Master of Public Health in Public Health Genetics
Thesis Guidelines
Updated February, 2008

I. Introduction

The goals of the Master in Public Health (MPH) program in Public Health Genetics (PHG) include acquiring a breadth of knowledge about public health sciences and relevant disciplines, obtaining a depth of understanding in a particular field of interest to the student related to public health genetics, and learning relevant skills including analytical and communication skills.

A successful thesis for a Master's degree in PHG generates new knowledge and applies the concepts and methods of PHG to a research question. The thesis demonstrates the student's comprehensive knowledge of the topic under study and represents the culmination of the Master's degree program. The PHG thesis is an opportunity to integrate and apply the concepts and methods learned in coursework. A thesis does not need to involve original data collection, but it must make a unique contribution to the discipline and demonstrate a depth of understanding in a particular area of public health genetics. The thesis generally includes substantive consideration of both human genetics or genomic science and the ethical, legal, social, economic or policy implications of applying this knowledge to public health. As described below, the student and his/her thesis committee determine the scope of the project and how these components will be combined in the thesis

Students approach the thesis with varied skills and expertise. The thesis is primarily a learning experience for the student, designed to challenge the student at her/his skill level, while adhering to a standard of high quality regarding the questions posed, the analytic methods, and the written product.

The multi-disciplinary nature of the PHG program presents opportunities for a variety of thesis topics. Students are encouraged to develop novel ideas and discuss them with PHG faculty. These guidelines and the examples offered herein attempt to bring structure to the thesis planning, approval, and writing process and are not intended to limit ideas or possibilities for topics.

II. Choosing a Topic and Forming a Thesis Committee

The student consults with his/her PHG faculty advisor or another PHG faculty person whom he/she is interested in working with to determine a thesis project that is appropriate and that meets the requirements of the program. The topic should be interesting to the student and provide a significant learning opportunity. In the planning phase, students should ask faculty for guidance regarding appropriate research questions, issues related to planning/timing, methodology, and potential thesis committee members.

The student negotiates with faculty to form the thesis committee before he/she begins the thesis project. Thesis committee members meet individually with the student and/or in groups if possible/necessary throughout the thesis project. The thesis committee chair may or may not be the student's initial faculty advisor. There is no expectation that the initial advisor remain on as the thesis chair; in fact this usually is not the case.

The thesis committee advises the student with respect to appropriate study designs, data analysis, and review of the written thesis document. Two to four faculty members comprise each PHG thesis committee. PHG thesis committees generally have one chairperson and one to three advisors who are familiar with the topic and/or have a particular interest or expertise in the subject area. The chairperson must be a member of the PHG APC and a member of the graduate faculty and at least one half of the total membership must be members of the graduate faculty. If a PHG student plans to do research with a UW graduate faculty member who is not on the PHG APC and the student feels that it is appropriate/necessary for that person to chair his/her thesis committee,

the student must make a special request to the APC for an exception. In this case, at least one other thesis committee member must be a member of the PHG APC.

Theses written by former PHG students are available for review in the PHG office and the Health Sciences Library. Past thesis projects titles are found at *http://depts.washington.edu/phgen/past_theses.html*

Suggestions for acceptable theses projects

Different types of projects may fulfill the thesis requirement. For example, students may collect and analyze new data, use existing data to answer new research questions, conduct a meta-analysis of relevant research/literature, or write an ethical/legal/policy analysis of an issue related to public health genetics. Regardless of the type of project chosen, the student must apply critical thought and systematic analysis and present the information in a clear and organized manner.

Examples of possible PHG thesis projects include (but are not limited to) the following: analyze an existing genetic epidemiological data set; analyze data from a survey regarding patient/physician knowledge of genetic-related issues; write a Human Genome Epidemiology (HuGE) Review; prepare an analysis of policy options using population screening recommendations; review media sources and conduct a qualitative analysis of genetic-related issues; conduct an analysis of the ethical issues involved with incorporating genetic technologies into public health; conduct pharmacogenetics research by testing DNA for mutations related to drug metabolism.; a cost effectiveness analysis of a genetic related intervention; collect data and interpret women's reasons for requesting prenatal testing; compare knowledge and attitudes of clinicians and genetic scientists concerning potential uses of genetic information; conduct a survey of genetic researchers on issues surrounding race classification and their use in genetic research protocols.

