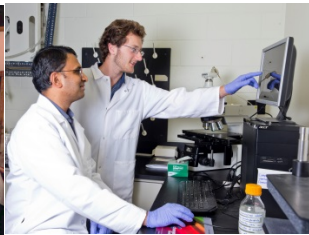




The Thesis Handbook Honors Program 2017-2018



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defy convention

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HONORS PROGRAM MISSION STATEMENT

The Honors Program offers unique academic challenges and experiential learning opportunities to prepare Clarkson University's most promising students to lead fulfilling lives and to drive positive change in science, technology, and society. Committed to diversity, inclusion, and excellence, the Honors Program provides them with:

- A curriculum that focuses on real-world interdisciplinary projects to develop ethical awareness and vital skills in problem-solving, teamwork, and communication;
- Research opportunities that cultivate critical thinking and collaborative relationships with faculty;
- Dedicated advising and professional development programs that help students envision and pursue their career goals;
- A residential learning community and both peer and alumni mentorship programs that build social support, professional networks, and lifelong friendships;
- Leadership and service requirements that ensure that students are actively engaged and give back to their communities;
- Funding for study abroad, conference travel, and other opportunities to apply knowledge outside the classroom, broaden perspective, and build social capital.

HONORS PROGRAM OUTCOMES

Students successfully completing the Honors Program will demonstrate:

- skills in open-ended problem-solving and multidisciplinary teamwork
- professional quality skills in written, oral and graphical communication
- ability to give constructive criticism and accept feedback as part of the process of peer review
- critical understanding of the relationships between science, technology and society
- appreciation of distinct modes of scholarship in the university
- ability to articulate and adhere to a set of coherent ethical principles in professional activities
- ability to conduct quality research or scholarship in their field
- exemplary engagement in leadership, service, and cultural activities
- competitiveness in applications for prestigious jobs, graduate schools, professional schools and major scholarships

INTRODUCTION

The Honors Thesis is a written manuscript that presents a project or piece of original scholarship conducted under the guidance of a faculty mentor. Conventionally, a thesis is a report of research that creates new knowledge, and it includes a question or hypothesis that is answered or defended by analysis and argument drawing upon the analysis of data or the interpretation of primary source materials. However, a wide range of other activities may qualify, including: engineering design projects, graphic arts exhibits, business plans, computer programs, plays, creative fictions, or musical compositions; or various kinds of report, for example, from a service-learning project, or co-op (see Appendix B). Though the work may begin before the final year, the Thesis is a capstone experience that requires scholarly maturity and it must make an original contribution to the field. Overall performance in the Honors Program thesis project should demonstrate that the student has learned how to engage in a substantive scholarly undertaking that could continue to the advanced degree level.

For most Honors students, completion of the Honors thesis will be the climax of their college careers. Working on a thesis project provides ways of developing your ability to investigate a problem and to do serious writing, research, or creative work that will likely help you in your profession. 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.

Writing a thesis is a challenging task but it is also rewarding. The experience will allow you to emerge with the confidence and ability for graduate level research or fast track professional careers. In addition to independent work, the project involves a close relationship between the student and the faculty mentors. Such sustained interpersonal interaction contributes greatly to the quality of the experience and in many cases the mentor provides advice and assistance that can help students realize personal and professional success beyond the thesis.

Needless to say, the thesis should reflect only the student's own research or their individual contribution to collective research, and it should be completely written by the student. A copy of a multi-authored publication is not acceptable.

All Clarkson Honors Theses are available in print in the library and are listed in the catalog.

TYPES OF HONORS THESIS

The Honors Thesis is typically based on work conducted within the student's major field of inquiry, but it is also possible to engage in other fields as long as the work meets appropriate level of scholarly achievement in that field. Generally, this means that it is of "publishable quality," representing original scholarship and written and/or presented in a professional style and format.

In most cases, the Honors Thesis is similar to an academic journal article, though typically a thesis contains a section of Background or Literature Review that is several times longer than the equivalent section in an academic journal that is directed towards an audience of specialists. In a thesis, the author must demonstrate a synthetic understanding of broad literature and communicate to wider audience. Similarly, the Methodology section is expected to be longer as the student is

expected to demonstrate an understanding of experimental design. Thus, a paper submitted for publication cannot be substituted for an Honors thesis.

Unlike most journal articles, it is not a requirement that experiments work or research yields publishable results. If expected results were not obtained, students should analyze the experiments for possible errors of conception and/or measurement, and suggest alternative approaches that might answer the research question.

It is important to note that an Honors Thesis may be something other than an “experimental design,” which traditionally advances a hypothesis to be proved or disproved. In some cases, students may pursue a literary undertaking (e.g. a novel or screenplay, or a series of poems, plays, or short stories), a portfolio of creative works (e.g. paintings, photographs, or digital media), a movie (e.g. documentary or feature), or an installation (e.g. sculpture or museum exhibit). They may also create a website or a smartphone application; a board game or a video game; a product design or a business plan. These are not an exhaustive lists but are intended to show the wide range of areas that Honors students can use to demonstrate curiosity, intellect, creativity, and the ability to embrace risk over a significant period of time during their undergraduate experience. In such cases, the student will be required to submit a proposal or prospectus for the project, and this will be evaluated by the Research Committee using a modified version of the standard rubrics.

