

**INSTITUTE FOR PUBLIC HEALTH GENETICS, UNIVERSITY OF WASHINGTON**  
**Master of Science in Genetic Epidemiology**  
**RESPONSE TO REVIEW COMMITTEE REPORT**

**October 16, 2009**

The faculty, staff, and students of the Master of Science in Genetic Epidemiology (MSGE) program would like to thank Dr. Betty Gallucci, Dr. James Pankow, and the Graduate and Professional Student Senate (GPSS) for their thoughtful and thorough review of the MSGE program. The recommendations in the review report will be instrumental in continuing to improve the program. We are especially pleased that the committee has recommended that the program be given “continuing status” with the next full review in 10 years.

We are grateful that the review committee recognized the academic rigor and relevance of the MSGE program as “...positioned to be at or near the top for the foreseeable future... The breadth of courses in genetic epidemiology and public health genetics is likely unequaled at U.S. institutions... The program also benefits from superb faculty from a variety of disciplines.” We are also glad the review committee cited both the national need for genetic epidemiologists (“The need for masters-trained genetic epidemiologists is as great as ever”) and the advantageous position of our graduates: “Given the recent growth in the field and small number of similar programs in the U.S., employment prospects for graduates of the program should be excellent... Several graduates have obtained faculty positions and have competed successfully for research funding in their areas of expertise.”

We would like to respond briefly to each of the following recommendations and suggestions from the review committee and the GPSS. This document has been reviewed by Fred Connell, Associate Dean of the School of Public Health, Scott Davis, Chair of the Department of Epidemiology, Bruce Weir, Chair of the Department of Biostatistics, and Melissa Austin, Director of the Institute for Public Health Genetics, who concur with the responses.

**Faculty Oversight of the Program including Program Development and Monitoring**

*Recommendation: To assure the continued integrity of the program and to maintain its excellence we recommend that the faculty develop a regular process to review the entire program on an ongoing basis. Examples of specific questions regarding the curriculum that should be reviewed on an ongoing basis:*

- *Is the balance of elective versus required credits appropriate?*
- *Are enrollments in core courses and student course evaluations satisfactory?*

*We further recommend that decisions reached through program review be posted on the web. This would close the loop and inform the students of their impact on program development.*

*Finally, we recommend that the formal structure/policy/plan for faculty oversight is operationalized and reported, within three years, to the Graduate School committee responsible for oversight.*

Since the MSGE program review, we have already implemented a number of changes to address these concerns. First, we have agreed to hold faculty meetings on a quarterly basis. The student representative will participate in the faculty meetings and admissions. We have already held two

faculty meetings and have made a number of important decisions regarding the curriculum, including reviewing the core competencies (Appendix A) and required courses (Appendix B).

As a result of our review this year, the competencies and required core courses were revised and will be posted on the program website by December 31, 2009. The program staff will now develop and maintain a 2 year schedule of required and suggested elective courses for the MSGE students that will also be posted on our website at the beginning of each academic year.

As part of our ongoing process of program development, the core faculty will devote one faculty meeting each year for program review and to ensure that the curriculum reflects advances in the field. As the review committee recommended, we will formalize and document this process and submit it to the Graduate School committee responsible for oversight within three years.

Finally, the MSGE program director will prepare a memo of understanding for each of the MSGE faculty on a yearly basis. These will describe the expectation for participation in the program, including identifying an individual who will chair the admissions committee each year.

### **Mentoring of Faculty**

*Recommendation: Now that the program is established and has an excellent national reputation, policies should be developed to determine the tenure and succession process for the program director and/or to identify ways to share administrative responsibilities among program faculty.*

*Careful consideration should be given to the career plans of all faculty associated with the MSGE. Attention to career development is essential. Some programs have found it helpful to periodically rotate directorship responsibilities to build leadership skills among the faculty or to designate faculty other than the director to chair admissions or curriculum committees.*

We appreciate the suggestions for mentoring the faculty and believe that this is as important as student mentoring. The MSGE program is following the School of Public Health (SPH) precedent in which most Chairs serve for many years. At this point, the MSGE program does not have any plan for rotating directorship of program. As noted above, the faculty will discuss who will chair the admissions committee each year.

### **Staff Support and Faculty Meetings**

*Recommendation: The director of MSGE or a designated faculty member of MSGE responsible for program/student affairs should hold regular staff meetings. It is important to include the staff in a general program planning meetings also.*

*In addition we recommend that the staff support the operation of the program by developing a calendar for regularly scheduled faculty meetings (perhaps quarterly), send out notices, ask for agenda items, staff the meeting and keep the minutes. The director of the program, her designee or curriculum lead should chair the meeting and prioritize the agenda items.*

*In this time of budget cuts the staff feels very vulnerable. It is essential for the smooth operation of a program that good communication lines are established and maintained.*

As described above, we have implemented regular in-person meetings of the MSGE faculty, the staff and the student representative. The MSGE director will also meet with the staff on a monthly basis to discuss any student issues or other items that arise between faculty meetings.