Some types of projects are not acceptable as theses, including:

- In general, a literature review is not acceptable, although a review with critique and suggestions to the field can be acceptable. A formal meta-analysis is acceptable in that it generates new knowledge.
- A group project is generally not acceptable. The thesis may be part of a collaborative project, provided the student had a lead role in the study and contributed to the generation of original work.
- A class or practicum project is not sufficient. The thesis can be a significant extension of work that began as a class paper, project or practicum. The thesis must be distinct from the practicum or evolve from the practicum to address a different but related topic.
- A narrative case study is usually not sufficient, unless it deals with ethnography or involves qualitative research.

Roles and responsibilities of students and thesis committee members

Student
The student decides on the topic and type of project he/she plans to do for the thesis project. The student also selects his/her committee members, consults with his/her chairperson and other committee members on issues such as study design, data analysis, appropriate resources/references, and feasibility. The student takes the lead in setting up and completing all aspects of the thesis project.

Students' responsibilities include but are not necessarily limited to the following activities:
- Devise and adhere to a reasonable AND flexible timeline;
- Prepare for thesis project through necessary coursework or practicum experiences;

- Discuss potential ideas and interests with faculty/academic advisor (the student's academic advisor does not have to be the student's thesis advisor, it is acceptable for students to work with a different faculty member on his/her thesis);
- Explore leads and specific areas of interest to gain access to data and/or resources for a thesis project;
- Prepare and plan the thesis proposal presentation to the APC;
- Organize committee and/or individual meetings as necessary throughout the thesis project;
- Communicate regularly with thesis committee members;
- Be aware of IRB process and requirements. It is best to assume that you need IRB approval for any project.
  http://depts.washington.edu/hsd/
- Prepare drafts of the written thesis document well in advance of pressing deadlines
- Give committee members a reasonable amount of time to review drafts of the written thesis document (usually 2-3 weeks; be aware of faculty's other commitments such as teaching and traveling);
- Obtain and adhere to the UW Graduate School thesis guidelines (*http://www.grad.washington.edu/stsv/stylman/00styletoc.htm*);
- Obtain the appropriate signatures as required by the Graduate School (*http://www.grad.washington.edu/*); and
- Submit thesis to the Graduate School.

Chairperson

The thesis committee chairperson advises the student with respect to how to conduct the thesis project and complete the written document. The chairperson is responsible for verifying that the student is meeting the requirements of the Graduate School, School of Public Health and Community Medicine, and the Public Health Genetics program as well as any outside research requirements such as Human Subjects Division (HSD) approval. The chairperson provides guidance and advice with respect to study design, project scope, data analysis, and research methodologies. The Chairperson must be a member of the IPHG Academic Program Committee and must also be a member of the UW graduate faculty.

The chairperson's responsibilities include but are not necessarily limited to the following activities:

- Work with the student to design an acceptable thesis project;
- Act as a liaison with outside agencies or researchers to help set up the thesis project;
- Assist student in assessing writing skills and plans for improvement if needed;
- Help the student devise a reasonable thesis timeline (before Fall of 2nd year);
- Attend committee meetings;
- Meet with the student on an individual basis;
- Offer specific and general guidance related to the project;
- Serve as the primary advisor to the student throughout the project;
- Provide appropriate resources and references as needed;
- Review and edit drafts of the written thesis document and return feedback to the student in a timely manner; and
- Communicate regularly with the student regarding availability.
- Review and approve student IRB application.

Other Committee Members

Thesis committee members provide guidance, knowledge and expertise relevant to the thesis topic. Committee members help the student develop and refine ideas related to the project and offer resources and references as needed. There must be at least one committee member in addition to the chair, and more are recommended. In addition, it can be helpful to have another member of the committee act as a "reader," especially if that faculty

member has expertise in a different field from the thesis topic and thus can provide an outside perspective on the project.

Committee members' responsibilities include but are not necessarily limited to the following activities:

- Work with the student to design an acceptable thesis project;
- Negotiate areas in which each committee member can provide specific input and guidance;
- Help the student devise a reasonable timeline;
- Attend committee meetings;
- Meet with the student on an individual basis as needed;
- Review and edit drafts of the written thesis document and return feedback to the student in a timely manner; and
- Communicate regularly with the student regarding availability.

Receiving thesis credits

The MPH program requires a minimum of 9 thesis credits. Students may enroll in all 9 credits in one quarter, but generally the credits are distributed over two to three quarters. Students must have an add code and a faculty code to register for thesis credits. Obtain these codes from the PHG office after you have forwarded written (or e-mail) approval from your thesis chair. There is no grading, thesis credits are taken as credit/no credit.