In the case that the product of the scholarship is not a conventional “paper” that can be bound between two covers and published in a journal, in lieu of the thesis as such, the student will be asked to compose a critical essay. For the artistic product the essay will describe the genre and context of the work; the intellectual or artistic influences on the student and the particular work; the creative process and the choice of media, techniques, and other aesthetic decisions; technical difficulties encountered and how they were overcome; and a critique of the work. For the design project, the essay will take the form of a report detailing the design process from concept through execution; explaining and accounting for design decisions; locating materials, techniques and practices in context of historical and contemporary start of the art; and the outcomes of the work. Sometimes, these projects will need to be evaluated by an outside referee with appropriate expertise.

THE HONORS CO-OP THESIS

The Honors Co-Op Thesis is an alternative capstone project for the Honors degree at Clarkson University for students who are on a University approved co-operative education assignment during the junior and/or senior year. To qualify as an Honors Co-Op, the work experience must be full-time and at least six months long, so it includes at least a part of the summer.¹ The Honors Co-Op involves the student conducting and evaluating a project while on assignment, which may be a design, technical implementation, managerial intervention or other form of activity approved by the Honors Program. The project will be under the joint supervision of his/her co-op supervisor and a Clarkson faculty advisor and each of them must submit a signed Mentors Agreement form.² The student must write a preliminary proposal and have it approved by the Honors Program *before* going on co-op. Ideally, the student does a co-op in the senior year so that he/she can plan the project during the fall semester and write a proposal during HP 390 in the spring semester of the

¹ In some cases, it may be possible to complete a project during a summer internship in the junior-senior summer, as long as this completes a total of more than six months experience in the workplace, preferably in the same company.

² It is expected that the co-op supervisor oversees the practical implementation of the project while the faculty mentor helps with academic content of the work, ensures quality of the product, and acts as a back-up in case of any problems occur.

junior year. Otherwise the student must complete a proposal independently. A complete proposal will be due for review by the Research Committee within one month of the start of the co-op.

Please note that for some majors the Co-Op thesis may not allow the student to obtain credit for professional electives, in which case the student is advised to pursue disciplinary research while on co-op instead. For example, an MAE major might research improvements in manufacturing design and an E&M major might investigate an operations management innovation in the workplace. If in any doubt, students should consult with an academic advisor and/or faculty member.

The Co-Op Thesis should be written it up in the form of an Introduction, Reflective Essay and Technical Report that together form the Honors Thesis (see Appendix C).

Students must also complete a proposal before or during the first month of the co-op and have it approved by the Research Committee.

THE HONORS THESIS PROCESS

The process of a thesis project begins with substantial background reading and the choice of a topic and an advisor, which should be completed by the end of the first semester of the junior year. There will be a series of mandatory pre-thesis meetings in this semester. This is followed by the development of a proposal for the project in the second semester of the junior year (HP 390), which must be approved by the Research Committee of the Honors Council. The proposal is best conceived not as preparation for the research or creative work, but as the first stage of that work, and much of the material in the proposal will be incorporated into the thesis. Ideally, the work continues over the summer when it may be supported by the Summer Research program (see below) and it continues into Thesis Research (HP 490). The thesis culminates in oral presentation of the work and submission of the manuscript for review by an appointed faculty Reader. Requirements are usually completed with graduation in the spring semester of the senior year, but in exceptional cases may be completed in the fall semester.

Junior Year Effort:

1. Find a mentor and with the mentor's help defining a thesis topic.
2. Conceptualize the research or design problem: what is the scope of the problem/project and subsequent investigation/implementation. Develop the problem statement, objectives and significance of the project.
2. Literature search: develop a working bibliography of credible sources documenting previous work in the field.
3. Literature review: a comprehensive review of credible sources that frame and support the problem/project. The review should be organized into a narrative form with subsections focusing on subfields within the larger field of interest.
3. Identify the question and hypothesis, or specify design objectives: what is the question you want to answer and what answer do you expect; and what is the problem you want to solve?
4. Sharpen the focus with a well-defined title of thesis and draft of a complete proposal for the project. Obtain approval of mentor.

5. Demonstrate of personal qualifications and feasibility of project to review committee through acceptance of the research proposal.
6. Ideally, the research or creative work begins in summer: the Honors Program can provide support through the Summer Research Program.

Senior Year Effort:

1. Conduct experiments, fieldwork and other data collection efforts, or preliminary design/creative work.
2. Analysis and interpretation of data, or critical assessment of design/creative work.
3. Conclusions: assessment of results with explanation of success(es) and/or failure(s), consideration of lessons learned, and outline of next step(s).
4. Communication of process: substantive writing of thesis. Updating components of the proposal (e.g. Introduction, Background, Bibliography) and drafting and redrafting full thesis. Formal presentations to be held in the Honors program and at SURE conference.

Please note that the above sketch of the process is only a guide, as the thesis project is typically non-linear in nature. Students will find themselves working on steps concurrently at some stages, and will find they have to return to previously completed steps as problems occur. It is not unusual to encounter problems with equipment, reagents, protocols, and techniques, and to have to adapt or even substantially change the approach to the project. For an Honors thesis, however, it is possible to accept “negative results” as long as the thesis reflects on the process and draws appropriate lessons from the experience.

TIME TABLE FOR THE HONORS THESIS

Fall Junior Year

Early October: Begin the process of thesis topic/mentor selection
 Mid-Late October: Topic and mentor selected
 Late October: Begin literature search
 Early November: Student & Mentor Agreement
 Late November: Draft Problem and Significance Statement
 Early December: Draft Bibliography

Spring Junior Year (HP 390)

Early January: Annotated Bibliography
 Late January: Abstract
 Early February: Literature Review
 Mid-February: Methodology
 Late February: Presentations
 Mid-March: Draft of proposal
 Late March: Submission of revised thesis proposal
 Early April: Evaluation by the Research Committee
 Late April: Final revisions of proposal

Summer

Ongoing research, continued background reading, fieldwork, etc.

