

Protocol 1029 Master's Degree

Protocol Number: 1029

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Protocol

GSSIMR will confer a Master of Science (M.S.) degree in Biology to predoctoral researchers who, for various reasons and circumstances, elect not to complete the Ph.D. degree. Circumstances under which a predoctoral researcher could revise their enrollment include, but are not limited to, changes in marital status; changes in parental status; caretaking of a parent, sibling, spouse or child; health issues; and other life changing events.

Predoctoral researchers must meet with and receive written permission from their Supervisory Committee, in consultation with the Dean, prior to pursuing a master's degree.

Requirements for M.S. Degree

The requirements for the master's degree include a passing grade for each of the introductory module courses, successful completion of the lab rotation requirements, and at least one year of thesis research as defined for the Ph.D. program (75 credits). In addition, the predoctoral researcher must successfully complete the Qualifying Assessment, submit a written thesis describing research work completed to date, complete the defense of the thesis, and secure a majority vote of the Supervisory Committee; and the thesis advisor must provide a written evaluation.

Supervisory Committee Meeting for Approval

Prior to pursuing a master's degree or scheduling a Thesis Defense, the predoctoral researcher should have completed or be close to completing the first three requirements of the master's degree (passed all module courses, one year of thesis research, and successfully completed the Qualifying Assessment). The predoctoral researcher meets with her/his Supervisory Committee to determine if a master's degree is the appropriate path for the predoctoral researcher. This meeting is scheduled as a regular Supervisory Committee meeting with additional information about the predoctoral researcher's intent written in the summary provided to the committee in advance of the meeting. If approved, the Supervisory Committee reviews and approves the timeline for the Qualifying Assessment (if not completed) and completion of a thesis.

Thesis Research Requirement

Predoctoral researchers begin their thesis research in June of the first year. They are expected to develop and execute a research project that addresses a significant biological question to satisfy the requirements of a master's degree. Following successful completion of the Qualifying Assessment, predoctoral researchers devote the remainder of their time in the program fully to laboratory research. They are also expected to participate in lab meetings, seminars, and journal clubs.

The thesis laboratory is a 900-level course for 12 credit units for a fall term, 18 credit units for a spring term, and 6 credit units for a summer term, for a total of 36 credit units per year (fall, spring and summer terms).

Thesis laboratory research continues until the predoctoral researcher has completed a written thesis describing research work completed. Once completed, the predoctoral researcher defends the thesis with a presentation to the Supervisory Committee followed by questions from committee members. In addition, the thesis advisor provides a written evaluation and a unanimous vote of the Supervisory Committee is required. The Supervisory Committee will ultimately assess whether all criteria are met during the Thesis Defense.

Qualifying Assessment Requirement

Overview:

Within the first three years of their program, predoctoral researchers undergo a Qualifying Assessment, which consists of a written proposal and an oral presentation. The primary aim of the Qualifying Assessment is to provide the predoctoral researcher with an invaluable opportunity to receive constructive feedback in order to strengthen his or her proposal.

The written proposal may be conceived with the assistance of a thesis advisor, but should represent the predoctoral researcher's own plan. The written proposal should contain the specific aims of the research, detailed background, preliminary data, and planned experimental approaches for the thesis project being pursued or a closely related project (as determined in consultation with the predoctoral researcher's thesis advisor). An additional part of the proposal is a brief summary (two to three pages, double spaced) of the objectives for the meeting, similar to what is prepared for any Supervisory Committee meeting.

The oral component of the Qualifying Assessment includes the discussion of the project with the Supervisory Committee. The thesis advisor should be present for the discussion of the project but may not be present when the Supervisory Committee votes on a grade of Pass or Fail.

Preparing for the Qualifying Assessment:

Predocutorial researchers are expected to fully prepare for the Qualifying Assessment, and failure to adequately do so will require a second assessment. Failure to adequately prepare for a second assessment is grounds for dismissal from the program.

To schedule the Qualifying Assessment, the predoctoral researcher works with GSSIMR's Administrative Coordinator to find a date and time when all Supervisory Committee members are able to attend. Three hours should be allowed for the Qualifying Assessment, and the Administrative Coordinator will arrange a conference room and appropriate catering for the meeting. GSSIMR will arrange travel for the outside committee member and coordinate preparations with the lab's administrative assistant. Outside committee members may be present for the Qualifying Assessment via Skype.

Each Supervisory Committee determines and tells the predoctoral researcher how far in advance of the Qualifying Assessment they want to receive the written proposal and brief summary to have time to read all of it prior to the Qualifying Assessment.

