University of Washington
PhD Program in Public Health Genetics

Five-year Review Report

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Final Report of Internal Panel
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Executive Summary

The PhD program in Public Health Genetics, approved in 2002, is an innovative interdisciplinary program that is the first of its kind in the world. An initiative of the Institute of Public Health Genetics which was established in 1997 through the University Initiatives Fund, the PhD builds on other graduate programs developed by the Institute, including a master of public heath (M.P.H.) in Public Health Genetics, a master of science (M.S.) in Genetic Epidemiology, and a graduate certificate in Public Health Genetics. The PhD provides the opportunity to do more extensive research, culminating in a dissertation, in a combination of human genetics, bioethics, public health policy, and law. Unique features of the program include co-mentoring of students by two faculty members who represent the two core knowledge areas of the program--genomics in public health and the implications of genetics for society--prior to the preliminary examination; a rigorous and innovative preliminary examination; a pre-proposal forum in which students present their dissertation proposals to the program faculty members and students; and the expectation that dissertation will involve in a meaningful way the two core knowledge areas of the program.

In a short period of time this new and forward-looking program has revealed itself to be an exceptionally strong PhD program and inspiring model for other interdisciplinary programs. Eight students have already received their doctorates from the program and have been placed in excellent positions, several of which are highly prestigious. The committee recommends that the program be reviewed again in ten years at which time there will be a longer history for assessment. Issues that could benefit from Graduate School attention include planning for succession at the level of the director and chair of Epidemiology, and expanding student recruitment to include international candidates.

Introduction

This report was prepared in accordance with the charge to the Review Committee from the Graduate School of the University of Washington. The recommendations of the report are those of the internal review committee. The report is divided into four sections. Specific recommendations and suggestions to the program and the Graduate School are contained within the corresponding section to which they pertain.

The extensive and well-organized self-study materials prepared by the director of the program, Melissa Austin, and her staff aided the review immeasurably. We thank her for her quick, responsive action to the committee's questions.

1. History and distinctive characteristics of the program

The PhD program in Public Health Genetics is the fourth graduate program to be developed by the Institute of Public Health Genetics. At the time the PhD was instituted, it was the only program of its kind in the world. The pressing need for the program is clearly signaled by the rapid and growing significance of genetic information in public health policy and practice.

The program draws on core faculty members from across the University of Washington, including the School of Public Health, School of Pharmacy, School of Medicine, and School of Law. There are also two other categories of faculty connected to the program—associated faculty members and auxiliary faculty members. The mix of faculty across colleges and schools is rich and diverse, forming an engine of multidisciplinary research. In addition to the broad

scope of the faculty involved, the program has several unique features that make it a model for other interdisciplinary programs. These include core courses that provide for student proficiency in both scientific and policy knowledge areas (we note that seventeen courses have been developed to address the core knowledge areas), the co-mentoring of students by faculty members representing these two core knowledge areas, and an inventive preliminary examination that is written in concert by the faculty and asks students to address both scientific and public-policy issues of a single case study.

The program has significantly bolstered cross-departmental and cross-school research projects, which in turn have provided the program with financial support for students. Thus the program also serves as an example of how interdisciplinary graduate education can contribute to research development.

2. Student recruitment and training

Student quality and recruitment

The quality of the students who enroll in the program is certainly on par with other programs at UW, with a significant proportion being rated as exceptional. Student recruitment has generally been self-motivated and results from students discovering the program from mentors and co-workers and from the program website. And while this has resulted in classes that have been, for the most part, of a size that is compatible with program goals, some of the classes have been too small to maintain program-mandated courses except as independent studies.

Recommendations

1. We urge strategic thought be given to the recruitment of students so as to maintain balanced class sizes of at least three doctoral students per year. We are concerned about the uneven distribution over the past years of the number of students who have enrolled in the program. We understand that the number of doctoral students who can enroll in the program is limited by financial support and that such support is cobbled together by awards from the Graduate School, grant-supported research assistantships, and other sources. Nonetheless, since students learn so much from each other and since graduating students will serve as a network for recruiting for the program as well as for placement, the value of belonging to a robust cohort cannot be overestimated.

