



Thesis Handbook

MIEH 799: Master's Thesis Research

MIEH 799: Thesis Handbook
Maryland Institute for Applied Environmental Health
University of Maryland School of Public Health

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REGISTRATION INFORMATION

A student may register for all six credits of the thesis (MIEH 799) during the semester in which it is to be finished or may register for portions of the total credit hours in each semester while working on the Thesis. An incomplete should be submitted for any MIEH 799 credit(s) taken until the Thesis is completed. The student must be registered for at least one thesis credit of MIEH 799 in the semester that the Final Thesis is defended. Students need to enroll in MIEH 799 under the section number of their chair (or co-chairs) of the thesis committee (see below).

GENERAL INFORMATION

Students need to initiate a specific hypothesis driven research topic that may be either distinct from ongoing activity or link into an activity as part of a larger ongoing initiative. Upon enrollment into the Masters' program, each student will have been assigned an Academic Advisor. The student may choose to work with the academic advisor as the Thesis mentor, OR, find a different Thesis mentor who is willing to develop a research activity that falls within the area of the student's academic interest. The Thesis mentor must be a Tenured or Tenure Track Faculty, and will serve as the Chair of the Thesis committee for the student.

Thesis Committee. A Thesis Committee requires a minimum of a Chair and two additional tenured or tenure track faculty. At **least two** Faculty on the committee MUST have a full time appointment in MIAEH. In exceptional circumstances the Thesis mentor may have an appointment outside of MIAEH. In such cases (i) that Thesis mentor must be tenured or tenure track, (ii) be willing to serve on the Thesis Committee, and (iii) may opt to either A) serve as a committee member or B) request the option to co-Chair the committee. If the latter occurs, the request to co-Chair needs to be approved by both the Director of Graduate Studies and Director/Chair of the Institute. The MIAEH Faculty co-Chair should be selected upon their familiarity with the research area and willingness to support. The MIAEH co-chair does not have to be the students' Academic advisor, though it would be common to consider the Academic Advisor for this role. Thesis credits registration would be shared between each co-chair if both are UMD faculty.

Though *it is recommended to avoid overly large committees*, if two or more Faculty from outside of MIAEH are "required" to serve on a thesis committee due to the scope of the activity, then there still needs to be two Faculty from MIAEH. In general, a Thesis Committee does not have to contain the originally appointed Academic Advisor in any capacity, though Chairs/co-Chairs are encouraged to consider that they serve.

PURPOSE

The research should be an original hypothesis driven investigation of relevance in the broad area of Applied Environmental Health. The work itself may take any of the following forms:

- A laboratory study, yielding experimental data that will be analyzed and interpreted in terms of new or existing mechanisms and/or scientific models.
- A field study, to collect information (and/or bio-specimens or environmental samples) that will be analyzed and interpreted in terms of new or existing scientific models.
- A modeling work or an analysis of existing or secondary data to prove or validate new or existing hypothesis.

- A survey to investigate opinions of individuals, or groups of individuals, yielding empirical data that will be analyzed and interpreted in terms of impacts of environmental policies and guidelines.
- A study of the behaviors of individuals, or groups of individuals to collect empirical data that will be analyzed in terms of subjective models of exposure to environmental risks.

In any of one of the above examples, data analysis may involve any combination of quantitative or qualitative methods, statistical analysis, and other scientific procedures aimed at elucidating the subject of the enquiry. Interpretation may involve any philosophical or intellectual process aimed at articulating what new knowledge has been gained. This requires a command of the relevant literature, which typically is discussed in the Introduction and Discussion sections.

CONDUCT OF THESIS

- A) Selecting a topic via discussion with one or more faculty
- B) Developing a research proposal and establishing a Thesis Committee
- C) Defending the proposal by submission and approval of a Thesis Proposal and its Oral Defense
- D) Conducting the proposed research.
- E) Defending the research by submission of Thesis and Oral Defense
- F) Ensuring all MIAEH and UMD forms are completed in a timely manner.

A) Selecting a Thesis Topic: The thesis begins with a research question about some aspect of environmental health that a student wishes to address. The activity requires the student to design, conduct, and evaluate an original, independent research study to answer the research question. The student is responsible for conceptualizing their research topic and receiving approval from their Chair/co-chairs, and establishing a committee, **prior** to focusing on developing a Thesis proposal.

