Master's Thesis Manual

Department of Informatics and Networked Systems (DINS)

For students enrolling Fall 2022 or later

Date: May 6, 2022

Approved by the DINS Faculty in April 2022

GOALS

The overall goal of the Master's thesis option is to provide **Students,** under the guidance of a **Thesis advisor** and **Thesis Committee,** with an opportunity to gain research experience, conduct an innovative research project, explore a focused topic area, improve publication records, and examine the suitability of pursuing a research and/or an academic career. A successful Master's thesis will generate high quality research publications, deepen understanding of a research topic, and increase the competitiveness in applying to a PhD program within the University of Pittsburgh or other academic institutions.

POLICY

Students. Students in the programs of Master of Science in Information Science (MSIS) or Master of Science in Telecommunications (MST) may elect to write a Master of Science (MS) Thesis as part of their program of study.

Thesis advisor. With the approval of the faculty member, the student can select a faculty member with a primary appointment in DINS as the thesis advisor. The student conducts the thesis project under the direction of the thesis advisor. With adequate guidance, the thesis advisor may delegate detailed supervision of the thesis project to one of their PhD students; this PhD student must have completed their Dissertation Proposal to be eligible for this role.

Thesis Committee. The thesis committee must consist of at least three faculty members (including the thesis advisor), the majority of which MUST hold primary appointments in DINS and be listed on the University's Graduate Faculty Roster. The committee members are recommended by the thesis advisor.

Credits. The whole MS Thesis option consists of SIX credits, which include the MS Thesis course, which is worth three credits, and an independent study on the same research topic with the thesis advisor in a prior term, which is also three credits. The Independent Study and the MS Thesis courses will be counted as "Additional Approved Electives" in the MS Plan of Study.

Competency. The successful completion (defense) of MS Thesis will be regarded as a requirement for graduation for those selecting this option. Students enrolled in the MS Thesis option are required to demonstrate the capability to plan and complete a project that contributes to their research field. This may consist of original research, but may also consist of an independent replication of an existing experiment or study, the development and analysis of an original dataset of research interest, the development and implementation of a system that is a significant part of an ongoing research project, etc.

Thesis proposal and oral proposal defense. As part of the pursuing the MS Thesis option, the student should first take an Independent Study course, under the auspices of the thesis advisor, with the aim to develop the thesis research project. By the end of the independent study, the student should write a thesis proposal and arrange for an oral proposal defense to the thesis committee in order to gain the committee's approval for conducting further on the thesis project. The thesis proposal and oral defense should describe: 1) what the student intends to do in the thesis, 2) how the thesis and its innovations are situated in the current research in the field, 3) the hypotheses to be tested, 4) the methods to be used, 5) the

timeline for the thesis project, and 6) a discussion of the anticipated challenges and possible solutions. A unanimous vote of the thesis committee is required for approval of the research proposal presentation.

Thesis defense. Once the thesis proposal is accepted, the student will undertake the appropriate research during the term in which they defend their MS Thesis. Students must register for the Master's Thesis course in the term in which they plan to defend the MS Thesis. The thesis advisor will work with the student and the committee to determine the date for defense. The defense is devoted primarily to the thesis, and an affirmative vote by the majority of the committee members is required to pass.

Grades. After the defense, the committee will sign the Report on Examinations form and the Department will submit it. The Thesis Advisor will then award a Letter Grade. If student is not ready to defend in the term in which they are enrolled in the MS Thesis course, the advisor would issue a "G" grade for the MS Thesis course and produce a G Grade contract that will spell out the timeframe to complete the thesis defense. This is subject to OIS review for International Students. OIS will determine the student's eligibility to extend their program of study.

Outcomes. The thesis as submitted must adhere to the standards and requirements of the University's Style and Form Manual for Graduate Thesis and Dissertation Preparation and be of potentially publishable quality. The student will not be permitted to graduate until all procedures for the evaluation of the thesis have been completed.

