

Thesis and Graduation Requirements Master of Science in Biomedical Informatics

William Hersh, M.D.
Program Director

Andrea Ilg
Program Administrator

Diane Doctor
Administrative Coordinator

Lynne Schwabe
Administrative Assistant

A thesis is one of the requirements of the M.S. degree at OHSU. The definitive guide for the thesis in the OHSU School of Medicine is the Graduate Council document, "Regulation and Guidelines for Thesis Preparation and Defense." This guide explicitly defines the rules governing the thesis. The guidelines below represent an interpretation of the guidelines with additional guidance regarding the Master of Science in Biomedical Informatics (MS) program. Students should follow the guidelines that are in place at the time they begin their thesis work.

- By the end of the first year the student will select a thesis advisor who is a member of the graduate faculty and has an appointment in the Department of Medical Informatics and Clinical Epidemiology (DMICE). This individual will assume responsibility for advising the student about course selection, graduation requirements and thesis procedures. After consulting with the selected faculty member and getting approval, the student completes the Advisor Appointment form, has it signed by the advisor and submits it to the Program Administrator. In addition, the Request for Thesis Committee form and the proposal outline must be completed and submitted to Program Administrator. The proposal outline should consist of a one-page abstract that contains the essential details of the proposed work (e.g., study design, sample size, anticipated primary results, etc) and several pages of the precise plans for the work. **The student must have the Advisor form, Committee form and proposal outline submitted prior to registering for thesis credits.**

A master's thesis in biomedical informatics should represent original scientific work performed under the close supervision of the thesis advisor. The scope of a master's thesis in biomedical informatics is a focused project that represents one of the following:

- Development of a biomedical informatics application with some form of novelty, such as an existing computer program implemented on a new platform or an application that extends the functionality of an existing application. This should also include the design of an evaluation plan.
- A new investigation or replication of a previous investigation in an area of biomedical informatics, such as information needs or use, evaluation, and organizational or management issues.

If your thesis topic is related in any way to your professional work, you must describe for your committee how that topic and your job are distinct. You must be able to describe how your thesis research is above and beyond your job duties.

Thesis work progresses in three stages, generally corresponding to three 4-credit terms:

- Term 1: Background research, project development. Must defend proposal to pass.
- Term 2: Project work (e.g., development of system, collection of data), begin first draft of write-up.
- Term 3: Analysis of data, final write-up of thesis. Must defend thesis to pass.

These are general guidelines to follow when planning your thesis work. It is important that you meet with your advisor on a regular basis. You should also have a meeting of your entire committee at least once each term.

The following rules apply to the progression of the thesis work:

- The student must complete 18 hours of course work before commencing thesis work (this should include BMI 510 and concurrent registration in the Evaluative Sciences sequence).
- Before beginning this process, the student must check the official progress report in Degree Audit and make sure everything looks correct. If it does not, contact the program coordinator who will contact the registrar.
- The student will select a Thesis Advisor who is a member of the Graduate Faculty *and* has an appointment in DMICE.
- The student must assemble a Thesis Advisory Committee at the beginning of the first stage.
- The Thesis Examination committee must include:
 - No fewer than three members of the Graduate Faculty two of whom must have appointments in DMICE. The third must have an appointment outside of DMICE.
 - Must be chaired by a member of the Graduate Faculty
 - May include the student's mentor

Programs may request permission to replace one of the committee members by a recognized scholar who is not a member of the Graduate Faculty. However, the individual may not serve as the Chairperson of the Examination committee. Request to appoint an outside member to the examination committee must be supported by a letter from the Program Director and a copy of the scholar's curriculum vitae.

- The proposal should be a well-constructed, substantive document that contains the following:
 - Chapter 1 Background
 - Chapter 2 Methods
 - Chapter 3 Anticipated Results
 - Bibliography
- The student must first defend the proposal at a pre-defense meeting with the Advisory Committee only. The student must submit the proposal to the Advisory Committee (with an electronic copy to the Coordinator) 2 weeks before the pre-defense meeting to give them time to review it. The student should be prepared to give a complete, rehearsed presentation including PowerPoint slides at that meeting. After the meeting, the student needs to submit the signed "Pre-Defense Approval Form" to the Coordinator. If the committee does not sign the form, the public defense must be postponed until the committee agrees that the student is ready to move on to the public defense.
- The student must defend the proposal at a public seminar that includes the Thesis Advisory Committee. It is suggested that this meeting be a session of the departmental research conference, although alternative times can be arranged for those whose schedules do not allow attendance at the regularly scheduled meetings. The proposal defense should be

completed two weeks prior to the end of the first term of thesis credits in order to receive a passing grade.