B) Developing the Thesis Proposal: After selecting a Thesis topic, the student, in consultation with the Thesis mentor (aka Chair), prepares a written proposal that details what is to be accomplished and how it will be conducted. Students should begin to develop their thesis proposal as early as possible, and at the latest during the start of the third semester of a Two- Year program.

N.B. *It is the responsibility of the student to contact faculty to request their involvement on the committee. The Graduate Director should be informed of the committee selection and approve, prior to the proposal being initiated.*

The Proposal will take the form of a written document. The requirement is 12 – 20 pages (20 PAGES IS THE MAXIMUM), double-spaced (excluding citations). Arial size 12 font is one suggestion.

FURTHER DETAILS OF UMD REQUIRED Thesis Format can be found at.

https://gradschool.umd.edu/sites/gradschool.umd.edu/files/uploads/etd_style_guide_2014.pdf

THE THESIS PROPOSAL SHOULD INCLUDE *(suggested page count)*

- Introduction and statement of the problem to be studied. *(approx. 1 page)*
- Objectives of the research and articulation of two or more specific Aims and the Hypothesis being examined by each *(approx. 1 page)*
- Background summary – including *(approx. 4-6 pages)*
 - Why is the research important?
 - Critical evaluation of existing knowledge
 - Identify knowledge gaps addressed by thesis
 - LINK THESE TO THE AIMS
- Conduct *(approx. 4-7 pages)*
 - Outline of methods to be used, including statistical analysis or modeling procedure
 - Identification of resources needed and indication of how these will be realized.
- Describe expected results. *(approx. 0.5 - 1 page)*
- Identify strengths and weaknesses *(approx. 0.5 page)*
- Identify IRB and other special procedures to be followed. *(0.25 page)*
- Time line, typically as a schedule or a Gantt chart *(0.5 pages)*
- Highlight the value of predicted outcome within Public Health *(0.5 - 1 page)*

(SUB-SECTION PAGE COUNT ARE A GUIDE – BUT PROPOSAL SHOULD BE NO MORE THAN 20 PAGES)

The student can seek feedback from any of the committee during the development of the proposal document, but **the student must provide a final copy of the Thesis Proposal to all committee members at least 10 working days prior to the oral defense.** This decision to submit should be agreed between student and Thesis Chair. This document should not be further revised prior to the oral examination. If the student requests additional revisions be made to the document, then the oral defense date will be postponed, and will occur 10 days after the re-submission. The student cannot make a second request to revise prior to the oral exam.

As a rough guide, the oral defense should take place no later than November 30th if the student intends to graduate in the Spring, or April 30th if the student intends to graduate in the Fall.

(This is not a guarantee and some thesis work may take longer than initially thought, this may delay graduation)

C) Defending the Thesis Proposal

The student must post an abstract of the study and information about the meeting time, place and date, 10 working days before the meeting on the MIAEH website AND provide same to the Faculty/ Staff/ Graduate Students by email. The student is responsible for securing a room to hold the meeting with their thesis committee members. Students should complete the [School of Public Health Graduate Research Meeting form](#) in advance of the meeting.

The Thesis proposal document will be reviewed by the committee prior to the oral presentation, and should come prepared with queries or areas for clarification. During the oral defense, the student will

provide a 30-minute presentation on their proposal, followed by up to 15 minutes of questions from any non-committee attendees, and up to 60 minutes of discussion/questions by the Thesis Examining Committee. After questions have been completed – the student will leave the room and the committee will discuss the whether the student should progress.

The Committee will evaluate the Thesis Proposal in terms of:

- Content, breadth, depth and scope commensurate with graduate work in the environmental health sciences at the master's level.
- Clarity of overall objectives, specific aims, and hypotheses.
- Quality of the background learning by the student.
- Study design - it is up-to-date? valid? following best practices?
- Feasibility of the research itself and its relevance to environmental health.
- Availability of the resources and data in order to allow successful execution of the research in the stated time frame.