Fall Senior Year (HP 490)

Early September: Progress reports

Mid-September-Mid October: Weekly “Project in Progress” presentations

Late October: Mentor progress reports

Early November-Late November: Weekly “Project in Progress” presentations

Early December: Completion plans

Spring Senior Year (HP 491)

Early January: Progress reports

Late January-early March: Honors Program presentations

Late March: Thesis final draft due to Honors Program (approved by mentor)

Early April: Review comments from Reader

Mid-to-end April: Revision of thesis

Late April: SURE Conference presentations

Early May: Final thesis due to Honors Program

STUDENT AGREEMENT

The Honors thesis is a major endeavor that requires a great deal of personal commitment and demands considerable institutional resources, including the time and expertise of a faculty mentor who will supervise you individually in your work for at least a year. It is very important that you realize the extent of this commitment and ensure that you meet the expectations of the Honors Program and your mentor. We will ask faculty mentors to sign an “Advising Agreement” as an indication of their commitment to mentoring you, and we ask you to sign a “Student Agreement” that indicates your commitment to your thesis project. It is vital that you and your mentor agree about your expectations of each other.

By signing the Student Agreement (see Appendix D, you acknowledge your understanding or and responsibility for meeting the thesis requirements of the Honors Program, which includes the required courses, HP 390 and HP 490, and research, writing, and presentation of the thesis itself. You also agree to develop a focused and feasible project; to find a faculty mentor with whom you keep up regular and open communication; to present work in-progress in a timely fashion; to conduct research responsibly and ethically; and to adhere to professional norms of academia and your particular field.

CHOOSING A THESIS TOPIC

Often the choice of thesis topic and advisor go hand in hand: when you talk with several professors who do scholarship 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 topic. Normally you will choose a project in your own academic major, but this is not a requirement as long as you possess the necessary qualifications and you are able to do work of the same quantity and quality that a student in the major would do.

Once you have an interesting question or idea, a good test is to try to put it into a single sentence or phrase understandable to a layperson. 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 that you need someone to help you. Seek this person out and you may well find your thesis advisor.

CHOOSING A 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. It is possible to request an advisor who is not a regular member of the faculty at Clarkson, but this will have to be approved by the Research Committee.

ADVISOR AGREEMENT

The Honors Program requests that a faculty member formally agrees to act as an advisor by signing the form, "Agreement to Serve as Advisor for an Honors Thesis" (see Appendix E). By signing the attached form the advisor agrees to perform the following roles:

1. Provide assistance in developing a proposal for the thesis project:

Guide the student in framing a question that is both feasible and of appropriate scope; specifying research methods and strategies; identifying useful sources in the literature; recommending other faculty with whom the student should consult; ensuring that the proposal meets the Honors Program requirements as it is submitted to the Honors Research Committee for approval.

2. Supervise research for the thesis project:

Meet regularly with the student to evaluate progress on his or her research; help establish deadlines for the completion of various stages of the project; provide constructive criticism of the student's work in a timely fashion; give encouragement to the student; identify and discuss problems with the student; complete progress reports and recommend grades; and report serious problems to the Honors Program.

3. Assist in the preparation of the thesis and the final presentation of the project:

Ensure that student prepares the thesis according to guidelines as it is submitted to the Honors Program for review by the appointed expert readers; assist in the publication of the thesis if appropriate; and advise the student in preparation for the oral presentation of the thesis.

Typically, the advisor will do a lot more than this and in some cases the thesis may be the beginning of a life-long relationship. Much will depend upon the student effectively "managing up," or doing his/her part to build a productive relationship (see "The Student's Agreement").

THE THESIS PROPOSAL

The thesis proposal provides an initial description of the thesis project. You should not think of it as something that comes before the project begins, but as the completion of the first stage of the project itself. A proposal provides a substantial review of the literature in the field, which helps to frame the research, and often contains preliminary results. As documented in Appendix G, the format of the proposal can vary from discipline to discipline and purpose, but in general, you must answer the following essential questions:

What is the nature of the problem or project? Why is this important, both in terms of what the NSF calls "intellectual merit" (how does this advance the field?) and "broader impact" (how does it benefit society?). This is your introduction.

What are your specific objectives? Ideally you should frame this as a question and in STEM fields you should normally advance a hypothesis.

What do you know about the history of the problem/project and different approaches to its solution? What will you add to the existing body of knowledge on this problem/project? These are questions to guide your literature review.

How will answer your question, verify your hypothesis or solve the specific problem you are addressing? This is your methodology.

How much have you already achieved? Do you have any preliminary results?

What is your timeline for completing the project and any "deliverables" along the way? How realistic is your plan for completion? What kinds of problems do you anticipate and what are your back-up plans?

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/search_project.php.