III. Presenting the thesis proposal to the Academic Program Committee (APC)

APC members hear students' thesis proposals and offer advice and feedback on specific details of the project. As described below, the APC does not approve or disapprove thesis projects, but does make recommendations with respect to the methodologies and scope of the project. Thus, it is advisable to make this presentation as early as possible (ideally early in Winter quarter of the 2nd year), in case major changes are suggested.

The student's thesis committee approves the topic and research plan. The student presents the thesis proposal to the Academic Program Committee (APC) as soon as the student and his/her thesis committee develop a detailed plan and the student compiles background information on the topic. The student and his/her thesis committee determine the exact timing of the presentation to the APC. Feedback and advice from the APC will be most useful if received early in the process.

The presentation to the APC serves to keep the PHG faculty informed of students' work and interests and gives the student the opportunity to receive advice and recommendations from the diverse faculty on the APC. The student's thesis committee has the final authority to approve any changes to the thesis proposal. Note that if the student intends to submit an abstract of the thesis project to a scientific meeting, the APC must approve the abstract before it is submitted.

Scheduling the APC presentation

To schedule a thesis proposal presentation, the student chooses a date and one or two alternative dates on which at least one member of his/her thesis committee can attend the APC meeting. Students should submit the APC presentation application form to schedule the thesis proposal presentation to the APC. The APC quarterly meeting schedule is available on the IPHG website. The student informs the IPHG office in advance if he/she requires the use of an overhead or digital projector.

APC Presentation Application Form: http://depts.washington.edu/phgen/APC_Presentation_Form.doc

The student brings copies of a summary of the thesis proposal for distribution to the APC members. Students should be prepared to answer questions and discuss alternative approaches to the research question/topic.

Content of APC presentation

Thesis proposal presentations include the following information:

- A clear statement of the topic, research question/hypothesis, or project;
- A brief review of background information on the topic, e.g. why did the student choose it, what is known about it at this point, etc.;
- A review of the methodology the student intends to use to collect, analyze and/or review data;
- Description of the database the student plans to use or the data he/she plans to collect;
- A timeline;
- Justification of the proposal as an appropriate PHG thesis;
- An indication of whether the student plans to publish the paper;
- A request for advice or feedback about specific details, if needed.

Presentations should be 10 to 15 minutes in length with time for questions and discussion.

Informing IPHG Office of Thesis Title

When the APC presentation is complete, send your thesis title to Barb Snyder in the IPHG office. This will allow us to keep a record of student projects for our program database.

IV. Writing the thesis

Students must submit graduate theses to the Graduate School in a specific format. See the Graduate School's Style and Policy Manual (*http://www.grad.washington.edu/stsv/stylman/00stylman.htm*) for specific details. In general, the MPH thesis is expected to between 20 and 50 pages in length. The following is a generalized thesis format.

I. Introduction/Background – introduces the problem, research questions, previous relevant research and the conceptual approach used in the thesis project
   A. Specific Aims – define the research questions, hypotheses, or overall theory the research is seeking to address; why is the problem/topic important?

   B. Background – summarize the knowledge of relevant literature; critically analyze existing research; demonstrate gaps in knowledge; demonstrate importance of topic for public health.

II. Methods/Approach - describe and justify the methods to be used.
   A. Study setting
   B. Selection of study subjects/materials – sample size, characteristics of sample (age, gender, ethnicity, etc.); sample recruitment and inclusion/exclusion criteria;

   C. Description of intervention if any
   D. Data collection procedures
      i. Source/methodology
      ii. Protocol

iii. Steps taken to access and assure data quality

E. Data analysis plans and interpretation

Human Subjects Division: http://depts.washington.edu/hsd/

III. Results – provides a clear, systematic presentation of results, linked back to the research question(s) and conceptual model. This section does not include interpretation or discussion of the results.

A. Description of study sample

i. Number of subjects

ii. Demographics

iii. Response rate

B. Tables and figures representing data applicable to each research question

IV. Discussion/Conclusion – opportunity to discuss findings, compare them with previous work and consider the implications of them

A. Brief summary of findings

B. Describe the strengths and weaknesses of the project

C. Compare findings to previous work

D. Discuss implications

E. Suggest areas of future research

F. Conclusions

V. References

VI. Appendices

Publication of the thesis

Students are encouraged, but not required, to prepare the thesis in a potentially publishable format, with the support of the committee. The journal and authorship of the paper should be discussed with the thesis committee in advance. Consult the journal's "Instructions to Authors" for specific requirements. If the student plans to leave the University of Washington after graduation, arrangements must be made for responding to reviewers' comments from the journal, revising and resubmitting the manuscript, and communicating with the co-authors. Often, publication costs are involved, and this must be negotiated in advance as well.