Approval of Research with Human Subjects. If the research proposed in the overview involves human subjects, the University Institutional Review Board (IRB) must approve the proposed research for the Protection of Human Subjects before it may be carried out. The student is responsible for ensuring that all appropriate regulatory approvals are obtained for the proposed research. Information on materials that must be submitted and the procedures that must be followed for an IRB review are available at http://www.irb.pitt.edu/.

PROCEDURES

Preparation

Any student wanting to pursue the MS Thesis option MUST meet with their potential thesis advisor, in their first or second term, to discuss the research proposal, develop a plan to complete a research project, discuss potential committee members, etc.

Independent Study for Thesis Proposal

The student should register for a three-credit independent study on the same research topic with the thesis advisor in a prior term. During the independent study, the student should work with the thesis advisor to form the thesis committee. The student should write a thesis proposal and give an oral proposal defense to the thesis committee to obtain unanimous votes from the thesis committee for the approval of the MS Thesis project. The proposal defense usually happens at the end of the term that the student enrolls in the independent study, or no later than the add/drop period of the term in which they will defend the master thesis.

MS Thesis Course and Final Oral Thesis Defense

The student completes the MS Thesis project and prepares the thesis under the direction of the thesis advisor during the term that the student enrolls for the MS Thesis course. The completed thesis is submitted to the thesis master's committee for the Defense. Upon completion, the Department will submit the Report on Examinations, due not later than the final day of the term in which the student expects to graduate.

Suggested Timeline	
Prior Term(s)	• Identify a general area of interest and the thesis advisor • Decide to take on the MS Thesis option with the help of the thesis advisor • Discuss with the thesis advisor a general plan for the MS Thesis
Independent Study Term	• Register in Independent Study (3 credits) course with the thesis advisor • Develop the general plan of the MS Thesis into detailed research plan that spans two terms • Secure agreement of faculty to serve on the thesis committee • Develop the thesis proposal for the MS Thesis with the aim to gain approval from the thesis committee on the thesis project. • An oral defense of the proposal shall happen at the end of the term
MS Thesis Term	• Enroll in the MS Thesis course. • Within first month of term, set the date for the thesis defense. • Conduct the thesis project • Write the thesis • Defend the thesis in front of the committee. • Complete the appropriate paperwork for graduation

ROLES AND RESPONSIBILITIES

Responsibilities of the student

- Obtain the agreement of a faculty member to serve as the thesis advisor.
- Discuss the members of the thesis committee with the thesis advisor and obtain the agreement of the committee members to join,
- Register appropriate courses during the terms in which the Thesis Proposal Defense and the Thesis Defense are undertaken.
- Provide a draft of the thesis proposal and the thesis for the committee's review, no later than 14 days in advance of the defense.
- Schedule a date for the thesis proposal defense and the thesis defense, in consultation with research advisor.
- Submit signed copies of the Thesis Committee Approval Form, the Thesis Overview Proposal Form, and the Thesis Defense form to the DINS Chair when the forms are due.
- Pay processing fee and obtain receipt from the Student Payment Center, G-7 Thackeray Hall. Submit the Thesis using the University's Electronic Thesis and Dissertations (ETD) system via d-scholarship@Pitt.edu. Detailed instructions are available on the Electronic Theses and Dissertations website.

Responsibilities of the thesis advisor

- Direct the student's research activities.
- Chair the thesis committee.
- Ensure that the thesis meets the requirements of the University's Style and Form Manual for Graduate Thesis and Dissertation Preparation.
- Submit a grade for the associated independent study and the MS Thesis course.

Responsibilities of the thesis committee

- Review the thesis proposal and final thesis.
- Vote on the approval of the research proposal presentation and the student's thesis defense.

Suggestions on the best practice for research projects

- The student must store all of the data, software and other research artifacts in a repository to which their thesis advisor has access. This must include a detailed description of each artifact and any metadata needed for an independent researcher to understand and use these artifacts for future research purposes. If at all possible, these artifacts should be stored in a public repository.
- The student should prepare a digest of their work suitable for publication in a professional conference or journal and leave an editable copy with their thesis advisor.