Outline of the Research Proposal

The format varies with discipline and purpose, but in general, it must cover the following categories:

- Cover Page
 - General information (see Appendix I)
- Introduction
 - Problem statement describing the general problem
 - Outline specific objectives of the thesis project
 - Document why this is important both intellectually/academically and to society as a whole (“broader impact”)
- Background/Literature Review
 - Conduct a well-organized critical survey of the scholarly literature on the problem
 - Demonstrate that you are well-informed on the topic
 - Identify the conceptual framework for your understanding of the problem
 - Provide a temporal-spatial context for the problem and your investigation/execution
- Methodology
 - Identify your research questions/hypotheses/challenges
 - Describe in detail how you will answer the questions/hypotheses/challenges
 - Present any preliminary findings/achievements
 - Explain how you will analyze/interpret your data or otherwise measure success
 - Describe your expected results
- Expected Outcomes
 - Describe the anticipated results of your work
 - Identify the implications of your results, both scientific/theoretical and practical/applied
- Preliminary results
 - Describe the work you have already done and what you have achieved
- Logistics
 - Describe any funding or special equipment needs
 - Develop a “time line”
- Bibliography
 - Provide a list of scholarly books and articles on the problem
 - Format appropriately according to professional guidelines

For variations specific to experimental research, engineering project, historical/descriptive studies, qualitative research and creative work, please see Appendix B. We encourage alternative versions of the proposal and the Honors Thesis appropriate to scholarship in the field. We especially encourage you to consider how you can incorporate experiential learning opportunities such as internships or co-ops into the Honors Thesis: for example, organizational research on a company or evaluation research of an intervention or project.

Human Subjects (IRB) Approval

Clarkson University maintains an Institutional Review Board (IRB) with the mandate of protecting the rights and welfare of humans who participate in research. All activities related to research on human subjects must initially be reviewed and approved or exempted by the Clarkson University IRB whether they are conducted by faculty, staff, assistants, students, or any other research collaborator. If your research involves human subjects (for definitions see [Clarkson University Policy on Research With Human Subjects](#)), you will need to take the [CITI Human Subjects Research Training Course](#), and prepare your IRB protocol using the official form according to the guidelines provided. Your materials should be submitted to Rebecca Thatcher, IRB Administrative Assistant, CU PO Box 5630, or at irb@clarkson.edu.

Approval by the Research Committee of the Honors Council

Your proposal must be approved by your thesis advisor and the Research Committee, who will review the proposal using a feedback-based rubric (see Appendix G). No oral defense is required. The Research Committee may require revision of the thesis and they will forward any comments, questions, or suggestions to the student and thesis advisor. A failed thesis proposal will mean failure to complete HP390 and so the Honors degree.

RESEARCH AND SCHOLARSHIP EXPENSES

The Honors Program has limited funds available to support research and scholarly activities of Honors students, in addition to the Honors Educational Enhancement Scholarship (HEES). Requests may be made by faculty mentors for *direct* costs that they sustain in supporting a student's Honors thesis research. It is assumed that HEES will be used to defray the student's own research expenses, and for travel to professional conferences, costs of publication of the Honors thesis or other forms of academic enhancement.

Awards of up to \$500 will be made on a competitive basis to faculty members who are supervising a student conducting research or project work for their Honors thesis. The number and amount of awards given will vary according to availability of funds. Faculty advisors may submit requests over multiple semesters, but may not receive more than \$500 for each student mentored. Faculty advisors may submit multiple requests for support, one for each student, and these may be combined, but are not to exceed a cumulative total of \$1,500 per year. Faculty advisors must submit the appropriate form justifying the expenditure by the deadline announced each semester. Typical expenses include materials and equipment that are essential to the research project and is not covered by other research grants.

Faculty and students must complete a "Request for Financial Support" form and submit it to the Honors Program by the announced deadline each semester. This form can be found online at:

http://www.clarkson.edu/honors/research/pdf/summer_research_expense_request.pdf

The form should be used for reimbursement of costs already incurred, but under hardship or exceptional circumstances it may be used for purchase of items by the Honors Program on behalf of the mentor or student. Please provide copies of all receipts for payments and keep all originals in order to facilitate processing of reimbursements and accurate bookkeeping.

WRITING THE THESIS

If you are looking for help writing your thesis, there are lots of resources online. The Honors Program recommends the following useful books:

Alley, Michael (1996) *The Craft of Scientific Writing*. Third Edition. New York: Springer
Kogan, Nataly (2002) *Conquering Your Undergraduate Thesis*. Natavi Guides.
Russey, William, Hans Freidrich Ebel and Claus Bliefert (2006) *How to Write a Successful Science Thesis: The Concise Guide for Students*. New York: Wiley-VCH.
Lipson, Charles (2005) *How to Write a BA Thesis: A Practical Guide from Your First Ideas to Your Finished Paper*. Chicago: University Of Chicago Press.

Page Length

It is impossible to give a fixed rule about the length of an Honors Thesis, since modes of discourse vary from discipline to discipline. Students should discuss the expected length of the thesis with their mentor. To give some idea of what is expected, in the humanities, theses average 50-75 pages in length and consist of two or more chapters. In the social sciences, the manuscript may be shorter, particularly if the project involves more quantitative than qualitative research. In the hard sciences, the manuscript may be shorter still, often taking the form of an extended journal article, with additional material on literature review and methods.

Format

All pages must be single-sided with margins of text at least one-inch on all sides (excluding header/footer and page numbers only).

Although the content of the Honors thesis varies considerably, the following guidelines must be followed:

- 1) Title Page (required): The title page should adhere to the format in Appendix I. It does not need to be signed until it has been approved and is ready for “publication.”
- 2) Executive Summary (required): This should be written in clear concise language and should be 1-2 pages in length. This section should also be paginated using lower-case Roman numerals (i,ii,iii, etc.).
- 3) Acknowledgements (optional): If you wish to include an Acknowledgements page this should follow the Title Page. It is customary to thank your thesis mentor, thesis reader, family and friends, and anyone whose help and encouragement have assisted you in completing your thesis. Sources of financial support are also typically acknowledged. The Acknowledgements page should be paginated using lower-case Roman numerals (i,ii,iii etc.) continuing from the Executive Summary.
- 4) Table of Contents (required): You must include a Table of Contents. Page numbers listed in the Table of Contents must correspond with those in the main body of the thesis. The Table of Contents should be paginated continuing from the Acknowledgements using lower-case Roman numerals (i,ii,iii etc.) continuing from the Acknowledgements.
- 4) Lists of Tables and Figures (optional): You may include a List of Tables, List of Figures or a Glossary. These must refer to correct numbers and titles of tables and figures in the main text. These lists should be paginated continuing from Table of Contents using lower-case Roman numerals (i,ii,iii etc.) continuing from the Table of Contents.
- 5) Glossary, List of Acronyms etc. (optional): You may include a Glossary of technical terms or List of Acronyms, or other useful front material if you wish. These lists should be paginated

continuing from previous lists using lower-case Roman numerals (i,ii,iii etc.) continuing from the Lists of Tables and Figures.

6) Introduction (required): In the main body you must follow an established style manual, which may be one of the main styles (Chicago, Harvard, APA, MLA etc.) or one appropriate to your discipline or even a particular journal. Check with your faculty advisor. You must be consistent throughout. Regular pagination should begin with the first page of your project.

The body of the thesis must be double-spaced throughout, but single spacing is permitted in footnotes, block quotations, and in tables and figures.

All tables and figures must be titled and numbered sequentially (Table 1... and Figure 1... etc.). Figure captions should appear below figures while table captions should appear above tables.

7) Work Cited (required): The Bibliography or List of Work Cited must also be double-spaced with regular pagination, and it must be consistent with your chosen formatting style.

8) Appendices (optional): Appendices may provide detailed additional information that is not essential in the body of the report but that would be of interest to specialist readers, such as survey instruments, design specifications, and raw data. Appendices should be labeled A, B, C, etc. and given a descriptive title. Appendices are not included in the word count.

CONFIDENTIALITY OF INFORMATION

Students sometimes complete a thesis project on an internship or co-op, or otherwise co-operate with private companies or governmental organizations, and these external partners may request confidentiality of proprietary information. Also, sometimes a project completed on campus may be undergoing adaptation for publication and authors may wish to request a delay in release of the thesis.

In this case, the Honors Program will provide a signed confidentiality agreement committing staff to comply with professional confidentiality procedures. Typically, this means that draft and final copies of the thesis will be marked as “Confidential” and made available only to the appointed Reader and the Director of the Honors Program. Both the Reader and the Director will sign the confidentiality agreement, and the thesis will not be provided to the library or distributed to others for a specified length of time. A sample confidentiality agreement is presented in Appendix K.

USE OF MATERIALS COPYRIGHTED BY OTHERS

Students may use a variety of materials in their Honors thesis, including quotations, tables, diagrams, photos, screenshots and even videos or music recordings. You do not need permission to use works in the public domain (works on which a copyright never existed or on which copyright has expired), but you must acknowledge such works and provide an appropriate citation. To determine if a work is in the public domain, go to the following website:

<http://www.copyright.cornell.edu/resources/publicdomain.cfm>

If you use copyrighted works, refer to Section 107 of U.S. Copyright law, otherwise known as the fair use doctrine. The fair use of a copyrighted work, including such use by reproduction, for purposes such as criticism, comment, news reporting, teaching, scholarship, or research, is not an infringement of copyright. Again, you must acknowledge the source of the content. In determining

whether the use of a work in any particular case is a fair use the factors to be considered shall include:

- the purpose and character of the use, including whether such use is of a commercial nature or is for nonprofit educational purposes;
- the nature of the copyrighted work;
- the amount and substantiality of the portion used in relation to the copyrighted work as a whole; and
- the effect of the use upon the potential market for or value of the copyrighted work.

All four factors must be considered when conducting a fair use analysis. Please use the Fair Use Checklist in making a fair use determination:

<https://copyright.columbia.edu/basics/fair-use/fair-use-checklist.html>

If the use does not qualify as a fair use, you may not include the material without written permission of the copyright holder. You are solely responsible if you violate copyright law; neither the Honors Program nor Clarkson University will be held liable.

SUBMISSION OF THE HONORS THESIS

Your thesis must first be approved by your mentor and this is usually after it has gone through multiple drafts. The draft must be complete, with cover page, table of contents and all figures, tables and appendices. At this point, it does *not* require signatures on the cover page. You will complete the “Thesis Review Form” (see Appendix J) and obtain the signature of your mentor on this form. It should be scanned and submitted to the Director of the Honors Program together with your thesis in the form of an electronic document, preferably in a common word processing format so that a Reader can conveniently make comments and corrections to the text.

EVALUATION OF THE HONORS THESIS

Readers are appointed by the Research Committee of the Honors Council and are selected for their expertise, usually in the field of the thesis or one that is closely related. Normally faculty members at Clarkson are chosen to review the final thesis but occasionally outside reviewers are recruited if the necessary expertise does not exist on campus.

The procedure for review is similar to that used in scholarly publication. In some cases, the reviewer will judge the thesis acceptable “as is” and no further work except for formatting will be required. More usually the reviewer will suggest revisions and provide some guidelines as to how the thesis can be improved, in which case the Reader may want to see the thesis again to ensure that the improvements have been made, or may designate the responsibility to the Research Committee of the Honors Council. The student must address the concerns of the Reader, either by making revisions as suggested or providing a reasoned argument for not doing so.

The decision of the Research Committee of the Honors Council is final and a failed thesis will mean that student does not earn a University Honors Degree.

PRESENTING THE THESIS

Although there is no formal defense, all students must present their Honors thesis in a public forum. Customarily, students graduating in the spring semester present at the spring Symposium of Undergraduate Research Experience (SURE), while those graduating in fall

present at a special symposium of the Honors Program. However, students may present to their departments and are encouraged to present at regional and national conferences.

PUBLISHING THE THESIS

All Honors Theses are archived both in physical and digital copies, and are available for consultation in the Honors Program office and in the library at Clarkson University. We strongly encourage students to seek publication of the Honors Thesis, whether in peer-reviewed journals—the “gold standard” for academic scholarship—or in other forums. The *Huffington Post* feature allows students to post a summary of their work without forfeiting copyright. This is a good way to draw attention to your work.

Incomplete Grades

The Honors Program discourages the awarding of Incomplete for HP 490 or HP 491, because this can provide an “unfair” advantage compared to those students who do meet deadlines, and because it creates additional administrative work for advisors and the Honors office. However, we recognize that in some cases problems may arise that are beyond the control of the student and this may cause delay in completing course requirements. If this is the case, and an extension is necessary, the student must submit to the Honors Program a written request for an Incomplete (I) grade providing an explanation for the delay and a plan for completion of the requirements. This request should be endorsed by the advisor and must be received *before* the deadline for submission of the thesis to the Honors Program. The student is expected to complete the requirements according to the plan agreed upon by the advisor and approved by the Honors Program.

Appendix A

**Honors Educational Enhancement Scholarship (HEES)
Application Form**

The Honors Educational Enhancement Scholarship (HEES) provides financial support to Honors students seeking to participate in scholarly activities related to their academic interests or to aid in the completion of their Honors thesis. You may request up to \$1,000 per academic year and up to \$2,000 total while you are student in good standing in the Honors Program.

A completed application should contain the following parts:

Section 1: Personal Information

Section 2: Explanation of Activity (a supplemental essay is *required*)

Section 3: Endorsement (an additional letter *may* be attached)

Section 4: Budget

Section 5: Supporting documentation (*may* be attached)

Section 6: Signature

Section 1: Personal Information

Student Name: _____

Clarkson Email Address: _____

Section 2: Explanation of Activity (*must* be attached to paper or email application)

Short Title of Activity: _____

Location(s): _____ Inclusive Dates: _____

Attach a 1-2 page persuasive statement to support your funding request describing the activity and explaining how it fits in with your academics and professional goals. Explain why you need the funding to support the activity and why Honors Program should fund it. Also, tell us how you will share what you learned from this opportunity with the Honors Program and/or the broader Clarkson community.

Section 3: Endorsement (additional letter *may* be attached)

Applications will not be considered without endorsement from a sponsor, either a faculty member at Clarkson or your academic advisor. Applicants are encouraged to strengthen their application with a letter of support from a faculty member or their academic advisor.

Name: _____ Title: _____

Department/ Institution: _____ Email: _____

Signature: _____ Date: _____

Letter of recommendation attached ____ Letter of recommendation sent separately ____

Section 4: Budget (*must be included*)

The Honors Program will generally fund travel based on the rates laid out by the State Department, although we reserve the right to cap these amounts at our discretion. These rates can be found at the following websites:

<http://www.gsa.gov/portal/content/104877> and https://aoprals.state.gov/web920/per_diem.asp.

Provide a complete accounting of each expense using the table below or attach a spreadsheet using a similar format.

Item	Vendor, Provider or Payee	Quantity	Cost per Unit	Total Cost
TOTAL				

Amount Request from Honors: \$ _____

Amount to be Paid by Other Sources: \$ _____

Sources of Other Funding (list): _____

Section 5: Supporting documentation (*may be attached*)

Please attach your resume and any additional supporting documents or letters of support that will strengthen your request. *Include all receipts and/or invoices, conference brochures, confirmations of attendance/registration etc.*

Section 6: Signature

Please carefully read the following and sign below.

The information on this application and the attached forms are, to the best of my knowledge, correct and complete. I am not asking for more than \$1,000 during this academic year and my total support will not have exceeded \$2,000 during my tenure in the Honors Program. If I am the successful recipient this award funding, I authorize the Honors Program to publish my photograph, name, and project description. In submitting this application, I understand that this information (along with subsequent information placed in my student records) will be used for the purpose of determining eligibility for receiving this award funding and other purposes consistent with the mandate of the institution. The use of this information will be protected and used in compliance with the Freedom of Information and Protection of Privacy Act.

Signature: _____ Date: _____

Appendix B

Variations on the Honors Thesis

Each thesis will differ according to field and individual decision-making and the following outlines are meant to be generic guidelines only.

EXPERIMENTAL STUDY

Abstract

Introduction

1. Problem statement
2. Objectives
3. Scientific significance and broader impact

Literature Review

1. Relationship of study to related research
2. Critical analysis of pertinent research

Methodology

1. Experimental design (include methods and materials)
2. Subjects to be used, if appropriate
3. Measures used (surveys, interviews, psychological instruments, protocols, etc.)
4. Ethical considerations

Results

1. Presentation of data
2. Analysis of data

Implications and Conclusions

List of References

ENGINEERING DESIGN PROJECT

Introduction

1. Problem definition (design requirements, specification and constraints)
2. Objectives
3. Statement of need and social significance

Literature Review

1. Current status of the art (review of existing products, solutions or technologies)

Technical Approach

1. System level description of project
2. Alternative solutions and/or design concepts

Project Management

1. Tasks and deliverables
2. Timeline
3. Resource needs and/or budget
4. Qualifications

Outcomes

Conclusion

List of References

DESCRIPTIVE OR HISTORICAL STUDY

Abstract

Introduction

1. Problem statement
2. Objectives
3. Scholarly and social significance

Literature Review

1. Relationship of study to related historical/descriptive research
2. Critical analysis of pertinent literature research

Methodology

1. Identification of secondary and primary sources
2. Description of means of interpretation/analysis of resources

Results

1. Presentation of data

2. Analysis of data
Implications and Conclusions
List of References

QUALITATIVE STUDY

Abstract
Introduction
 1. Problem statement
 2. Objectives
 3. Scholarly and social significance
Literature Review
 1. Relationship of study to related research
 2. Critical analysis of pertinent literature research
Methodology
 1. Sample selection
 2. Data gathering technique
 3. Data analysis methods
 4. Ethical considerations
Results
 1. Presentation of data
 2. Analysis of data
Implications and Conclusions List of References

CREATIVE PROJECT

Introduction
 1. Project Statement
 2. Objectives
 3. Value
Literature Review
 1. Overview of critical literature on form and genre
 2. Examination of precedents and influences
Methodology
 1. Discussion of technique and how it will be used to achieve aims/effects
 2. Challenges and constraints
 3. Outline of the mode of presentation
Outcomes
Implications and Conclusions
List of References

BUSINESS PLAN

Executive Summary
Introduction
 1. Mission
 2. Business Model
 3. Strategic Plan
 4. SWOT Analysis
Organizational Plan
 1. Administration and Personnel
Marketing Plan
 1. Marketing Analysis
 2. Marketing Strategy
Financial Plan
 1. Financial Needs Analysis
 2. Projections of Revenues and Profits
Outcomes
Implications and Conclusions

The Honors Co-Op Thesis

Introduction (min. 5 pages)

Provide an overview of the company: its history, organization, and the main products/services that it makes/provides. Describe your department(s), its function and how it fits into the organization. Provide an overview of your assignments, duties and schedule of activities. You should also provide any other information helpful to the reader by way of background to your project.

The Reflective Essay (min. 10 pages)

Reflect critically on the work experience, particularly in terms of our personal and professional development: describe your expectations, degree of satisfaction, relevancy to your personal/professional goals, difficulties and challenges, degree of supervision/responsibility, relationship to coursework, personnel relations, and teamwork experiences etc. Describe the insights you have made and the lessons that you learned during your experience.

The Technical report (min. 10 pages)

The exact contents of the Technical Report depend upon the nature of the project and it can take a number of forms. It is a self-contained, descriptive and analytical report written in a format and style suitable for publication in a technical journal. It should include appropriate references to sources and diagrams/illustrations. Topics might include:

The design, development, manufacture, or testing of equipment or products with which the student was associated while on the job—e.g. “Integrating a Thermocouple into an Injection Molding Hot Runner Nozzle Assembly” (Devin Vargo, 2012)

A detailed account of the development of a technical process with which the student was associated--e.g. "Reactive Liquids for Chemical-Mechanical Planarization" (Stephen Waud, 2001)

An analysis of organizational behavior in the company or department to which the student is assigned-- e.g. "Alignment and Its Relationship to Organizational Culture and Structure" Sean Lebel, 2005)

A proposal for a technical or organizational innovation that you would like to see implemented at the company—e.g. “Open Source Opportunities in the Business World” (Matthew Rizzolo, 2003)

NOTE: If your supervisor feels this technical report should not be released due to extremely confidential and proprietary content, you will need to have a confidentiality agreement between the company and the Honors Program and Clarkson University.

A digital copy of the thesis must be submitted together with a hard copy of a Thesis Review Form signed by both mentors. The Thesis will be reviewed by an appointed independent Reader who is a member of the Clarkson University faculty.

Appendix D

Honors Thesis Student Agreement

The student is responsible for meeting the thesis requirements of the Honors Program, which includes the required courses, HP 390 and HP 490, and research, writing, and presentation of the thesis itself. By signing below, the student acknowledges that he/she understands the requirements as documented in the *Honors Program Handbook* and agrees to meet the commitments:

I will develop a focused and feasible project to which I am genuinely committed and for which I am properly prepared.

I will find a faculty advisor to advise me. My advisor should be genuinely interested in me and my project and have demonstrated qualifications to mentor my project. I am responsible for securing a signed "Advisor's Agreement" that is to be submitted to the Honors Program.

I will be responsible for developing and maintaining a good working relationship with my advisor. I will ensure that my advisor and I have a shared set of expectations about the thesis research and writing process. We will agree to a schedule of activities and deadlines for completion of the components of my thesis.

I will meet regularly with my advisor. I will be on time and come prepared for each meeting. I will have completed assignments and be ready to ask specific questions or engage in particular topics of discussion. If I cannot make a meeting or meet a deadline I will inform my advisor in advance.

I will regularly submit reports of my work and drafts of my writing so that my advisor can give me feedback and guidance. I will respect my advisor's experience and expertise, and will be expected to respond positively and promptly to his/her advice. I may disagree and may receive conflicting advice from multiple advisors, and in such cases I will make open and informed choices that I will be able to explain and justify.

I will respond in a timely fashion to all communications from my faculty advisor and the Honors Program, and apprise them of any anticipated problems or changes in my project. Should any breakdown in communication occur or any serious obstacles develop in my thesis project, I will immediately inform the Director of the Honors Program and seek assistance.

