH or NSF support, given these financial disincentives. Perhaps even more troubling is the input from faculty that some PhD students and postdocs have taken leave without pay at times to pursue field work or to work on writing their theses. While union rules for graduate students apparently now forbid such procedures, this is a troubling sign of serious problems in funding graduate and postdoctoral research.

Finally, the flat funding levels for federal research grants have greatly contributed to the reluctance of faculty to commit to recruiting more PhD students. While these unfortunate trends threaten the future success of the department's research enterprise, the problem can be at least partly mitigated by reforms in both University and Department procedures and policies, as discussed below.

B. Integrative research environment. In its internal report, the department emphasizes integrative biology as the core strength of the program, and its guiding principle for future strategic planning. While the exposure of students and postdocs to a wide range of biology research, and the extensive collaboration across fields, are indeed impressive strengths of the department, the presence of such diverse research programs within a single department does present challenges to a truly integrative graduate and postdoc research program. Notably, the previous external review pointed out the lack of a required core graduate curriculum, and this remains true. While PhD students must accumulate 18 credit hours of course work to graduate, they do so by selecting from a wide array of courses offered not only by the Department of Biology but also by several other departments within the University, including in many cases medical school departments. Therefore each student assembles his/her own curriculum, and as such there is no real integration of the classroom experience for the graduate students within the department as a whole. Some attention to a partially uniform curriculum might help the department more fully integrate its graduate education and research missions.

Similarly, there is no one research talk forum in which all graduate students and postdocs participate. Again, the absence of such a shared experience goes against the goal of a truly integrative program. Finally, the postdocs pointed out that there is no central departmental support for community building efforts initiated by the postdocs, such as their coffee hour. As a result, postdocs are left feeling somewhat isolated and neglected, an all too common situation but one that can be improved with relatively simple measures.

In sum, while the department seeks to provide an integrative research experience, the program thus far relies largely on the individual efforts of different faculty to collaborate on their research. More systematic attention to the structure of graduate education and postdoc activities could do much to further promote an even more impressively integrative research environment.

Recommendations

A. Declining graduate student enrollment.

1. The university administration should greatly reduce tuition after advancement to candidacy for PhD students. This is standard practice at most Research 1 universities; for example, the University of Oregon recently changed its policy to reduce tuition by 2/3 after advancement to candidacy. Without such a change the university is putting itself at a competitive disadvantage with other programs and placing substantial stress on faculty

grant funding, which has remained flat for several years now and makes this problem more severe over time.

2. The university administration should provide central support to cover any stipend differential, tuition and benefits for students and postdocs who succeed in obtaining independent fellowship support from the NSF or NIH. As one cannot use federal funds to cover these expenses, not providing this support is a severe disincentive for students and postdocs to even apply for these fellowships. Given the historical strength of the department in obtaining such funding for its graduate students, and the lack of any departmental training grants and of significant full-ride internal fellowship opportunities, the university needs to address this problem effectively.
3. The department should assemble a group of senior faculty to generate an application for NIH T32 funding to provide Training Grant support for their best PhD students who do not obtain independent fellowship support. The NIH has over the past several years moved more and more toward promoting interdisciplinary research programs with T32 training grants. Given the breadth of this department, and the unification across fields by shared quantitative emphases, the department is in a very appealing position to generate a strong T32 integrative biology proposal. Such support would greatly enhance the ability of the department to sustain its graduate program and also promote a more integrative training program, as the NIH also seeks to promote curriculum and programs that build community and promote interdisciplinary research.
4. The Department should consider giving more attention to two modes of graduate student recruitment, admitting more cell and molecular biology students knowing that only a minority will accept, with more targeted interviews and recruitment for ecology and evolution students. While the implementation of an option to pursue shorter term tutorials or longer term rotations has been a very positive step in this direction, more attention to adjusting the number of offers made to applicants based on disciplinary focus is still warranted. Currently, cell and molecular biology faculty are finding it necessary to strengthen ties to other graduate programs within the university for recruiting students to their labs. While this is in many ways a positive trend, it does tend to work against promoting unity and community among the department's own graduate students.
5. The department should require all incoming graduate students to work as Teaching Assistants during their first year of graduate school, while at the same time completing their tutorials and rotations. The cost of paying for rotations off of grants (without teaching) is a significant disincentive to admitting more students. Such a change also has other advantages, promoting interactions and bonding among first year students, providing review their undergraduate education, and enhancing their communication skills early in their graduate careers.