After the oral proposal defense, the thesis may be (a) proposal approved as is, (b) proposal approved with minor concerns, (c) proposal requires revisions, or (d) proposal rejected.

a) APPROVED as is → student proceeds to conduct the research proposed under guidance.

b) APPROVED with minor concerns → student takes guidance from the committee to improve one or more aspect of the proposal. Concerns need to be included in final thesis, but resubmission of thesis proposal is not needed. Student proceeds to conduct the research proposed under guidance.

c) REVISIONS requires → student must provide written changes to the thesis proposal that must be approved by the committee members requesting modification, and signed off by the Committee Chair/co-Chairs if revisions are accepted. *A second formal in-person meeting may be required.* **The Thesis Chair must provide detailed notes from the committee to guide the student to modify the proposal.**

d) REJECTED → major changes are needed AND **a formal in-person meeting is required. The Thesis Chair must provide detailed notes from the committee to guide the student to modify**

NOTES

Students are recommended to make a summary of main decision and requirement taken during the oral defense and distribute this to all Committee members.

Students should aim to submit their thesis proposal in the third semester on a two-year program.

If a student fails to submit a thesis proposal within 90 days of the committee being established the student must re-request committee member involvement, or establish a new committee.

If a student fails to submit a Thesis proposal within 180 days of the committee being established the student will fail the program.

Students are limited to two formal proposal meetings. Students who are rejected at the first proposal defense, must have a second within 90 days, or they fail the program.

It is the responsibility of the student to request additional time due to extenuating circumstances that interfere with the time line for their proposal. Request should be via the Thesis Chair and/or the MIAEH Director of Graduate Studies

Once the proposal is approved, committee members will provide written approval in the form of signatures on the [School of Public Health Proposal Approval form](#). The Thesis Chair forwards this form to the MIAEH Director of Graduate Studies, who will sign the form and place it in the student's file.

Institutional Review Board (IRB) Approval for Human Subjects Research:

If the project involves human subjects, IRB approval should be requested only after the thesis has been approved by the Project Examining Committee. The student's committee Chair is the actual IRB applicant on the student's IRB application. The student must prepare the IRB application under the Chair's direction. The Chair, rather than the student, must take the ultimate responsibility for the student's work with respect to the protection of human subjects. **Any student that collects data from human subjects (qualitative or quantitative) must obtain IRB approval before collecting any data.** IRB approval documentation should be included in the Thesis as an appendix. For complete details, visit the UMD IRB website at <http://www.umresearch.umd.edu/IRB/index.html>.

Students collecting data from human subjects also need to complete an online Collaborative Institutional Training Institute (CITI) course (www.citiprogram.org). Typically, it is the "Biomedical Research - Basic/Refresher, Basic Course" that should be completed; however, students should check with their Chair before they begin the online course. Students **may** choose to (and are encouraged to) complete CITI training before submitting an IRB proposal.

D. Completing the Research

After the thesis proposal has been approved (and IRB approval has been obtained, if required), the student may begin work on the thesis research. It is expected that the thesis research will conform to what was approved by the Thesis Committee. Before making any substantive changes to the proposed research, approval from the Thesis Committee is required. The student must consult with their Thesis Chair to determine which changes are substantive and require committee approval. The student should have regular meetings with their Chair (at least one every two weeks), and other committee members as appropriate, to discuss progress from last meeting objectives, ongoing problems, and establish new objectives for the next two weeks. Major issues that will impact the research need to be identified as early as possible, and discussion of research adjustments documented. The student should complete a **one-page meeting proforma**. The student should share with the Chair who either signs alongside student, or adds clarifying notes and signs alongside students. The Chair and student should each keep a copy.

Significant changes to some research activities may require re-visiting IRB.

E) Defending the Thesis

The Thesis defense has two components

- A Written Thesis Document
- An Oral presentation and Defense

On completion of the research component and with agreement of the committee, the student should prepare a Thesis document for final review as outlined below. The Thesis Examining committee* ideally should be the same committee that approved the Thesis proposal.

*This committee must first be approved by the Graduate School, using the [Nomination of thesis or dissertation committee](#) form (available at www.gradschool.umd.edu, click on Forms and Publications and then click on Graduate School Forms).

Note the deadline for submitting this form is **60 days prior to the final defense**. Once the Graduate School has approved the Thesis Examining Committee, the Graduate School will issue and send to the Department the [Report of Examining Committee](#) form.

Thesis format requirements are as proposal, but should be 30 - 50 pages (50 PAGES MAXIMUM) excluding Front Material and Citations; and should include.

