

Clarkson University

Honors Program

Thesis Handbook

Table of Contents

Honors Thesis	
Introduction	1
The Process	1
Choice of Topics	1
Choice of Thesis Advisor	2
Expectations of the Faculty Advisor and the student	2
Tips for the Thesis Advisor	2
Honors Colloquium	3
Thesis Guidelines	3
Junior Year Effort	4
Senior Year Effort	4
Proposal Instructions	5
Thesis Review Process	6
Publishing	6
Plagiarism	6
Time Table	7
Forms and Examples	
Thesis Expense Guidelines and Form	7
Request for financial support	8
Thesis Cover and Title Pages	9
Honors Thesis Feedback Rubric	11

HONORS THESIS INSTRUCTIONS

Introduction

For Honors students, the Honors thesis may be the most important capstone experience of their college careers. The completion of such a project--the research, experimentation, or design of a product--can focus your interests, provide perspective in a chosen major, develop basic scholarly skills, foster creativity and independent effort, and bring the educational experiences together in a way that other academic projects do not. In addition to independent work, the project also involves close associations between the student and the faculty members, particularly with the professor supervising the research work. Such sustained interaction contributes greatly to the quality of the experience.

Working on a thesis project provides ways of developing your ability to investigate a problem and to do serious writing, research, experimentation, or creative work that will likely help you in your profession, even if it does not involve research. Through this process, you can develop the self-knowledge and initiative that are essential to meet future challenges in your career. When you are pushed to the limit of your energy and creativity, you will discover new ways of organizing time and managing stress and long hours of work. This training is invaluable.

In summary, writing a thesis is a challenging task. Like most other challenges, it is also rewarding. The experience will allow one to emerge with the confidence and ability for graduate level research or fast track professional careers.

The Process

The process of a thesis project begins with the choice of a topic and an advisor, and ends with publication.

Choice of Topic

Often the choice of thesis topic and advisor go hand in hand: when you talk with several professors who do research in areas you find interesting, one of them may suggest a specific topic which you decide to work on. In choosing a topic, the student should ask several questions:

1. What do I want to know badly enough to go through the often time-consuming, frustrating, and joyful process of finding out? Am I willing to sacrifice nights of goofing off for nights in the library or lab working on this project?
2. Am I qualified? Do I have enough background in theory, languages, laboratory techniques, history to pursue this topic?
3. Is the topic significant, yet limited enough in scope to manage in the time that is available?

By answering these questions and generating others, you will begin to focus your interests on a specific area or topic. Normally you will choose a project in your own academic major, but this is not a requirement. Once you have an interesting question or idea, put it into a single sentence or phrase. This phrase now becomes a project title, for example, "Cultural Limitations on Women's Careers" or "Impact of Wireless Networking in Education" or "Effects of Earthquakes on Glacier Structures". The idea can be anything--as long as you created it and you care about it.

Once you have chosen your topic, create a one-page summary of the project proposal. In this summary you should provide information concerning your preparation to do the proposed research. This can include a list of relevant courses, experience, term papers, publications, research, etc. In

addition, list the major sources you expect to use. It is quite normal to find out that you are unable to write this summary, and need a thesis advisor to help you.

Choice of Thesis Advisor

There are two main ways to choose an advisor to assist you in your work:

1. You may join a professor in research which he or she is already engaged in. You and your advisor form a research partnership, sharing ideas and background knowledge.
2. You may choose a professor who works in your area of interest, but is not working on the same topic. In this situation, you will be somewhat more on your own, although the thesis advisor will still be a vital resource.

If a project topic emerges, but you do not know a faculty member who would be suitable, contact the chair of the appropriate department and the Honors Program to assist you in identifying faculty members who might supervise your work. The choice of a topic and the advisor need to be done in the semester before you begin your thesis project. The process of identifying the thesis topic and advisor is not trivial. Give it time and care.

Once you have chosen a topic and an advisor, a good working relationship is needed to help you through the year-long thesis research. A thesis advisor sometimes becomes a life-long mentor. You need to learn how to build this precious professional relationship.

Expectations of the Faculty Thesis Advisor and of the Student

A faculty member who agrees to supervise your project expects three basic things of you:

1. to be genuinely committed to the research or creative project,
2. to have an adequate general preparation in the subject, and
3. to be responsible for working out the dimensions of the project and meeting deadlines.