## **Growth of the Program**

*Recommendation: We recommend that one or more of the following opportunities for program growth should be considered by program faculty and relevant administrators:*

- *Develop a plan for more aggressive marketing of the program and recruitment of students for the MSGE program.*
- *Add more program faculty from the University of Washington and Seattle community who have expertise and experience in genetic epidemiology.*

In keeping with the review committee's recommendation, the MSGE core faculty has agreed to add additional faculty to the MSGE program, including two levels of participation: core faculty who are responsible for administering the program (admissions, program and curriculum review, etc.) and regular MSGE faculty. The core faculty currently consists of Drs. Austin, Edwards, Rose, Rosenfeld, Schwartz, and Thornton. The regular MSGE faculty (from the University of Washington or local community, e.g., Fred Hutchinson Cancer Research Center or Children's Hospital) will provide additional research and mentoring possibilities for the students, broaden support for and involvement in the MSGE program, enrich the available course offerings, and, in the case of non-UW faculty, bring additional knowledge and experience to the program. Further, regular MSGE faculty with UW Graduate Faculty Status will be allowed to chair MSGE thesis committees, reducing the burden on the core faculty. We have thus far identified eight faculty who have experience in conducting genetic epidemiologic research and in mentoring students. The MSGE Director will send letters this fall inviting these individuals to join the MSGE program as core or regular faculty.

- *Offer a graduate certificate program (educational outreach) for the potential applicants who possess an advanced degree or who are currently enrolled in other graduate programs.*
- *Develop a PhD program in genetic epidemiology.*

We agree that these are important opportunities to consider, and will discuss these issues with the IPHG Advisory Committee at the next meeting. We anticipate that a certificate program would be feasible to develop since all of the necessary courses are already in place. Developing a PhD program, although desirable, would require additional resources that are unlikely to be available (at least in the near future) due to recent and ongoing budget reductions.

## **Administrative Support and Strategic Planning**

*Recommendation: Now that it has navigated the provisional five year period and has a track record upon which to build, we recommend that the program engage in a strategic planning process in conjunction with the IPHG advisory board or other external advisors.*

*A strategic planning process would provide the opportunity to step back and look at the totality of the program and future directions. In particular, this process could be used to tackle some of the other major questions facing the MSGE.*

We agree that it is now time to begin looking toward the future and planning for growing our program. We will develop a strategic planning process for the MSGE program in collaboration with the IPHG, the Department of Epidemiology, and the Department of Biostatistics. As noted above, we will begin this process by conferring with the IPHG Advisory Committee at their next meeting.

## **Response to Comments and Recommendations from GPSS:**

### **Advising and Mentoring:**

*Students had 2<sup>nd</sup> year students mentor them throughout the program, and gave praise to Karen Edwards as an advisor.*

Second-year students will continue to mentor first-year students, and MSGE faculty will continue to serve as academic advisors. By adding additional faculty we will also ensure that the responsibilities of advising and mentoring students are more evenly distributed among the MSGE faculty. The new MSGE faculty will provide additional mentors for the students.

### **Committees:**

*The process of finding a committee is straight-forward, and not difficult.*

We will continue to make this process straight-forward.

### **Career Services:**

*Students stated the GE program did not specifically perform career services tasks, and instead they received emails from the Graduate School and Global Health list serves, or the Career Center on campus.*

Unfortunately, due to budget constraints we cannot add any specific career services for the MSGE program. However, we will continue to utilize existing resources within the SPH to ensure that our students are aware of employment opportunities, such as the SPH job page (<http://sph.washington.edu/careers/jobs.asp>).

### **Curriculum:**

*Students expressed concern about the delay of genetic epidemiology courses in their curriculum. They were worried about the fact they were not introduced to GE until their third quarter.*

- *There was one core course in particular they felt was irrelevant to their degree, but was told by Karen it was too late to revamp the course now for the next quarter.*
- *There was a great deal of praise for the epidemiology and biostatistics courses.*

In the previous sections we have outlined a number of changes, including yearly program and curriculum review (see Appendix A), that will address these issues, including eliminating the course of concern to the students from our set of required courses.

### **Progress:**

*Students felt they were making good academic progress and will graduate on time.*

We will continue helping students plan their academic progress to facilitate timely graduation (see preceding section and Appendix B for additional details).

### **Satisfaction with the Program:**

*All of the students expressed a wish to have a PhD program.*

We concur that a PhD program in genetic epidemiology at the UW would be desirable. We will include discussions of this possibility as part of our strategic planning, particularly in times of budget constraints. However, as noted above, budgetary constraints will play a factor in evaluating the feasibility of this option in the near future.

## Appendix A:

### **Goals and Learning Objectives for the Master of Science in Genetic Epidemiology (MSGE) Program**

The overall goal of the MSGE program is to train students to contribute to research into the understanding of the etiology and prevention of disease by focusing on understanding genetic influences and their interactions with environmental factors.