Front Material

- **Title, Name and Program**
- **Acknowledgements** to individuals or supporting parties.
- **Contents and Abbreviations**

Main Thesis

- **Abstract** 200-250 words
- **Introduction**, including preamble and identification of the problem, background, including a review of relevant literature, and identification of gaps in knowledge.
- **Aims and Hypothesis** addressed, articulation of the primary and secondary objectives of the work
- **Approach and Methods** adopted, including description of data sets where relevant.
- **Presentation and Discussion** of the results, including description of analyses of raw data to reveal important effects, trends or tendencies.
- **Conclusions** and implications of the research.

- **List of Citations.**

The final step in completing a thesis is to successfully pass an oral defense conducted by the Thesis Examining Committee. **Ten working days prior** to the oral defense meeting, the student must give each member of the examining committee and the MIAEH Director of Graduate Studies a final copy of the completed thesis manuscript to review, and post the thesis abstract on the MIAEH website. Also the student should complete both the [School of Public Health Graduate Research Meeting form](#) (see Forms below) and the [School of Public Health MPH/MHA Project Evaluation](#) form prior to the oral defense meeting. Any member of the faculty or any graduate student may attend the oral defense meeting, which is typically held in the MIAEH/EPIB conference room. It is the responsibility of the student to secure a room for two hours to complete the oral defense. During the oral defense, the student provides a 45-minute presentation, followed by 15 minutes of questions from anyone attending the defense (“the public”). Everyone* except the Thesis Examining Committee will then be excused and the Thesis Examining Committee will continue to ask the students a series of questions. This portion of the defense generally lasts up to 1 hour.

* With prior permission of the student being examined, MIAEH graduate students or Faculty may remain in this session, but may not ask questions.

Three things can happen at the conclusion of the oral defense.

- The Thesis can be accepted as is.
- The Thesis can be accepted on the condition that certain changes are made within a specified time frame determined by the Committee.
- The Thesis can be rejected

When final approval is granted, the Thesis Examining Committee will sign and submit the [Report of Examining Committee](#) form to the Graduate School, and sign and submit the [School of Public Health MPH/MHA Project Evaluation](#) form to the MIAEH Director of Graduate Studies. After passing the oral defense, the student must submit an electronic copy of his/her thesis to the Graduate School (submit on-line at www.gradschool.umd.edu/etd/) and one hard copy to the MIAEH Director of Graduate Studies.

Grading

The thesis Chair submits the grade for Thesis. Acceptable grades are

GRADE A – Indicative of exceptional performance

GRADE B- - Indicative of Pass

GRADE F – Indicative that the student has failed

GRADE I – Indicative that the student is incomplete in this course.

F. Forms (see page 11)

Thesis Frequently Asked Questions

1. How would one go about finding a Thesis advisor?

Talk to faculty and read their websites

2. When should I start to discuss thesis plans?

You can start as soon as you enter the program, although your ideas may change in the first year. You should begin to discuss your thesis ideas no later than the start of the third semester in a two-year program.

3. When should we officially present the thesis proposal, start the IRB process, etc.?

The guidelines stipulate that your project/thesis proposal must be completed and approved by your committee no later than Nov 30 for spring graduation or April 30 for fall graduation.

4. Can we turn in IRB approval the semester BEFORE graduation? For example, if we plan to graduate in May, can we submit the project proposal and IRB proposal a semester before?

You can only submit to the IRB once your examination committee has approved your proposal. Your examination committee can only approve your proposal when you are registered for thesis.

5. What is the nature of a successful thesis?

A key component of a thesis is that you are trying to address a research problem and requires a hypothesis driven approach. It needs to address a public health research question or field gap; states the current state of the field; provides supporting rationale for conducting this work and clearly specifies the gap being filled; describes the methods used to address the research question, including the study population (if applicable) and statistical methods; provides detailed results and provides a thorough discussion that highlights the main findings; compares results to prior studies (if applicable), provides a rationale for the findings observed, clearly outlines the strengths and limitations of this work and delineates future studies that should be conducted.

Also: if you were asked by someone in the street, you should be able to give a useful response to the question “so what’s the use/point of doing that..?”