You may expect that the faculty member who agrees to be your thesis advisor will help you to successfully complete your thesis. This means that he or she will work with you as you:

1. develop a research plan and an understanding of research methodology, including the use of special techniques or equipment,
2. do an adequate literature search and develop a bibliography,
3. limit the topic,
4. develop a good outline of your thesis, one that is well organized, and
5. prepare the final draft of your thesis, reading the thesis carefully, critically, and (providing you are on time) in time for you to make final revisions.

Tips for the Thesis Advisors

There are many common problems a student faces in conducting a thesis project, independent of the major or school. Some of the points listed below can be found from many websites of other universities.

- Student's enthusiasm is usually not matched with their ability. Nearly all student-generated thesis topics are too broadly defined. Encourage your thesis advisee to narrow the topic.
- Short and succinct purpose statement will force the student to define the project. Have the student make a formal one-sentence thesis statement such as "The purpose of this thesis is"

- The student's topic must be relevant and original. The student must be prepared to answer the questions "Why is the project important?", "To whom is it important?", "Has the proposed work been done by others, to what extent, what new will be done?"
- Advise the student to collect a working bibliography – physically own the sources and browse them to make sure they are appropriate and available.
- Advise the student to write a short paragraph describing each of the references he/she has read. This effort cannot be overemphasized. Knowing where one is is essential for making a move forward. Moreover, since the thesis project usually lasts a year or more, memory fades when the final writing begins. The short summaries written when one reads the references at the beginning will be a tremendous help at the end.
- Make sure that the student has the necessary skills. Help him/her to revise the project if the required methodology is beyond the available tools.
- Help the student to stay focused throughout the thesis research. It is fine to digress if new ideas come up. But at the end the project needs to be a coherent one.
- If the thesis project involves interviews or any other human subjects, go to the Research Division to learn the necessary procedures (http://www.clarkson.edu/dor/compliance/human_subjects.html).
- Students are responsible for checking with the Honors Office to determine the various deadlines for the thesis project and adhere to the deadlines.
- All submitted materials should be typed and carefully proofread. Errors of any kind will discredit the validity of the thesis. Advisors are encouraged to proofread the thesis thoroughly before signing the cover sheet.

Honors Colloquium

To assist the thesis research process, HP370 and HP470 Honors Colloquium (1 credit hour each P/N course) was established. In these two colloquiums, a set of seminars is run by experienced faculty members and Honors students to cover topics such as: How to conduct a literature search? to how does one analyze data? All thesis students in their junior and senior years are strongly encouraged to register for this colloquium sequence.

THESIS GUIDELINES

Overview

The purpose of this prospectus is to act as a guide for Honors Program research efforts required during the junior year, (through the summer, if possible), and into the fall of the senior year. These guidelines are intended for use by mentors, the faculty Research Review Committee, and most importantly, the student.

Outcome Objectives

Overall performance in the Honors Program thesis project (6 credit hours total) should demonstrate that the student has learned how to engage in a substantive research undertaking that could continue to the advanced degree level. Specific research competencies mastered include:

- Problem Identification
- Framing the Problem Environment (proper scope)
- Formulating a Hypothesis
- Conducting and Investigation
- Analysis
- Supporting a Conclusion
- Presentation of Results in Multiple Formats (oral, written, web, formal, informal)

Suggested Thesis Format

Although the format of Honors theses varies, the following guidelines may help you as you formulate the structure for your thesis.

Title Page: Samples on pages 18 and 19

Acknowledgements: (optional) Acknowledging and thanking thesis mentor, thesis reader, family, and friends, anyone whose help and encouragement have assisted you in completing your thesis. Sources of financial support are also typically acknowledged.

Table of Contents

1-2 Page Executive Summary: (written in “layman’s terms”)

Chapter 1: Introduction with a description of the problem and the general environment in which the problem exists.

Chapter 2: Background material that supports that a significant research problem exists—literature search and presentation of the efforts/conclusions of others about this problem or its environment. The literature review is typically part of this chapter.

Chapter 3: Research methodology—experiments, data collection, quantitative factors, qualitative factors.

Chapter 4: Research results—presentation of quantitative and qualitative data.

Chapter 5: Discussion of results—presenting the data analysis, examining cause and effect relationships, correlations, and other interpretations of the research results.