To meet this goal, the MSGE program introduces students to the research principles and methods that will enable them to complete all stages of genetic epidemiologic research, from design to interpretation of results. Upon completion of the MS degree, students should have acquired an understanding of the following topics:

- a) contribution of genetic epidemiology, epidemiology, and biostatistics to health research;
- b) design, conduct, analysis, and interpretation of genetic epidemiologic studies;
- c) critical appraisal of genetic epidemiologic studies, synthesis and integration of genetic epidemiologic research;
- d) basic knowledge of the ethical, legal, and social issues relevant to genetic epidemiologic research;
- e) basic understanding of the laboratory techniques used in genetic and genomic research;  
and
- f) communication of scientific results.

Upon satisfactory completion of the MS program in Genetic Epidemiology, students should be able to display competency in genetic epidemiology as demonstrated by the following specific learning objectives:

- Apply knowledge of inheritance to understanding the etiology of a variety of diseases and health conditions;
- Describe the major genetic epidemiologic research study designs and their advantages and limitations and apply epidemiological and statistical approaches to the study of risk factors and diseases with a genetic component;
- Design, conduct and analyze genetic epidemiologic studies and interpretation of findings, including integration of findings from other genetic epidemiologic studies;
- Appreciate the importance of evaluating interactions among genes, environmental factors, and behaviors, and their roles in health and disease;
- Critically read and evaluate quantitative research findings contained in genetics, medical, and public health journals;
- Write a research proposal including rationale for a specific genetic epidemiologic investigation, including a clear description of methods, and strengths and limitations of the proposed study;
- Demonstrate proficiency in conducting statistical analysis of genetic epidemiologic data;
- Be aware of the legal, ethical and social issues that may be associated with the collection and application of genetic and genomic information;
- Be aware of the latest technologies and genomic advances used to investigate the role of genes in disease and normal variation of traits; and
- Communicate effectively and persuasively, both orally and in writing, with colleagues within genetic epidemiology and from other disciplines.

Appendix B:

**Institute for Public Health Genetics  
MSGE Student Progress Form**

Student Name: \_\_\_\_\_

Date form completed by student: \_\_\_\_\_

Student Email: \_\_\_\_\_

Student Number: \_\_\_\_\_

Quarter Entered Program: \_\_\_\_\_

Faculty Advisor: \_\_\_\_\_

**MS in GENETIC EPIDEMIOLOGY (minimum 68 credits required, 33 of which must be graded)**

**Epidemiology and Biostatistics Courses (16 Credits):**

Course No.	Course Title:	Quarter Completed	Quarter Planned	Credits	Grade
EPI 512	Epidemiologic Methods I (4)	_____	_____	_____	_____
EPI 513	Epidemiologic Methods II (4)	_____	_____	_____	_____
BIOST 517	Applied Biostatistics I (4)	_____	_____	_____	_____
BIOST 518	Applied Biostatistics II (4)	_____	_____	_____	_____

**Genetic Epidemiology Required Core Courses (20.5 Credits):**

Course No.	Course Title:	Quarter Completed	Quarter Planned	Credits	Grade
PHG 511 / EPI 517	Genetic Epidemiology (3)	_____	_____	_____	_____
PHG 518 / EPI 518	Application of Genetic Epidemiologic Methods (4)	_____	_____	_____	_____
PHG 519	Statistical Methods in Genetic Epidemiology (3)	_____	_____	_____	_____
EPI 573	Methods and Issues in Using Biological Measurements in Epidemiologic Research (3) Note: offered every other yr	_____	_____	_____	_____

-----*Courses above must be graded*-----

PHG 512 / LAW H 504 / B H 514	Legal, Ethical, and Social Issues in PHG (3)	_____	_____	_____	_____
PHG 536 / MEBI 536 / PABIO 536	Bioinformatics and Gene Sequence Analysis (3)	_____	_____	_____	_____
GENOME 552 (Replaced MBT 510)	Technologies for Genomic Analyses (1.5)	_____	_____	_____	_____

**Institute for Public Health Genetics  
MSGE Student Progress Form**

		Quarter Completed	Quarter Planned	Credits	Grade
<b>Thesis (9 Credits)</b>					
PHG 700	Master's Thesis	_____	_____	_____	_____

<b>Electives (22.5+ Credits)</b>					
Course No.	Course Title:	Approved?			
_____	_____	Yes / No	_____	_____	_____
_____	_____	Yes / No	_____	_____	_____
_____	_____	Yes / No	_____	_____	_____
_____	_____	Yes / No	_____	_____	_____
_____	_____	Yes / No	_____	_____	_____
_____	_____	Yes / No	_____	_____	_____
_____	_____	Yes / No	_____	_____	_____

**Total Credits:** \_\_\_\_\_

**Thesis Committee:**

Thesis Chair: \_\_\_\_\_

Committee Members:


**Advisor Comments:**

**Student Signature:** \_\_\_\_\_

**Date:** \_\_\_\_\_

**Advisor Signature:** \_\_\_\_\_

**Date:** \_\_\_\_\_