The written portion is 5-10 pages long, single space. It is written like an NIH proposal with Introduction, Specific Aims, Background and Significance, Preliminary Data, and Planned Experimental Approaches to address each Aim. Examples to review can be found at: <http://www.niaid.nih.gov/researchfunding/grant/pages/appsamples.aspx>. The written portion should contain clearly labeled figures and be carefully checked for spelling and grammatical errors. Some amount of time and effort needs to be applied to make an optimal proposal. It should be written by the predoctoral researcher, but can be revised with the aid of the thesis advisor and other members of the lab. An additional part of the proposal is a brief summary (two to three pages, double spaced) of the objectives for the meeting, similar to what is prepared for any Supervisory Committee meeting.

The Qualifying Assessment:

The Qualifying Assessment is scheduled for three hours. The oral presentation component of the Qualifying Assessment is 20-30 minutes long and followed by extensive discussion. The presentation is less general than a Friday Science Club talk, but less specific than a lab meeting. It should be revised and practiced with the thesis advisor and other lab members.

The predoctoral researcher takes to the meeting a blank copy of the Qualifying Assessment Report document. At the beginning of the meeting, one committee member (not the advisor) is appointed as chair of the committee to complete the Qualifying Assessment Report. After the oral presentation, all committee members sign one copy of the Qualifying Assessment Report, and the chair sends that in interoffice mail to the Associate Dean for Administration & Registrar. Within a week of the Qualifying Assessment, the chair completes a blank form, emails it to the Associate Dean for Administration & Registrar and copies all committee members, and attaches a copy of the written proposal.

Thesis Defense Requirement

Preparing for the Thesis Defense:

To schedule the Thesis Defense, the predoctoral researcher works with GSSIMR's Administrative Coordinator to find a date and time when all Supervisory Committee members are able to attend. Three hours should be allowed for the Thesis Defense which includes time for the predoctoral researcher's presentation to the committee followed by examination by the Supervisory Committee. GSSIMR's Administrative Coordinator arranges appropriate conference room(s) and catering for the meeting. GSSIMR arranges travel for the outside committee member and coordinates preparations with the lab's administrative assistant. Outside committee members may be present for the Thesis Defense via Skype.

In extraordinary circumstances, a proposal to modify the structure of the Thesis Defense may be submitted by the predoctoral researcher to the Supervisory Committee. The Supervisory Committee would need to unanimously agree to the request and then submit a written plan to the Dean for final approval.

Thesis Document:

Each Supervisory Committee determines and tells the predoctoral researcher how far in advance of the Thesis Defense they want to receive the thesis so they have adequate time to read and

review the document. If this information is not conveyed to the predoctoral researcher, the thesis must be turned into the Supervisory Committee members NO LATER than 7 full days prior to the defense.

If available, published work forms the main body of a thesis. A detailed literature review precedes the thesis and a discussion of the possible next steps in the research follows the thesis. A detailed reference section is added at the end of the thesis with citations throughout the document.

The thesis is written to document the full range of research performed by the predoctoral researcher. It should be written in Times New Roman or Calibri 12 point, be about 75 pages long, and contain the following sections:

- 1) **Title Page:** Title of Thesis, Name of Predoctoral Researcher, "A Thesis Submitted in Partial Fulfillment of the Requirements for the Master of Science in Biology at The Graduate School of the Stowers Institute for Medical Research," Date
- 2) **Statement of Copyright** (centered on a page, on a page by itself):
© Copyright by (Name), Year_
All Rights Reserved
- 3) **Acknowledgements**
- 4) **Table of Contents**
- 5) **Introduction:** The Introduction is a comprehensive literature review that sets up the scientific problem. The end of this section should include a separate page stating the **Specific Aims** of the proposal.
- 6) **Materials and Methods**
- 7) **Results:** Scientific papers should comprise the majority of the content, and unpublished results should be included.
- 8) **Discussion and Conclusions**
- 9) **Future Directions**
- 10) **References:** The references should be formatted in the manner of an *Annual Reviews* article.

All Figures should be printed on separate pages, with no text on the other side of the paper.

After the Thesis Defense and after any corrections and edits requested by the Supervisory Committee, the predoctoral researcher provides a copy of the final master's thesis in a Word document to the GSSIMR office. The GSSIMR office binds the master's thesis and provides copies as needed.

Thesis Defense:

The Thesis Defense is scheduled for three hours which includes time for the predoctoral researcher to present to the Supervisory Committee followed by examination by the committee.

The predoctoral researcher takes to this meeting a blank copy of the Thesis Defense Report document. An electronic version of the Thesis Defense Report is also available to the Supervisory Committee, if they prefer to type comments. At the beginning of the meeting, one committee member (not the advisor) is appointed as chair of the committee to complete the Thesis Defense Report.

Following the presentation, the Supervisory Committee asks questions pertaining to the thesis and the encompassing scientific field, whether methodological or conceptual. Therefore, it is vital that the Supervisory Committee has adequate time to read the thesis document (see above).

Immediately following the examination, the Supervisory Committee meets without the predoctoral researcher present. The thesis advisor may stay for the meeting, but recuses her/himself for the final deliberations on the grade. The Supervisory Committee discusses whether the thesis and the defense meet the criteria of “the completion of a body of research that addresses a significant biological problem” at the master’s level. They discuss and record on the Thesis Defense Report comments, suggestions, and a grade (see below). The committee will discuss this feedback and the grade with the predoctoral researcher immediately following a Supervisory Committee consensus.

One of three grades is assigned: pass, conditional pass, or fail.

- A passing grade indicates that the predoctoral researcher has met all thesis requirements to receive a master’s degree.
- A conditional pass grade indicates specific adjustments that need to be made to the thesis document. These adjustments may be relatively minor (such as proper reference formatting) to rewriting poorly written sections of the thesis. Changes need to be made by the predoctoral researcher and sent to the Associate Dean for Administration within 7 days of the defense. Once these specific changes are made, the thesis document, or sections in question, are redistributed to the Supervisory Committee by the Associate Dean for Administration. All Supervisory Committee members respond to the Associate Dean for Administration within 14 days of receiving the revisions. A written approval indicates that the predoctoral researcher has addressed their comments and thus meets all thesis requirements to receive a master’s degree. If more revisions are necessary, this process will continue in 3-day intervals between the committee member who requests more changes, the predoctoral researcher and the Associate Dean for Administration until the committee member(s) is satisfied.
- A failing grade indicates that the predoctoral researcher has not met the stated criteria for a completed thesis. In issuing this grade, the Supervisory Committee must specify the areas that are lacking. This may include, but is not limited to, insufficient data to produce a “body of research that addresses a significant biological problem” to unsatisfactory defense of the thesis. The Thesis Defense Report indicates the specific areas that need improvement, and the committee informs the predoctoral researcher at the end of her/his defense. Following this outcome, the chair of the Supervisory Committee meets with the GSSIMR Dean to discuss the reasons for the failing grade. This meeting occurs within 7 days of the failed thesis defense. If the chair of the Supervisory Committee is not available, any Supervisory Committee member other than the thesis advisor may meet with the Dean. If the Dean is not available, the Assistant Dean for Academic Affairs may act in his/her place. Subsequently, the predoctoral researcher and the thesis advisor meet with the Dean to discuss the failing grade. The second Thesis Defense must be scheduled within 6-8 months after the first Thesis Defense. If more time is needed, this may be grounds for dismissal from the program.

The first page of the Thesis Defense Report is completed and signed by the committee members during the thesis defense, and the chair sends that page in interoffice mail to the Associate Dean for Administration. Within a week of the Thesis Defense, the chair completes the remainder of the Thesis Defense Report (which includes the comments and grade), emails it to the Associate Dean for Administration, and copies all committee members.

Sample Timeline for Requirements for Master's Degree:

By March 30, 2018	Predoctoral researcher expresses concern to thesis advisor about completing the Ph.D. degree and expresses interest in switching to master's degree track. It is anticipated that this discussion will take place over a series of meetings and will not be decided based on one discussion between the thesis advisor and the predoctoral researcher.
By April 30, 2018	Predoctoral researcher and thesis advisor meet several times and discuss at length the switch from Ph.D. to master's degree. The predoctoral researcher understands the potential ramifications of this decision and wants to move forward. The predoctoral researcher and thesis advisor meet with the Dean to discuss the switch in degree programs.
By May 30, 2018	<p>Supervisory Committee meets to determine if a master's degree is the appropriate path for predoctoral researcher. Predoctoral researcher prepares for the Supervisory Committee meeting as for a regular Supervisory Committee meeting and includes additional information about their intent in the summary provided to the committee. If the Supervisory Committee approves the predoctoral researcher's plan to pursue a master's degree, the committee reviews and approves the timeline for Qualifying Assessment (if not completed) and completion of a thesis, including the Thesis Defense.</p> <p>The Committee completes a Supervisory Committee Meeting Report at the conclusion of the meeting.</p>
By August 15, 2018	<p>(If approved by Supervisory Committee)</p> <p>Predoctoral researcher's Supervisory Committee meets for the Qualifying Assessment to determine if predoctoral researcher is ready to move forward to writing thesis and/or what steps need to be taken to get to that point.</p> <p>Predoctoral researcher prepares for the Qualifying Assessment as outlined in the Master's Degree Policy. The committee completes a Qualifying Assessment Report at the conclusion of the meeting.</p>
By December 30, 2018	<p>(If approved by Supervisory Committee)</p> <p>Predoctoral researcher prepares thesis, and the Supervisory Committee meets for Thesis Defense.</p> <p>Predoctoral researcher prepares thesis and prepares for the Thesis Defense as outlined in the Master's Degree Policy. In extraordinary circumstances, a proposal to modify the structure of the Thesis</p>

	<p>Defense may be submitted by the predoctoral researcher to the Supervisory Committee. The Supervisory Committee would need to unanimously agree to the request and then submit a written plan to the Dean for final approval.</p> <p>The Supervisory Committee completes a Thesis Defense Report at the conclusion of the meeting.</p>
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