6. Does it need to include data analysis, meta-analysis, etc.?

It is normally expected that a thesis will generate data or information that needs to be analyzed by statistical methods. Data may be quantitative or qualitative and the extent of data analysis will vary from student to student. Students are expected to work with a biostatistician to understand the statistical approach(es) used and to conduct the data analysis. It is also acceptable for students to conduct a meta-analysis or systematic review under guidance from their committee.

7. Is my thesis Chair and/or committee, purely a guiding force, or should they collaborate with me in some way?

Your Chair is your mentor and provides guidance regarding the valid execution of your thesis and serves as part of your committee. He/she is not your collaborator as this should be your independent work and demonstrate your personal competency and capacity.

8. What is the general timeframe (from start to finish)?

The thesis is typically conducted during the final two semesters.

9. What can we do for the project that isn’t human subjects related (not having to go through the IRB)?

The IRB is not to be feared. It is a good experience for students to go through the IRB process. But if you do not collect data from human subjects, IRB is not required.

10. Is it possible for thesis to be rejected and for the student to be unable to graduate?

Yes. This is an evaluated activity and if the student does not demonstrate competency, it is the faculty’s responsibility not to graduate them.

FORMS – 1-4 available on MIAEH website

1. School of Public Health Graduate Research Meeting form

Required for Proposal and Final Defense – Internal Requirement

2. School of Public Health Proposal Approval form – *only required for MPH*

Required for Proposal Approval – Internal Requirement

3. MIAEH Thesis Student Meeting Proforma

Required for biweekly meetings during conduct of Thesis – Internal copy kept by Chair and Student

4. Graduate Outcome Assessment Form

Required to be initiated by students and completed by Committee.

Chair to gather and summarize – Internal Requirement

5. Nomination of Thesis or Dissertation Committee Form

https://www.gradschool.umd.edu/sites/gradschool.umd.edu/files/uploads/nomination_of_thesis_or_dissertation_committee_form.pdf

Required at least 60 days before final defense - University Requirement

6. Report of Examining Committee

Sent by Graduate School once form 4 is accepted – University Requirement

Thesis and Dissertation Electronic Publication Form

https://www.gradschool.umd.edu/sites/gradschool.umd.edu/files/uploads/thesis_and_dissertation_electronic_publication_form.pdf

Required on approval from committee - University Requirement



School of Public Health

SPH Graduate Meeting Form

Student name:

Department:

Degree program:

Meeting type:

Project Proposal

Project Defense

Thesis Proposal

Thesis Defense

Dissertation Proposal

Dissertation Defense Date:

Time:

Location:

Advisor/Chair:

Committee Members:

Dean's Representative (PhD only):

Title:

Abstract:

MIAEH Thesis Student Meeting Proforma: Supervision record form

This proforma is intended to provide a record of the formal meetings between student and chair/committee during the conduct of the thesis. The student should complete the proforma during or immediately after the meetings. It is recommended that a formal meeting is held at least every two weeks. At the next meeting the student should give a copy of the completed proforma to the chair who should sign the form.

Student's name:	Date:
Chair/Committee present:	
Objectives from previous meeting:	
Points discussed during this meeting:	
Objectives set at this meeting:	
Any Significant Issues	
Date of next meeting:	
Signatures	

Graduate Outcome Assessment Form
Master's Thesis in Environmental Health Sciences

Student Name/email: _____

DATE of the presentation: _____

Thesis Chair name /email: _____

Thesis Committee members/evaluator: _____

Presentation Title: _____

Start and end dates of project: _____

Abstract (200-250 words) to be written by student

Each category will be scored 1 - 4.

1 = unsatisfactory; 2 = satisfactory; 3 = above average; 4 = outstanding

Category	Evaluator					
	A	B	C	D	E	average
1. Quality of written Report:						
Overall clarity						
Use of language and grammar						
Organization						
Clarity and completeness of background						
Quality of figures						
2. Research:						
Significance of the research for the field of Environmental Health						
Demonstrated skills required to complete project e.g. competency with biostats models, data collection etc.						
Originality of the research						
Demonstrate the need for awareness of any health equity issues within the research						
3. Defense:						
Organization of oral presentation						
Clarity of oral presentation						
Overall oral communications skills						
Ability to defend research orally						
Knowledge of relevant background						

Overall Evaluation mean most exceed 2.0: _____

Comments: