

University of Washington  
Institute for Public Health Genetics

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MPH in Public Health Genetics Guidelines  
Part 2

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**Part 2**

**Thesis Guidelines**

**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 interdisciplinary 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 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 IPHG Academic Program Committee (APC) or a member of the IPHG Auxiliary Faculty. The chair must also be a member of the UW graduate faculty. If the chair is an IPHG Auxiliary Faculty member, at least one other thesis committee member must be a member of the IPHG APC. In addition, at least one half of the total membership must be members of the graduate faculty.

Theses written by former PHG students are available for review in the Health Sciences Library.

## **A. Suggestions for acceptable thesis 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.

## **B. 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 (see <http://www.grad.washington.edu/students/research/human-animal-subjects.shtml>). It is best to assume that you need IRB approval for any project. You must fill out the Human Subjects Advisory form (<http://www.grad.washington.edu/students/research/human-animal-advisory-certif.pdf>) and turn it into Barb Snyder before requesting thesis credits.
- 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);
- Final submission of your thesis is done electronically by following the Graduate School guidelines found here: <http://www.grad.washington.edu/students/etd/info.shtml>.

### ***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 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 or a member of the IPHG Auxiliary faculty, 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 2<sup>nd</sup> 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. If an IPHG Auxiliary Faculty member is chair of the thesis committee, at least one other committee member must be on the APC.

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.

### **C. 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 2<sup>nd</sup> year), in case major changes are suggested.

## **A. Scheduling the APC presentation**

Once you have chosen a topic and have approval from your thesis committee, you should schedule a time to present your topic at a faculty meeting by filling out a Thesis Presentation Form and returning it to the IPHG office. Check with the graduate program assistant about possible dates. Your thesis chair will need to be present at this meeting.

For the presentation, you should bring your laptop and flash drive and utilize PowerPoint. You should plan to have a maximum of 5 slides that briefly describe the rationale for your project, the hypothesis or study question, and the approach including the methods you will use to address your question. You'll have no more than 10 minutes to present your topic. Confirm the date, time, and location with the graduate program assistant prior to the meeting. Please arrive 10 minutes early to set things up in the room. Students should be prepared to answer questions and discuss alternative approaches to the research question/topic.

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.

## **B. Informing IPHG Office of Thesis Title**

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

## **IV. Writing the thesis**

In general, the MPH thesis is expected to be 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

### **A. 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 2<sup>nd</sup> year.

This timeline is based on a two-year degree program. Many former students in the MPH program have graduated during the summer quarter of their 2<sup>nd</sup> 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 for review in the Health Sciences Library.
- 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

- Review the Graduate School's policies, procedures, requirements and deadlines via their website: <http://www.grad.washington.edu/students/index.shtml>.

Pay particular attention to the information and instructions for submitting an Electronic Thesis: <http://www.grad.washington.edu/students/etd/info.shtml>

- Write draft of the thesis document (early Spring quarter) and give to your committee members for review.
- Revise the thesis document to address the committee's concerns/comments.
- Give a second draft of the thesis document to the committee for review.
- Revise and ask committee members to review final draft.
- Make final revisions, if necessary.
- Obtain the necessary signatures on the Masters Committee Approval Form. 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).
- Be aware of scheduling requirements and deadlines for the Graduate School.
- When you are ready to graduate, you must submit an online Masters Degree Request online at <http://www.grad.washington.edu/mygrad/student.htm>. Notify the graduate program assistant to print the Warrant, then obtain signatures of your committee members, and return the Warrant to the IPHG office. Your degree request will then be approved by the program, and the Graduate School can proceed to award your degree.

## VI. Comments from alumni

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 or auxiliary faculty member.
- 8) Try to take a course with your advisor or thesis committee member.
- 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 are usually better – it is hard to get many faculty members together for committee meetings. On the other hand, be sure you have faculty members with the expertise you need for your project on the committee.
- 12) Expect to need many drafts of your thesis before it can be finalized and submitted.