I will conduct research responsibly and ethically. I will not plagiarize nor commit any kind of fraud. I will make clear the distinction between my own original contribution and the work of a team or other individuals. I will cite and document sources, and write quotations, summaries, and paraphrases with care so as to distinguish my ideas and words from those of other writers.

I will write my thesis according to professional standards of my field. My work should be of publishable quality. I will ensure that all drafts of my work are grammatically correct and thoroughly proofread before submitting them for review to my advisor and/or the Honors Program.

Student's name: _____

Signature/Date: _____

Appendix E

Agreement to Serve as Advisor for an Honors Thesis

Student's name: _____

Major(s): _____

Project title: _____

Advisor's name: _____

Title: _____

Department: _____

Email: _____ Phone: _____

I am familiar with the instructions for the Honors Thesis included in the *Honors Program Handbook* and I agree to act as thesis advisor for this student and to provide guidance as described in the document "Serving as an Advisor for an Honors Thesis Project."

Signature: _____ Date: _____

Endorsement:

In case the mentor is not a full-time tenure track faculty member at Clarkson University, the chair of the major department must approve of the student's choice of advisor. By signing below you affirm that based on your knowledge the advisor is qualified to supervise an Honors thesis in this field.

Signature: _____ Date: _____

Appendix F

**Clarkson University Honors Program
Research Proposal Cover Sheet**

Student Name: _____

Class: _____ Major(s): _____

AdvisorName: _____ Title: _____

Department: _____

Project Title: _____

Abstract of Research Plan (max. 200 words):

Student Signature/Date

Faculty Advisor Signature/Date

Director Signature/Date

Evaluation of Honors Thesis Proposal³

Project title: _____

Student: _____ Advisor: _____

Component	Exceeds	Meets	Rework	Comments
Introduction: Clear statement of an original problem, objectives and social/scientific significance				
Literature Review: Project is properly contextualized within current literature in the field				
Question: Clear and succinct articulation of question to be answered				
Methodology 1: Detailed description of research design, instrumentation and data collection				
Methodology 2: Appropriate consideration of ethical issues, validity and reliability, and limitations to the study				
Methodology 3: Sound means of analysis of data and interpretation of results				
Feasibility: Realistic plan for completion of project				
Overall: Proposal is written according to professional standards in the field				

Evaluator name: _____

Signature: _____ Date: _____

³ For proposals in fields other than science and social sciences, reviewers will use appropriately modified rubrics, and example of which is presented in Appendix B.

Appendix H

Evaluation of Non-Traditional Honors Thesis Proposal

Project title: _____

Student: _____

COMPONENT	EXCEEDS	MEETS	REVISE	COMMENTS
<i>Conceptualization – Scope is appropriate and nature of the problem or project is clearly articulated</i>				
<i>Motivation – Student convincingly presents the theoretical and practical significance of the problem or project</i>				
<i>Literature Review – Student provides a critical narrative account with appropriate citations of relevant works</i>				
<i>Methods/Approaches – Student presents a coherent approach to the problem/project, acknowledging alternatives and justifying his/her choices</i>				
<i>Expected Results – Student discusses expected outcomes, anticipating problems and suggesting alternatives as necessary</i>				
<i>Feasibility – Student presents a realistic plan for completion of project</i>				
<i>Overall – Proposal is written according to professional standards in the field</i>				

Evaluator name: _____ Signature: _____ Date: _____

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

Advisor ([Name]) Date

Honors Reader ([Name]) Date

Honors Director (Jon Goss) Date

Appendix J

Thesis Review Form

Directions for student: Complete this section of the form and obtain your advisor's signature. Submit the signed form and a digital copy of your thesis to the Honors Program.

Student Name: _____

Project Title: _____

I've read the attached thesis and approve it for review by the appointed Reader.

Thesis Advisor: _____ Date: _____

Directions to the reader: Please check the appropriate box and return this form to the Honors Program within 2 weeks. Should you require revisions please indicate these separately (e.g. email or attached document) and provide suggestions for improvement.

- The draft manuscript will not be reviewed in its present form because it contains formatting, spelling, and/or grammar errors that preclude review of its technical content.
 - Major revisions are required as noted separately (see _____)
 - Minor revisions are required as noted in the draft manuscript (see _____)
 - No revisions are required.
-
-

If revisions are required:

- I am withholding my approval of the written thesis at this time. I wish to review and approve the corrected thesis before it is put on display. *(Do not sign below)*
- I do not wish to review the corrected thesis before it is put on display. Providing that the student adequately addresses the editorial comments I have made, I approve the written thesis for display. *(Sign below)*

Reader Name

Signature

Date

Appendix K

Sample Confidentiality Agreement

REASON FOR CONFIDENTIALITY (Please check)

- Publication of the thesis or portions thereof is pending.
- Proprietary information is involved.
- Other (Please specify) _____

Student Name: _____ Signature: _____

Advisor Name: _____ Signature: _____

Thesis Title: _____

The confidential information shall be used by the Reader appointed by the Honors Program and the Director the Honors Program only for the purpose of examination of the thesis as part of the requirements of the Honors Program in which the student named above is enrolled. The Reader and the Director agree to take all action reasonably necessary to protect the confidentiality of the confidential information by implementing and enforcing operating procedures to minimize the possibility of unauthorized use or copying of the confidential information.

The confidentiality of this information will be maintained until such a time as thesis becomes part of the public domain, which shall be _____.

Reader's Name: _____ Signature: _____ Date: _____

Director: Jon Goss Signature: _____ Date: _____