2. Given the program's "first-in-the-world" nature and the potential for increased international visibility of UW, the committee recommends that the program increase the national and international scope of its students by recruiting from government and international agencies that have contact with potential students.

Curriculum and dissertation research

Perhaps because of its firm grounding in the other graduate programs developed by the Institute on Public Health Genetics, the PhD program in Public Health Genetics has an exceptionally well thought-out curriculum. Program requirements include courses that are designed to educate students in fundamental and core knowledge areas. Fundamentals include knowledge of genetics and public health that are covered in three required courses in genetics and four courses in pubic health. Core knowledge requirements include another twenty-eight credits. Since many of these courses are cross-listed in other departments, they also significantly add to the strength of other programs. In addition, a one-credit interactive seminar (six credits are

required) introduces students to multiple areas of research and faculty, thus expanding their intellectual reach and their knowledge of opportunities across campus.

One challenge the program faces is due to the cyclic size of classes, and thus variability in the number of students enrolled in the PhD-specific courses. This has, in the recent past, resulted in too few students for three of the required courses, with the consequence that the courses have been taught as independent studies. In response to this, the faculty are re-thinking how these courses should be presented. The review committee agrees with their diagnosis and emphasizes the need for a critical mass in graduate seminars, which are far preferable to independent study courses.

Importantly, it is already clear that the interdisciplinary character of the program is maturing. One measure of this is the evolving nature of dissertations; the research involving different areas of expertise is becoming more integrated. The first students in the program often completed dissertations in which the interdisciplinary feature of their education and training was reflected in separate projects, whereas dissertations now often incorporate and integrate multiple approaches. It was noted during the review that this is reflective of the development of the field, which the program is, in many ways, inventing through collaborations that constitute dissertation research.

Suggestions

Given the international importance of public health genetics, coupled with the recent establishment of a department of Global Health in the School of Public Health, we suggest that the program consider expanding its scope to include topics unique to global health issues. In addition, the program might consider expanding its mandate to include cross-species genetics in public health considerations, perhaps by adding ecologists to the participating faculty roster.

Student engagement and satisfaction

Interviews with both current and past students revealed that the program attracts a diverse group of trainees who demonstrate a higher than average level of self-sufficiency. This is likely due to the fact that the program requires students to coordinate input from multiple faculty members and that education and training are not based exclusively in a single laboratory setting. In general students felt well-mentored and thought that program faculty were helpful in tailoring each student's education and training to suit the needs of their research. Graduates of the program commented that their degrees have been well received by prospective employers. It was the committee's conclusion that the program faculty has been exceptionally responsive to student concerns.

Students saw the two major challenges of the program to be obtaining funding and getting though the series of courses that culminates in the general knowledge preliminary exam. Nearly all of the students commented on the preliminary exam. The consensus was best summarized by a student who stated that she would have created a different preliminary exam for herself but afterward was glad that the broad range of topics was mandated. Based on the stated goals of the program, it is the committee's conclusion that the preliminary examination is one of its outstanding strengths.

Comments and concerns of current students interviewed during the review include the following:

- A desire to have more interaction with the department of genome sciences (a simple way to accommodate this would be to schedule program seminars and colloquia at a time that does not conflict with seminars and colloquia in genome sciences and to make sure students have access to classes in genome sciences)

- A desire for education and training in medical genetics (there is currently no course at UW to address this)

- A desire to have course schedules and a list of the required courses posted on the program website.

Students from the first two cohorts thought the program needed a mechanism to facilitate interaction between program students after the general exam. This has been addressed by instituting a seminar series that students can choose to take as a one-credit course. Some students thought that facilitating collaborative projects between students could also help.

Graduates of the program thought their lack of teaching experience was a weakness, though they did not think there should be a teaching requirement added to the program. A potential response to this comment would be to provide an opportunity for senior students to present guest lectures in the core courses or in courses related to their sub-specialties.

Recommendation

A seminar offered as a one-credit pass/fail course, in which doctoral students present their research, is an example of the exemplary way in which the program leaders, staff, and faculty members have responded to student concerns and needs. We encourage the program to continue to explore mechanisms to engage advanced students in program activities. This is critical given the small interdisciplinary nature of the doctoral program and resultant scattering of the students after finishing their course work and preliminary exam.