Chapter 6: Conclusion—What worked or didn’t and why/why not, along with what the researcher learned from this effort. If applicable, the researcher should speculate on what the next step(s) should be.

Junior Year Effort:

1. Conceptualize the problem: what is the scope of the problem and subsequent investigation.
2. Literature search: a comprehensive review (both library and Internet) of journals, books, magazines and other credible sources that support the problem environment.
3. Emerging hypothesis: what is/are the “educated guess(es)” about a solution to the problem.
4. Demonstration (to mentor) of initial investigatory skills: data collection, instrument operations, cause and effect analysis, statistical analysis.
5. Communication of process: Preliminary work on Chapters 1 and 3, and a nearly complete Chapter 2.

Senior Year Effort:

1. Evidence gathering: experiments and other data collection efforts (some/all of this may occur during the intervening summer by the student).

2. Analysis of data and other evidence: use of cause and effect analyses, examining correlation and possibly causation.
3. Results: Logical/rational explanation of success(es) and/or failure(s); lessons learned, and next step(s).
4. Communication of process: substantive writing-- draft and edit of Chapters 4-6, completion of Chapters 1-3, and Executive Summary. Preparation of formal presentations, as required.

A key point is that the research project may not achieve a definitive conclusion and the experiments may not work. However, it would be expected that the student should have some idea as to why the planned work failed and what alternatives would be productive for someone else to try in a follow-on study.

Conclusion

The student should realize (and periodically be challenged by the mentor) that this research project is non-linear in nature. While the guidelines listed above are presented in a linear fashion, the reality is that the process is iterative. Therefore, the student will find him/herself working on steps concurrently at some stages, and at other times there will be times that previously completed steps may have to be revisited because of something that occurred later on. Finally, it's how a student supports his/her results, not the results themselves, that is what the Committee will ultimately use as a criterion for rendering its final evaluation.

HONORS THESIS PROPOSAL INSTRUCTIONS

The thesis proposal provides an initial definition of what the thesis project is and why it is important. It is also one of the main grading elements for HP390 or alternatively the first half of the thesis project. Once a proposal has been approved by the thesis advisor, the Honors research committee reviews it and approves or disapproves it. Committee members also forward any comments, questions, or suggestions to the student and thesis advisor.

The format of the proposal can vary from discipline to discipline. But in general, there are five essential elements; what is the problem; what do you know about the history of this problem; what do you want to add to the existing body of knowledge on this problem; are you equipped with the tools to do it; is your plan for completion realistic.

Sample proposals from all previous thesis projects are available in the Honors Office, and by visiting our web page at <http://www.clarkson.edu/honors/research/thesis.php>, and together with this document are intended to convey the Honors Program's expectations for thesis research.

Report: Details the following topics:

- Problem to be researched;
- Short review of literature that provides a scientific/engineering foundation for the research;
- Description of the work to be performed.

Structure

1. Problem Delimitation
 - Describe general problem area,
 - Discuss specific problem to be researched or discuss the goal of the thesis project,

- Document why this is important from science/engineering/social/economic/etc. perspective.

- S Connect the literature on the topic to the problem description
1. Which concept(s);
 2. Which topic(s);
 3. Survey the “landscape” on the topic(s);
 - # Scholarly writings
 - # Applied articles
 - # Internet citations must be validated by a primary scholarly source.
- S Detail Proposed Research or Project
1. Laboratory Experiments/Theory/Social Experiments;
 2. Develop a “time line”;
 3. Expected results;
 - # Proposed Hypothesis,
 - # Data to be collected,
 - # Theoretical Prediction,
 - # Probable comparison of data and theory,
 - # Expected Conclusion(s) or outcome.

Thesis Review Process

The thesis is reviewed by the Honors Research Committee. Normally at least two committee members read the thesis. Occasionally outside readers are recruited to provide necessary expertise. The procedure for review follows the same way as in normal publications. Revision of the thesis is required if reviewers recommend it. No oral defense is required. Failed thesis will mean not completion of the Honors Degree.

Publishing

One of the researcher’s responsibilities is to publish his/her work. It costs society resources to support any type of research. Thesis projects are part of this endeavor. Therefore, sharing the knowledge is the researcher’s return to society for its support. Some projects can contain confidential materials that must remain so under ethical, business development, or national security constraints. Withholding publication of these materials is the obligation of the researchers. However, the core knowledge that can benefit society should be made public as soon as possible.

Not all thesis research projects will end with a peer-evaluated publication, such as what is found in professional journals. However, all theses will be treated as published material by the library and made available to readers. Also, much thesis research appears in conference presentations. Both students and the thesis advisors should consider publications in the course of the project.

Plagiarism

In publishing any research work, some general ethical guidelines must be followed. Plagiarism is presenting the work or ideas of someone else as your own. Make sure that you always give proper citations to the works and ideas you obtained from others, whether verbally or through the literature. If in doubt, check with the thesis advisor and the Honors Office.

Time Table for Honors Thesis

Fall Junior Year

Mid September	Meeting* on thesis topic/mentor selection
Mid October	Follow-up meeting on topic/mentor selection
Mid November	Second follow-up (if necessary)
Early December	Finalizing topic and advisor (discuss what to do over the Christmas break)

Spring Junior Year

Mid January	Topic and mentor update meeting
Mid February	Progress meeting (at pre-registration time)
Mid March	Thesis proposal due (evaluated by the Honors Research Committee)
Early April	Proposal evaluation back to students and mentors
Mid May	Progress report/extended proposal due (with some preliminary results)

Fall Senior Year

Early September	Meeting on thesis progress
Mid October	Preliminary thesis due (Honors Office discusses with all mentors afterwards)
End October	Preliminary thesis feedbacks return to students
Mid December	Thesis 1 st draft due (or full thesis if completed)

Spring Senior Year

Mid January	Meeting on thesis progress, final presentations if finished
Early March	Thesis final draft due (must be approved by the mentor first, Honors Office submit to one reader for review)
Mid March	Review comments due (Honors Office return review back to students and mentors)
Mid to end March	Thesis oral presentation
Early April	All final theses due

*All meetings are individual by appointment. Please sign up in the Honors office.

Thesis Expenses

The Honors Program provides up to \$300 for financial support for thesis research. In order to keep records of thesis expenses and to satisfy Clarkson's budgeting procedures, we ask that thesis students fill out a "request for financial support" form, have it approved and signed by the student's thesis advisor, and return it to the Honors office. Once the thesis advisor has approved the purchase, there are several ways a student may purchase supplies:

- # The student may make the purchase and bring the original receipt to the Honors office for reimbursement.
- # Office supplies may be purchased through St. Lawrence Supply; the catalog and order forms are in the Honors office.
- # Books may be ordered through the University Bookstore or Amazon.com; we will need the title, author, edition, and ISBN number.

- # We can make on-line and telephone purchases from the Honors office. The student will need to give us all the necessary information.

The Honors Program also tries to provide additional support for theses which generate more than \$300 in expenses. Requests for additional support should be made in writing to the program director.

REQUEST FOR FINANCIAL SUPPORT FOR HONORS THESIS

Name: _____ Date: _____

Supplies Needed (reason for expense): _____

Place of Purchase: _____

Estimated Cost: _____

Advisor's Name: _____ Advisor's Signature: _____

Your title centered here in Times New Roman 16 point font

by

Your name here in 14 point font

Clarkson University

Title

A Thesis by

Your Name

Department of Your Department

Submitted in partial fulfillment of the requirements for a

Bachelor of Science Degree with

University Honors

Month Year

Accepted by the Honors Program

Name, Advisor Date

Name, Honors Reader Date

Name, Honors Director Date

Clarkson University Honors Program

Feedback-based Rubric

PROPOSAL TITLE:

STUDENT NAME:

ADVISOR NAME:

EVALUATOR NAME:

EVALUATION AREA	EXCEEDS	MEETS	REWORK	COMMENTS
Conceptualization of Problem – <i>Scope is appropriate and problem is identifiable at an early stage</i>				
Motivation toward Topic – <i>Student appears to understand the research area and is enthusiastic</i>				
Emerging Hypothesis – <i>Articulation of preliminary “educated guess(es)” of a solution</i>				
Literature Search – <i>Demonstrates evidence of types of research/other sources (to) consult(ed)</i>				
Demonstration of initial investigator skills – <i>Data collection, instrument operations, cause/effect analysis, statistics</i>				
Communication of Research Process – <i>Coherent outline that links the problem to the proposed investigative methodology</i>				
Overall – <i>Evidence of preliminary “due diligence” that will lead to a “successful” final thesis</i>				