V. Example of an 'ideal' timeline and suggested steps for completing the PHG thesis project by Spring of 2nd year.

This timeline is based on two-year degree program. Many former students in the MPH program have graduated during the summer quarter of their 2nd year. This is a **sample** timeline; individual timelines will vary depending on the scope and nature of the project. The key for any project is to start as early as possible and allow plenty of time near the end. In general, plan at least 2 months, minimum, for writing your thesis (from draft to final version). Note that many faculty members are away during the summer, so plan ahead if you need to meet with them.

Year 1

- Get ideas; explore different possibilities/opportunities; consult with faculty/academic advisor or talk to other faculty you may be interested in working with. (Fall Quarter)
- With your faculty advisor, establish your timeline for graduation. (Fall Quarter)
- Look at previous PHG theses available in the PHG office. (Winter Quarter)
- Consider courses that might prepare you for specific aspects of a thesis project (Fall Quarter)
- Choose a thesis committee (Spring Quarter). You only need to have 2 committee members (one must be a member of the APC). Be open-minded about who you choose – consider faculty members from other

departments, not just PHG core faculty. (Use the list of "PHG Member faculty" located on the PHG website.)
- Explore practicum options that might be related to your thesis interests. (Summer quarter)

Year 2

Autumn

- Complete practicum
- Finalize details of your thesis project and your committee members.
- Obtain approval of your topic from your thesis committee.
- Begin background research and/or setting up the project.
- **Apply to the Human Subjects Division for approval.**
- **Prepare and deliver your thesis proposal presentation to the APC (it is especially important to do this in Autumn quarter if you are doing a project that requires data collection and you plan to finish by the end of Spring quarter).**
- Start data collection if appropriate.
- Have regular meetings with your committee members – we recommend at least 2-3 times per quarter.

Winter

- Present your thesis to the APC early in the quarter (before the committee is busy with admissions, usually beginning in mid-February)
- Complete data collection.
- Analyze data.
- Have regular meetings with your committee members – we recommend at least once a month.

Spring

- Write draft of the thesis document (early Spring quarter)
- Give draft of the thesis document to your committee members for review
- Revise the thesis document to address the committee's concerns/comments
- Submit draft to Graduate School for preliminary review of thesis formatting. See Graduate School website for format guidelines. *http://www.grad.washington.edu/stsv/stylman/00stylman.htm*
- Give a second draft of the thesis document to the committee for review
- Revise and create a final draft of the thesis document
- Ask committee members to review final draft
- Make final revisions if necessary
- Obtain the necessary signatures. Give committee members a reasonable amount of time to sign (usually two to three weeks; again, be aware of faculty's other commitments such as teaching and traveling);
- Submit 2 copies of thesis document to the Graduate School – be aware of scheduling requirements and deadlines for the Graduate School.
- GRADUATE!!

VI. Comments from former students

Here is some advice from former students about completing the thesis:

1) Set timeline EARLY! Be serious and proactive about adhering to your deadlines.
2) Get most of course requirements out of the way as early as possible.

3) Be creative about getting funding to match your thesis goals. While this is not necessary, it makes the process easier if your thesis work overlaps with work being completed for an RAship, for example.

4) Expect to take NINE months minimum to complete your thesis – from conception to data collection to final version. Expect the writing stage to take at least TWO months.

5) Set aside time each week to work on thesis.

6) Be assertive about meeting with committee members.

7) Think outside the box when picking committee members. Only the chair has to be a PHG APC core faculty member.

8) Try to take a course with your advisor or thesis committee member. Former students recommend taking at least one of the following courses to help prepare for your thesis: PHG 509, PHG 543, or HSERV 581.

9) Explore available datasets – you probably will not have time to collect your own if you are planning to graduate in two years.

10) Be proactive about addressing IRB issues. You probably will need at least a certificate of exemption from the Human Subjects Office. You will DEFINITELY need approval if you are including key informant interviews or a secondary analysis of data as part of your thesis. Contact Kathy Buck at the Division of Human Subjects if you have any questions.

11) Fewer committee members is usually better – it is hard to get many faculty members together for committee meetings.

12) Expect to need many drafts of your thesis before it can be finalized and submitted.