B. Integrative research environment.

6. The department should consider establishing a required core curriculum for graduate students. For example, the department could implement a three-course core curriculum (one ecology/evolution; one organismal physiology; one molecular and cell biology) and require all students to take 2 of the 3 courses. Courses could include a mix of graduate and senior undergraduate students, if overall faculty teaching load is a barrier. Such an approach would do much to promote an integrative experience for the graduate students, provide for a more cohesive and interactive community atmosphere for students, faculty and labs, and further promote interdisciplinary research projects.
7. The department should consider establishing a weekly department-wide research talk symposium, with requirements for participation. For example, the department could establish a weekly one-hour research talk symposium, with two 25-30 minute talks per meeting, in which all graduate students and postdocs present overviews of their research projects. This could occur over the lunch hour, or late one afternoon, perhaps with food and beverages provided. These talks could begin in year 2 for all postdocs and in year 3 for all graduate students, to both limit the number of participants in any one year and give the students and postdocs time to make progress on their research before giving annual talks. Having an annual symposium in which only a few students give talks is not adequate for the essential task of promoting communication skills among students. Similarly, relying on sub-groups to provide such opportunities is less effective and does not promote an integrative atmosphere that unites the diverse research areas within the department. Implementing such a weekly symposium is particularly important given that roughly one third of the PhD students in the department come from other graduate programs in the University; it might not be realistic to require these students to take a core curriculum but they could all participate in the research talk symposium.
8. The department should provide modest financial support to promote a sense of community among their substantial postdoc population. For example, there should be departmental financial support for a weekly postdoc coffee hour, which up to now has been financed by either postdocs or individual faculty.
9. The department should organize an ad hoc committee of graduate students, postdocs and faculty to discuss additional mechanisms to improve the sense of community among graduate students and postdocs. For example, the department could expand support for annual joint postdoc/graduate student-organized career alternatives symposia with alumni and others who have pursued non-academic careers. The department could also consider establishing an annual overnight retreat attended by all faculty and labs. Alternatively, such a retreat (with talks from many or all labs) could be combined with annual social gatherings on the impressive deck of the new building, and thus be done locally during the day with modest expenses. One could also alternate on-campus and off-campus approaches from year to year.

IV. Governance, Administration, and Climate

Strengths

The department seems to function extremely well; all groups with whom we talked strongly lauded all of the staff as both dedicated and highly competent. “Wonderful” was a frequently used word in this context.

The department has a somewhat unusual governance structure, with highly inclusive and democratic committees that investigate issues in depth to formulate recommendations and decisions, but a very top-down structure at the whole-department level. One key strength of this approach is that it allows for in depth consideration of issues by many people but does not require the whole department to have extensive discussions on every single issue, which would be difficult to manage in a large department. It also allows the department chair to have an advisory group of handpicked people with whom s/he can work well. Departmental leadership is well regarded by all sectors of the department.

The faculty with whom we talked uniformly described the department as highly collegial. The separate groups of staff we talked to each had an obvious sense of camaraderie and mutual support and respect and the students and postdocs also agreed that most of the faculty were highly supportive. Further, the department clearly takes the work environment seriously as indicated by their commissioning a climate survey in response to the impressive letter of concern sent by graduate students last spring and then establishing a task force to develop plans to address the issues raised by the students and the survey.

Finally, the department has a clearly stated commitment to diversity, equity and inclusion with a Diversity/Equity Committee and a well-crafted mission statement. The DEC’s current hybrid role, both with its own foci and providing members to other committees, seems very productive. Reflecting the department’s commitment, the faculty has an unusually high proportion of women at the full professor level (close to 50%), including in leadership positions, although the representation of people of color at both the faculty and graduate student levels was not specified. The latter should be a major focus going forward.

Challenges/opportunities

We heard concerns about climate across almost all the non-faculty constituencies in the department, which mostly seemed to be due to a combination of a small number of problematic faculty who are viewed as unsupportive or downright abusive by graduate students, postdocs, and/or staff and a lack of trust that anything was being done to work with such faculty to change their behavior, protect vulnerable people from that harassment or to prevent retaliation. The fact that, in multiple groups, people were not willing to give details either about concerning behaviors or retaliations experienced, speaks clearly to that lack of trust. We read the report on the climate survey from spring 2018 after all of our meetings and what we heard is consistent with that report. From our short visit, we cannot evaluate the prevalence of problematic behaviors or to what extent the apparent lack of trust is due to lack of communication of actions taken vs lack of action by departmental leadership. These, of course, are quite important distinctions in thinking about specific remedies, but the consequences for morale and community at this point are similar and thus require action regardless of cause. We acknowledge that confidentiality requirements do make some actions and/or communication difficult, but those difficulties also need to be communicated clearly. We emphasize that while we heard all these concerns loud and clear, we also heard quite strongly from many people that the department leadership, including the chair, have an appropriately low tolerance for bad behavior. It is somewhat difficult to reconcile these two views, but important for the department to know that they seem to coexist.

The graduate students also expressed dismay about their perception of lack of progress towards addressing the issues raised in their letter to the department last spring, including steps to increase the racial/ethnic diversity of the department. We emphasize that we are extremely impressed with the proactive and constructive nature of the work by students and the response by the department to commission the climate survey and a subsequent task force to address concerns. This committee is not in a position to evaluate the extent to which these issues have been addressed by the department so far. We understand that much of the work is ongoing in the various departmental committees, but we did not get a clear sense of what specific actions have been taken or are being developed. What was clear is that insufficient communication on what is or is not being done is harming morale and trust.

Recommendations

1. The department should establish clear and well publicized pathways for reporting concerns, both anonymously and non-anonymously. These pathways should be publicized on a regular basis.
2. The anonymous drop box for concerns should be monitored by the Diversity and Equity Committee, not the department administrator, as a matter of principle. A regular report on the types and frequency of concerns and actions taken should be made to the department, within the constraints of preserving anonymity.

3. The department should develop a non-retaliation policy which should be communicated to the department regularly.
4. The department should establish a way for students and postdocs to easily communicate problems with their faculty advisor. For example, assign all students/postdocs a second mentor for professional development, who does not collaborate with the faculty advisor. And/or, have the faculty advisor leave at end of annual committee meetings to allow the rest of the committee and student to discuss any problems.
5. The department should on a regular basis (perhaps initially quarterly, and then perhaps less often if concerns abate) communicate what has been done in reaction to the graduate student letter and the climate survey, and request feedback on actions taken. This should be in written form and also involve meetings between department leadership and the graduate student/larger community to discuss those reports and next steps.

A distinct issue has to do with faculty governance structure. Some faculty members commented that decisions seem to be made in committees or in the executive committee, with a lack of discussion or even voting on issues by the whole faculty. This leads to a sense of “not knowing what is going on”. On the other hand, some faculty commented they don’t need to know everything that is going on. The governance structure may also be contributing to the sense by graduate students and staff that not much is being done to address the concerns raised by the climate survey and the graduate student letter because only those on a particular committee are aware of ongoing discussions. The committee could not evaluate whether this is primarily a communication problem or an inevitable consequence of the governance structure or, most likely, a combination of both. Finally, we heard from several constituencies that the fact that the DEC chair does not sit on the Executive Committee diminishes the perception of its importance.

Recommendation

6. The department should have a robust discussion of departmental governance and consider different options that could address these issues. For example, many large academic departments have an elected decision making body as an executive committee, which is distinct from a less formal advisory group to the Chair, often made up of Associate Chairs or major committee Chairs. Such an elected committee could be structured to have representation from multiple department sectors (e.g., assistant professors, graduate students and Lecturers) and those representatives could be responsible for some communication back to their constituencies. The role of the UG and Grad/Postdoc committee chairs is perhaps more typically an associate chair role.

Both Postdocs and graduate students noted that there are no formal policies for supporting new parents, which can cut short funding periods and make it difficult to manage an effective work-life balance, especially for women, but for new fathers as well.

Recommendation:

7. The department should lobby for university-level policies to provide parental leaves for graduate student and postdoc parents. In other institutions, this has been at least partially covered by small taxes on grants that fund graduate student research assistants and postdocs.



UNIVERSITY OF WASHINGTON

Undergraduate Academic Affairs

&

The Graduate School

May 29, 2018

Department of Biology Review Committee

Werner Stuetzle, Professor, UW Department of Statistics (Committee Chair)

Munira Khalil, Associate Professor, UW Department of Chemistry

Bruce Bowerman, Professor and Chair, Department of Biology, University of Oregon

Deborah Goldberg, Professor, Department of Ecology and Evolutionary Biology, University of Michigan

RE: Charge to Review Committee for the 2018 – 2019 Department of Biology Review

Dear Review Committee:

Thank you once again for agreeing to serve on the committee to review the degree programs offered by the Department of Biology at the University of Washington (UW): Bachelors of Arts, Bachelor of Science, Master of Science, and Doctor of Philosophy. The Department of Biology is located in the College of Arts and Sciences at the University of Washington.

The review is in accordance with state legislative mandate and under direction of the Office of Academic Affairs and Planning in the Graduate School. It is conducted in coordination with the Office of Undergraduate Academic Affairs, College of Arts and Sciences Dean's Office, and the Office of the Provost.

Committee Charge

In general, the committee's charge in this review is to assess the quality of the undergraduate and graduate degree programs in the Department of Biology and to provide its faculty with constructive suggestions for strengthening those programs. These reviews provide the University with a clearer understanding of each program's academic quality, educational value, and resource requirements. In addition, reviews provide context for the unit's role within the academic discipline, University and community.

As background information, the Department of Biology was last reviewed in 2007 - 2008. Documents related to the 2007 - 2008 program review are available on the current program review website: <https://sites.google.com/a/uw.edu/department-of-biology-review/>

For the 2018 - 2019 review, the possible recommendations range from suspension of student entry into one or more of the department's continuing degree programs to a recommendation for continuing status with a subsequent review in 10 years. Shorter terms can be recommended if the committee deems it appropriate. Equally important to the status recommendation for specific

degree programs, the review can offer the unit and the administration an independent assessment of the overall “health” of the unit and advice on how it can be improved.

Self-Study and Site Visit

The Department of Biology will submit a **draft of the site visit agenda and its self-study by December 2, 2018**. Both documents will be made available shortly after receipt by the Graduate School. After reviewing the self-study, the committee may wish to initiate its work before the site visit to ensure a thorough and rigorous review.

Based on our experience, we suggest that the external reviewers be relied upon as content experts who can evaluate the quality of the unit from a national perspective. The external reviewers are also likely to be able to comment on recent developments in the field and their incorporation into the unit. UW reviewers are able to evaluate the unit within the larger context of the institution.

We encourage the committee chair to communicate with the chair of the department so that the department knows your interests and expectations, particularly for the site visit, and to communicate with other key faculty, if time permits. UW committee members may conduct interviews prior to the site visit as they deem appropriate, coordinated by the Office of Academic Affairs and Planning in the Graduate School.

The two-day site visit on **January 17 – 18, 2019**, will culminate with an exit discussion, including:

- Graduate School Associate Dean and representatives
- Dean’s Office representation from the College of Arts and Sciences
- Department of Biology representation
- Associate Vice Provost for Academic and Student Affairs
- Associate Dean, Undergraduate Academic Affairs
- Director of UW Academic Program Review
- Representatives from the Graduate School Council

During the exit discussion, you will provide an overview of the committee’s emerging report. The first half of the discussion may include other unit representatives, while the second half will include only the review committee and administrators along with the college dean. Early in the second half, we will request your formal recommendation regarding the degree programs including your recommended timeline for the next program review.

Review Committee Report, Unit Response, and Final Recommendations

We request that your committee submit its written report approximately a month after the site visit. Specifically, the **written report is due February 21, 2019**.

A written response will then be provided by the unit and is due on **April 3, 2019**.

When the response is available, the report and response will be considered by the Graduate School Council. The Graduate School Dean and Associate Dean for Academic Affairs will then

write a letter outlining the review and recommendations to the Dean of the College of Arts and Sciences, with copy to the Provost, for consideration and action.

Please note that upon completion of program reviews, the primary review documents become public documents and are placed on the UW Office of the Provost's web site. These documents include the self-study, the review committee report, the unit's response to the report, and the Graduate School Dean's final recommendation letter.

Specific Considerations for the Review

The most important objective of the review is an assessment of the academic and educational quality of the unit. Important questions include:

- 1) Are they doing what they should be doing?
- 2) Are they doing it well?
- 3) How can they do things better?
- 4) How should the University assist them?

In addition to the standard (Part A) questions from the academic program review guidelines, the unit should provide context for the issues it has outlined in the unit-defined questions for Part B, attached beginning on page four of this letter. The unit should also consider the following items as it writes the self-study, as discussed in the charge meeting. The unit may contact the review committee chair if it has questions about what written documentation would be most useful to the committee as it does its work.

- 1) The Review Committee requests that the self-study materials address how Lecture-Track faculty are incorporated into the academic and scholarly life of the department.

Thank you for your time and effort. Please contact Wesley Henry at weshenry@uw.edu with any questions you may have about the review.

Sincerely,



Rebecca Aanerud
Interim Dean



Kima Cargill
Interim Dean for Academic Affairs

cc: Patricia Moy, Associate Vice Provost for Academic and Student Affairs, Office of the Provost
Michaelann Jundt, Associate Dean, Undergraduate Academic Affairs
Suzanne Hawley, Divisional Dean, Natural Sciences, College of Arts and Sciences
Toby Bradshaw, Chair, Department of Biology
Graduate School Council Representatives
Wesley Henry, Director, Academic Program Review, Graduate School
GPSS President

**Department of Biology
Questions for UW Graduate School Review**

1. How do we become one of the best integrative biology departments in the country, while distinguishing ourselves from other life sciences units within the University of Washington (e.g., School of Medicine, College of the Environment)? Should we grow around existing strengths (both within the department and the university), establish new strengths (e.g., through cluster hires), or should we diversify with each new hire?
2. What is the ideal curriculum for graduate students in a broad and interdisciplinary biology department? In particular, what is the right balance between subdiscipline-specific content courses and core skills courses (e.g., grant/ms writing, communication, quantitative methods, professional development)? On a related note, given that our graduate program will reach a new and smaller equilibrium size due to funding constraints, should we recruit graduate students whose interests fall squarely within a single lab or with interests that fundamentally cross labs?
3. Given financial challenges (e.g., declining state support, tuition reductions/caps) how should our department allocate resources (e.g., faculty, infrastructure) to meet student demand for our major while maintaining instructional quality and our world-class research program? Given that our faculty comprises professors and lecturers, what is the optimal ratio to meet undergrad major needs and to expand in disciplinary and education research? What are ways to ensure mutual exchange of education research and disciplinary research between these groups (e.g., co-teaching, minisymposia, class shadowing)?
4. In a large department whose strength depends upon recruiting and retaining top talent in diverse roles, how do we assure that new department members (students, faculty, and staff) feel welcome/included, and foster their personal and professional development?

UNIVERSITY OF WASHINGTON
Biology Department Site Visit Agenda
Life Sciences Building conference room 501
17-18 January 2019

Wednesday 16 January

Night before site visit starts

6:30 pm

Review Committee working dinner
Mamma Melina Ristorante & Pizzeria
5101 25th Ave NE, Seattle, WA 98105
206.632-2271

Thursday 17 January

LSB 501

8:30 – 8:45 am

Meeting with Graduate School Academic Affairs & Planning Representative

8:45 – 9:30 am

Toby Bradshaw, Professor and Chair

9:30 – 10:15 am

Executive Committee

Janneke Hille Ris Lambers, Chair, Research Committee
Jennifer Nemhauser, Chair, Grad/Postdoc Biology Committee
Alison Crowe, Chair, Undergrad Biology Committee
Michele Conrad, Administrator

10:15 – 10:30 am

Break

10:30 – 11:15 am

Meeting with Full Professors

Caroline Strömberg
David Perkel
Dick Olmstead
Liz Van Volkenburgh
Julie Theriot
Bill Moody
Christian Sidor

11:15 am – 12:00 pm

Meeting with Assistant/Associate Professors

Bing Brunton, Assistant Professor
Clemens Cabernard, Assistant Professor
Jeff Rasmussen, Assistant Professor
Sharlene Santana, Associate Professor
Abby Swann, Associate Professor
Adam Leaché, Associate Professor
Jay Parrish, Associate Professor

12:00 – 1:00 pm

Lunch

(boxed lunches delivered to meeting location)

1:00 – 1:15 pm	Break
1:15 – 2:00 pm	Meeting with Lecturers Brian Buchwitz, Senior Lecturer Participant Participant
2:00 – 2:45 pm	Meeting with Biology Education Research Group PIs Alison Crowe, Principal Lecturer Jennifer Doherty, Senior Lecturer Scott Freeman, Principal Lecturer Mary Pat Wenderoth, Principal Lecturer
2:45 – 3:15 pm	Meeting with Postdocs Gabby Wolff Alex Leydon Participant, Participant, Participant,
3:15 – 3:30 pm	Break
3:30 – 4:00 pm	Meeting with Graduate Students Gideon Dunster Meera Lee Sethi Jorge Bustamante Claire Rusch Romi Ramos
4:00 – 4:30 pm	Meeting with Undergraduate Students Sonja France Antonio Chaparro Gary Qin Mackenzie Coston Kemi Akinlosotu Reilly Falter Renaldo Sutanto
4:30 – 5:15 pm	Life Sciences Building Tour Toby Bradshaw, Chair
5:45 pm	Review Committee working dinner: Nell's Restaurant 6804 E Green Lake Way NE, Seattle 206.524.4044

**Friday 18 January
LSB 501**

8:30 – 9:00 am

Meeting with Instructional Staff

Ben Wiggins, Manager of Undergraduate Instruction
Gretchen Shirley-Bellande, Classroom Scheduling
John Parks, Course Coordinator
Liz Warfied, Course Coordinator
Kyle Loucks, Course Coordinator
Christine Savolainen, Course Coordinator
Jeannette Takashima, Publications Coordinator

9:00 – 9:30 am

Meeting with Senior Infrastructure Staff

Dave Hurley, Director, Computing
Jason Lopez, Manager, Greenhouse
Alex Hansen, Manager Facilities
Aaron Hernandez, Manager, LSB Facilities

9:30 – 10:00 am

Meeting with Office Staff

Patti Owens, Assistant to the Chair
Brianna Divine, Purchasing
Hayato Kosai, Grants Manager
Becky Johnson, Assistant Grants Manager
Sarah O'Hara, Grant Budget Reconciler
Yen Lai, Grant Budget Reconciler
Julia Ying, Grant Budget Reconciler
Rodney Dungo, Human Resources
Davis Chong, Front Desk
Eddie Sabiniano, Stockroom Manager

10:00 – 10:30 am

Meeting with Academic Services Staff

Janet Germeraad, Director, Academic Services
Jason Patterson, Senior Academic Counselor
Sheryl Medrano, Senior Academic Counselor
Julie Martinez, Coordinator

10:30 – 10:45 am

Break

10:45 – 11:05 am

Meeting with Graduate Biology Manager

Krista Clouser, Graduate Biology Manager

11:05 – 11:25 am

Meeting with Advancement

Jenny Poast, Major Gifts Officer
Mitchell Chen, Advancement and Communications

11:25 – 12:00 pm

Meeting with Administrator

Michele Conrad, Administrator

12:00 – 1:45 pm

Review Committee Executive Session

Boxed lunches catered

1:45 – 2:15 pm

Review Committee meeting with Becky Corriell to discuss preliminary recommendations.

2:15 – 2:30 pm

Break

2:30 – 4:30 pm

Exit Discussion

Unit Representative(s) (exit at 3:30 pm)

Toby Bradshaw *Chair*

Michele Conrad *Administrator*

University Administrators

Suzanne Hawley, *Divisional Dean, Natural Sciences*

Kima Cargill, *Associate Dean for Academic Affairs, Graduate School*

Patricia Moy, *Associate Vice Provost for Academic and Student Affairs*

Michaelann Jundt, *Associate Dean, Undergraduate Academic Affairs*

Becky Corriell, *Director, Academic Program Review & Strategy, Graduate School*

Chris Partridge, *Specialist, Academic Affairs & Planning, Graduate School*

Patricia Kuszler, *Professor, Department of Law, Graduate School Council Representative*

Negin Dahya, *Assistant Professor, Information School, Graduate School Council Representative*