Student progress and time to graduation

The first students enrolled in the program in 2003 and as of June 2008, eight students have earned the PhD. The average time to graduation is thus short by university standards (though the committee notes that some students enter the program with an MPH), and the ability of the program to keep students on track to graduation is to be commended. Although there is not an official student progress committee in the program, students are required to submit annual progress reports. Importantly, progress is tracked by program staff.

3. Faculty engagement and satisfaction

Because they draw on faculty from departments, interdisciplinary programs are often heavily dependent on time donated by faculty members and the goodwill of their departments. Interviews with both core and auxiliary faculty members revealed a vibrant program that enjoys remarkable enthusiasm and commitment from the faculty. Most notable were comments from the faculty illustrating how both interactions that have arisen between faculty members and students from the PhD program in Public Health Genetics have strengthened applications for

Centers of Excellence and training grants from federal agencies. In this regard it is clear that the program complements and strengthens existing departmental missions.

Recommendation

The Graduate School could significantly support the program by helping participating faculty receive "credit" in promotion and merit considerations for their collaborative work associated with the program. Among other things, this could be facilitated by mandating that evaluations from interdisciplinary programs be included in faculty evaluations.

4. Organizational structure, administration, and sustainability

The director of the program, Professor Melissa Austin, is a highly engaged leader who attends to both large and small aspects of the program. Like the program she has put together, she serves as a model for directors of other interdisciplinary programs.

The administration of the program is bipartite. The director reports to the dean of the school of Public Health through the chair of her home department, Epidemiology. She also reports to the Graduate School. While this organization may appear convoluted, it works—and it works well. The committee notes, however, that this may in great part be due to the close and supportive working relationship between Dr. Austin and her chairman, Professor Scott Davis. A change in either director or department chairman could make this organization sub-optimal.

Recommendation

The Graduate School should work with the leadership of the program to plan ahead for a transition of leadership, with the understanding that reorganization of the reporting structure may be required.

Program staff

Monitoring student progress can be a challenge to interdisciplinary programs in which students are broadly distributed. The program support staff plays an essential role in this. They include a manager, Kevin Schuda, student services advisor, Barbara Snyder, and part time IT specialist, Brian Fish. The level of connection the staff members maintain with students is impressive and the committee found this to be a crucial component of the program's success.

Funding and sustainability

The program receives some support from the university, which is used predominantly to pay staff and to offset the salary of faculty members who play a major teaching role in courses that serve both the MPH and PhD programs in Public Health Genetics. There is, however, a serious problem with the percentage of faculty salary that is supported, due to stagnant funding coupled with faculty promotions and pay increases. Because of this, the percentage of time these faculty members are compensated for their contribution to the program diminishes over time (for example, a faculty member hired to participate in the program at the level of 50% is now compensated at the level of 38%). This is clearly unsustainable and requires attention.

Because the program does not have an official role in hiring faculty, there is no mechanism to replace key faculty members who leave the University of Washington. Interdisciplinary programs are particularly vulnerable in this regard.

A very small amount of the funding goes to graduate student support. For the bulk of support for graduate students, the program turns to stipends covered by federal training grants and the research grants of dissertation advisors who are faculty members in the program as well as to competitive awards sponsored by the Graduate School.

As with other interdisciplinary programs at UW, indirect costs from the grants of participating faculty members are not partitioned to include the program, despite the fact that program faculty and doctoral students contribute to the research effort.

Recommendation

As the 2006 Graduate School report on "Seeding, Supporting, and Sustaining Interdisciplinary Initiatives" underscores, interdisciplinary programs are severely constrained by their inability in the normal course of things to propose faculty positions. We urge the Graduate School to work with deans, the directors of interdisciplinary programs, and department chairs to create a mechanism by which interdisciplinary programs can propose such positions. Doing so will allow the program an opportunity to address vacancies as they occur.

We urge the Graduate School to work with the directors of interdisciplinary programs, department heads, and the Office of Research to address the relationship of the programs to research effort. One option would be to partition indirect costs based on the faculty in conducting that research.