- Proposals must be approved by the OHSU Institutional Review Board (IRB) if the proposal uses human subjects or clinical data in any way. Many informatics projects will be exempt from full IRB review. However, the IRB must grant the exemption. Research with human subjects that is not approved by the IRB constitutes scientific misconduct and is subject to disciplinary action. The student is responsible for obtaining IRB approval. Forms are available at <http://www.ohsu.edu/xd/research/about/integrity/irb/eirb.cfm>. The IRB process should be started as soon as possible during the first stage of thesis work.
- The proposal should be modified based on recommendations by the Thesis Advisory Committee following the public defense.
- The Thesis Proposal Approval form should be signed by all Advisory Committee members and submitted with a final copy of the proposal to the Program Coordinator.
- The student cannot start the second stage (or term, if dividing thesis work across three terms) until the proposal has been presented, and modifications approved by, the Thesis Advisory Committee.
- The student will work during the second and third stages with his or her thesis advisor and keep the committee informed as the project progresses. It is strongly recommended that the students meet once every week or two with their thesis advisor and at least once per term with the Thesis Advisory Committee.
- Students must submit a rough draft of their thesis write-up to their thesis advisor by the end of the second term in order to receive credit for that term.
- In the third stage, the student must prepare for the pre-defense and oral examination. Students will be required to meet with the Thesis Advisory Committee four weeks prior to the oral exam date for a pre-defense. A complete draft of the thesis write-up must be submitted to the committee at this time.
- Two weeks prior to the Oral Examination, the final write-up must be submitted to the Examination committee.
- The final thesis write-up must be completed within six months after the oral defense.
- Once the project has been completed and the thesis written, it will be submitted to the thesis examination committee for their approval.

If a student is unable to complete the oral examination in their third stage of work, they will be required to register for one credit of thesis during the term they defend.

It must be remembered that a thesis write-up is not to be compared to a term paper that is turned in and then handed back to the student with a grade. A thesis is to be well written, with clear and comprehensive prose on the project undertaken. It will serve as an archival version of the background, methods, results and conclusions of the work done, and will be posted on the program Web site as well as a national database of theses and dissertations. As such, students should submit drafts of their thesis write-ups to their advisor frequently and at least once midway through the final phase to their committee.

The student's thesis work will not be considered complete until all Thesis Examination Committee members have signed off on the thesis write-up. If the thesis write-up is not approved by all examination committee members, graduation may be delayed.

Students may graduate any term. However, OHSU has only one commencement ceremony per year (in June), and if a student does not complete all graduation requirements by the deadlines, then he or she will not be eligible to participate in commencement until June of the following year.

THESIS ADVISORY COMMITTEE

The student, with the advisor's approval, should select three individuals to serve as the Thesis Advisory Committee. The primary qualification of these individuals should be that they provide knowledgeable support of the thesis project. The committee members should be members of the graduate faculty. However, a member may occasionally be selected who does not have any association with the University if that individual is able to provide some area of expertise not available on campus. A formal request to establish this committee is made by submitting the appropriate form to the Program Administrator.

THESIS EXAMINATION COMMITTEE

The Thesis Examination Committee is appointed by the Associate Dean for Graduate Studies to conduct the student's official oral examination of the thesis. A Request for Oral Thesis Examination form is required to request the appointment of this committee and establish a date for the oral exam and must be submitted to the office of graduate studies four weeks prior to the oral examination. The student is responsible for coordinating the schedules and arranging the date for the oral defense.

The Thesis Examination Committee is to be composed of at least three members, two of which must be members of the graduate faculty. At least one member must have their primary appointment outside the DMICE. The Thesis Examination Committee requires copies of the final thesis draft at least two weeks prior to the scheduled examination. For students planning to graduate in June, the request form and copies must be received before April 1st and the oral examination must be completed on or before May 1st. After the oral examination, the Thesis Examination Committee will complete the Thesis Examination Certification form indicating the results of the exam and submit it to the Program Administrator.

After successfully defending the thesis, the student will make any corrections requested by the examining committee. The committee will then sign the Thesis Certificate Approval form. The original and two copies of the thesis should be delivered to the library for binding (one copy of the thesis must be bound by the library – this is the copy that will be deposited in the library; the other two copies can be bound by an outside source if desired).

The receipt obtained from the librarian must be submitted to the Program Administrator for the SOM. The student must sign and submit the Thesis Placement Waiver form. The waiver will allow copies of the thesis to be placed in the library and the Department in which the work was done. The third copy is for the Thesis Advisor.

Students are also required to prepare and deliver an electronic version of the thesis for publication in a suitable format to the Program Administrator. The electronic version should be submitted on disk in PDF format and in a word processing format (Word is required). The student must sign and submit the Electronic Thesis Placement Waiver form to the Program Administrator. The waiver will allow a copy of the thesis to be published on the departmental website.

Information regarding the School of Medicine guidelines and regulations for thesis preparation and defense can be found on the web at <http://www.ohsu.edu/xd/education/schools/school-of-medicine/academic-programs/graduate-studies/faculty/administration-forms.cfm>

