



Department of Epidemiology

University of Washington, School of Public Health

Scott Davis, PhD
Professor and Chair

May 17, 2013

Rebecca Aanerud
Associate Dean for Academic Affairs
The Graduate School
Loew 302
University of Washington

Dear Associate Dean Aanerud:

I am pleased to submit the attached report from the Program Review Committee that conducted the Program Review of the Department of Biostatistics in the School of Public Health. I served as Chair of the Review Committee and Dr. Thomas Richardson, Professor of Statistics served as the internal member of the committee. The two outside reviewers are both Chairs of Biostatistics departments that are among the most highly rated in the country: Dr. Bandeen-Roche at Johns Hopkins and Dr. Frank Harrell at Vanderbilt University. The Site Visit took place on February 11-12, 2013. The last Program Review of the Department of Biostatistics took place in 2002 – 2003.

The committee unanimously agreed that the University of Washington Department of Biostatistics is outstanding. The PhD program is consistently rated as one of the top three in the U.S., and is one of the department's signature activities. This department is a substantial asset to the University, it is broadly multidisciplinary, and it provides a valuable service in teaching and consulting in biostatistics. Based on this review, it is the unanimous recommendation of the committee that the Department of Biostatistics continue for the maximum ten year period.

Sincerely,

Scott Davis, PhD
Professor and Chair
Department of Epidemiology

University of Washington
Department of Biostatistics
Program Review Committee Report

Site Visit: February 11-12, 2013

Date of Report: May 17, 2013

Program Review Committee Members

Scott Davis, Professor and Chair, UW Department of Epidemiology (Committee Chair)

Thomas S. Richardson, Professor, UW Department of Statistics

Karen Bandeen-Roche, Professor and Chair, Department of Biostatistics, Johns Hopkins University

Frank E. Harrell, Jr., Professor and Chairman, Department of Biostatistics, Vanderbilt University

Background

The Department of Biostatistics is one of five departments in the School of Public Health at the University of Washington. It has its origin as a Biomathematics Group in the Department of Preventive Medicine in the School of Medicine. In 1970 a School of Public Health was established, and Ed Perrin became the founding Chair of the new Department of Biostatistics.

The last Program Review was in 2002-2003. This review is being conducted in accordance with state legislative mandate, under the direction of The Graduate School. The composition of the review committee was confirmed in a letter dated November 16, 2012. It consisted of the persons listed above. The dates for a two-day site visit were also agreed upon at the charge meeting (February 11-12, 2013). The review covered the following degree programs in the Department of Biostatistics: the Master of Science (M.S.) and Doctor of Philosophy (PhD) in Biostatistics; the PhD option in Statistical Genetics; and the M.S. option in clinical research. Also included in this review is the Graduate Certificate Program in Statistical Genetics, last reviewed in 2006-2007. The M.P.H. is not included, as all MPH programs in the School will be evaluated together at another time.

Committee Charge

Overall, the charge to the committee was to assess the quality of the degree and certificate programs offered by the department, and to provide faculty and the Chair of the department constructive suggestions for strengthening those programs.

Recommendation

Based on review of the materials provided to the committee, and extensive interviews conducted during the Site Visit with faculty, staff and students, it is the unanimous recommendation of the committee that the Department of Biostatistics continue for the maximum ten year period. The remainder of this report describes in more detail the very positive aspects of the department, the challenges that the department faces today, and opportunities in the future.

Overall Assessment

The committee unanimously agreed that the University of Washington Department of Biostatistics is outstanding. The PhD program is consistently rated as one of the top three in the U.S., and is highly sought after by the best applicants. Junior faculty are carrying out cutting edge research with advice and guidance from more experienced senior faculty. Students work closely with faculty in carrying out their doctoral research. Together they do world-class science. Students receive outstanding training that has notable unique features. This department is a substantial asset to the University; it is broadly multidisciplinary in the collaborations the faculty have developed both within and outside the University; it also provides a valuable service in teaching and consulting in biostatistics.

Strengths

The department has numerous strengths. Faculty have a passion for education, and consider training as their primary mission. They take great pride in their teaching program. The PhD program is clearly one of the department's signature activities, and has been ranked among the best in the country. Many of the faculty are internationally recognized experts in their area of research, and are literally "writing the book" on a particular topic. This has elevated the profile of an outstanding graduate program to a new standard. The strength of the PhD program has added to the strength of the UW Statistics program. It has also strengthened the Biotech industry in Seattle. Other signature activities include research in statistical genetics, clinical trials, biomarkers, and the operation of large coordinating centers.

The junior faculty we talked to uniformly expressed feelings of connection and of being supported by colleagues and the Chair of the department. They all seemed quite comfortable with the mandatory mentoring system that is in place. Most, in fact, indicated that they welcomed this requirement and found it very helpful. Formal mentoring is mandatory; each junior faculty member is assigned two or more senior faculty members of their choice. This seems to work quite well. Once a year one or both of the mentors can be replaced. In line with comparable Biostatistics Departments in public universities, the Department guarantees 50% support to tenure track faculty (though faculty often do not need to draw upon this). Without some form of guaranteed funding, it would be exceedingly difficult to recruit and retain faculty of the caliber currently employed by the department.

Students were in general very happy to be in their particular degree program. They clearly recognize the extraordinary learning environment they are in. International students said they felt particularly welcomed. In addition to a strong didactic program and mentorship by first rate faculty the program offers unique strengths such as the opportunity to “intern” in the department’s excellent coordinating centers and engage with outstanding research institutes such as the Fred Hutchinson Cancer Center. It usually takes about five-six years to complete the PhD. Approximately two of those years are spent taking classes. After the second year, PhD students typically begin to identify possible dissertation topics, and a primary mentor.

Possible Threats

Despite a long history of growth and success, the department may need to address several potential threats:

First, and perhaps foremost, is the financial viability of the current organizational structure and financial practices. In short, the revenue stream to the department consists of three main components: State funds, authorized each biennium by the Washington State Legislature; recovery of a percentage of the indirect costs generated from research grants and contracts; and supplemental funds that are distributed to departments by the Provost’s office. Over the last several years, as the general economy has suffered from a major recession, so have there been several substantial consecutive reductions in revenues derived from these three sources. This has caused a number of adverse effects that directly impact the department: the faculty and professional staff have not had a raise in over four years; there is a wage increase freeze in effect. State budgets continue to decline each year, and it is getting more and more difficult to secure grant and contract funds to support the research. Under these circumstances, it is very difficult to plan in any detail for the long-term. There is increasing concern that continued reductions in funding and the uncertainties associated with these reductions, will endanger the department’s ability to remain competitive in attracting top faculty and students. The Department has continued to hire despite the uncertainties. The committee applauds the Department’s continuing strengthening but foresees that the leadership will need to establish financial realities clearly.

Second, the University is in the process of converting to a new budgeting system: activity-based budgeting (ABB). This system ties the distribution of tuition funds directly to credit hours taught. The PhD program, which is a true signature of the department and is primary to its academic mission, will be increasingly difficult to maintain in an ABB environment. A decline or demise of the PhD program would be devastating to the department.

Third, although the graduate program is one of the best in the country, it would benefit from a systematic review and revision. Some faculty and students expressed concern over the length of time it takes to complete a PhD, and some felt that the progression through the program is too slow and could be substantially improved.

Fourth, a large proportion of the department's indirect cost income is derived from only a small number of faculty with very large awards. For example, currently only two faculty form the backbone of coordinating centers. This strong dependence on two people constitutes a potentially serious problem, and should be addressed soon. The committee believes that the Department's reliance for a significant fraction of its operating budget on indirects generated by these few large awards is not sustainable in the long term. Faculty who run coordinating centers are always in demand nationally and could in theory leave UW. In the current NIH funding climate these grants may not be renewed or others may not be forthcoming to take their place when they end naturally. It would be in the best interests of all concerned to create stable ways to fund the Department's operations while using a good portion of the income from less predictable indirect costs for discretionary expenses or one-time investments.

Issues to Consider Further

Below in abbreviated format are comments from committee members regarding additional points of discussion.

- Genomics has a special place in the department, but other emerging technologies (e.g., those used in cellular and imaging research) are noticeably absent.
- Dissertation topics over the last three years lack the variety we might have expected. The committee acknowledge a tension here: The Fred Hutchinson Cancer Research Center and other centers at UW are a strikingly rich source of collaboration and research topics for students, but at the same time the topics follow current funding and priorities of these centers and their senior faculty. Thus it might be useful to create an oversight mechanism to ensure that dissertation topics reflect the full breadth of biostatistics and biomedical research.
- As noted above, the curriculum should be systematically and comprehensively reviewed to be sure there is adequate coverage in several areas, and to eliminate overlap and duplication. There are a significant number of faculty who obtained their PhDs from the Department -- a pattern that can sometimes lead to a counterproductive attitude towards any proposed curriculum change. We recommend that a task force, that includes a student member, be established for the purpose of carrying out this review. Among topics that the committee had expected to find, but which appeared to be absent from the current PhD curriculum, were: Bayesian Statistics; Machine Learning; Missing Data and Causal Models; Advanced Survival Analysis.
- Space for both faculty and students is woefully inadequate. F-wing space is cramped and tight. This lack of space on campus has resulted in having the faculty spread all over town in different locations. After the first two years of classes, students generally work with their

faculty mentor, wherever that may be. Such an arrangement is not conducive to the type of learning environment a program of this caliber requires.

- The Summer Program in Statistical Genetics is highly successful and has an outstanding reputation. We encourage the continuation (and possible expansion) of this program.
- We encourage the department to explore opportunities to engage in distance learning. It seems as if there are or will be in the future good opportunities to do so.
- We encourage greater involvement in the evolving undergraduate program within the School.

Summary

The Biostatistics Department at the University of Washington is an outstanding program that is consistently rated one of the best in the country. Its primary signature is the PhD program, which is unsurpassed. The department is led by Professor Bruce Weir as Chair. He has done a superb job in very difficult financial times to maintain the excellence of the program. The committee applauds the cost-cutting measures adopted by the department.

The committee is concerned that any further reduction in funds may do irrevocable damage. We urge the University leadership to be attentive to the needs of this stellar program. We found the department to be very friendly and welcoming. It was an uncommonly collegial environment. This too is a direct reflection of the leadership of the department. Although the financial challenges are substantial, careful planning and flexibility in adapting the ABB model, will be of key importance in maintaining the excellence of this long-standing program. In this last regard, the committee expresses the hope that when such planning is performed within the School the ultimate decisions are guided by benchmarking against the operation of other Biostatistics departments of comparable quality.

Graduate Certificate Program in Statistical Genetics

Though not large in number, the committee was impressed by the diversity and quality of the students in the graduate certificate program in Statistical Genetics. The faculty involved in this program are also of outstanding quality. The committee unanimously recommends that the certificate program be continued for the maximum period of ten years.

This is an excellent program. One possible area for improvement would appear to be the potential for more active participation and engagement from the Department of Genome Sciences.