

Dumontier Lab Guidelines for Honors Thesis

Objective

The objective of Honors Thesis course is to pursue an in-depth investigation into a focused area of study. It is designed to make a meaningful contribution in an area of research that you are particularly interested in. In taking this course you will

- i) provide an overview of a field of research and describe the state of the art
- ii) identify and fully describe one (1) outstanding challenge
- iii) propose a realistic solution towards the problem
- iv) undertake a milestone driven investigation
- v) describe your work in the form of a short paper
- vi) defend your study to an expert panel

The skills you will obtain during your study include:

- a) find, read, understand, summarize and criticize published scientific articles
- b) assess the significance of published work (i.e. differentiate what is novel and interesting from what is not)
- c) Effectively argue advantages and limitations of current approaches
- d) Based on your literature analysis, identify an outstanding research problem that you can work on during your honors project/thesis
- e) Define a work plan, timetable and milestones
- f) Become skilled with relevant tools and technologies

Deliverables

Progress Reports: Bi-weekly progress reports will state the main objectives of the study, enumerate the milestones along with hours devoted and the expected and actual completion dates. Each weekly report must include short term goals and the means to achieve them during the following two weeks. Progress reports are due by Friday at 4pm. Failure to provide evidence of progress by that time results in a zero for that report.

Literature Presentation: This is an opportunity to talk about a key paper that you found during the first month of your research. In 5 slides (keep text to a minimum), you should *identify* the research hypothesis, *describe* and *illustrate* the methods and results, and *discuss* the significance. You want to make this interesting and provide stimulating or controversial questions for your peers and supervisor to engage in discussion. 15 minute presentation + questions.

Term Progress Report (for 2-term courses): This report is a summary of the progress reports and forms the basis for the final report. It must include the motivation, introduction, and methods and references. Preliminary results and initial discussion should be included.

Draft Report: A draft of the report will be provided to me one (1) week prior to submission of final report. I will provide comments and feedback that *must* be addressed. Draft report is due on the Friday at 4pm in the specified week. Failure to provide the draft report within the specified timeline will result in an automatic zero.

Final Report: The final report provides a complete description of what you have learned during this course. Your report will be sectioned as follows: Abstract, Motivation, Introduction, Methods, Results and Discussion, References. See template for report. Also see <http://tinyurl.com/2f6v8u> for details.

Defense: This is your opportunity to provide a brief overview of the field, and the work you undertook for your thesis. You will be evaluated in terms of i) quality of your presentation, ii) your background knowledge, iii) the novelty and significance of your work, iv) your ability to defend your work. The defense will be done with Dr. Dumontier and 1-2 other faculty members of your Department/School.

Biology/Biochemistry students defend their work during a poster session. Students are responsible for making a 3'x3' colour poster using CorelDraw or PowerPoint. Poster must be given to me 1 week prior of defense for comments and feedback. Final version must be provided 3 days before poster day to get printed.

Computer Science students will make a 15 minute presentation with 2 rounds of questions. Presentations lasting longer than 15 minutes will be penalized.

Documentation and Packaging: This component is to ensure that you have appropriately documented your work. This includes installation/deployment instructions, code annotation that results in automatic documentation, and packaging of all developed materials (ontologies, databases, raw files, etc). The final package should be burned to a CD, and include literature, presentations, progress reports, term report (if applicable) and the final report.

Evaluation

	Biology	Biochemistry	Chemistry	Computer Science
Progress Reports	8% (8@1%)	8% (8@1%)	8% (8@1%)	5% (5@1%)
Literature Presentation	10%	10%	10%	5%
Term Report	5%	5%	10% (2@5%)	--
Draft Final Report	5%	5%	5%	5%
Final Report	25%	25%	30%	45%
Defense	30% Poster 10% Presentation	30% Poster 10% Presentation	10% Poster 20% Presentation	30% Presentation
Documentation and Packaging	2%	2%	2%	5%
Performance Assessment	5% (Instructor)	5% (Director)	5% (Instructor)	5% (Instructor)

Biology and Biochemistry students should refer to

<http://www.carleton.ca/biology/current/undergrad/thesis.html>

http://http-server.carleton.ca/~nwaltho/Biol_4908/HonoursThesis_Syllabus

Chemistry students should refer to

<http://www.carleton.ca/chem/undergrad/courses/chem4908/index.html>

and <http://www.carleton.ca/chem/undergrad/courses/chem4908/general.html>

Computer Science students should refer to

<http://www.scs.carleton.ca/studentinfo/honours-project.php>

Timeline

Week -4: Identification of Topic

Week -2: Registration (Completion of appropriate forms)

Timeline for CS Honors Thesis

Week 1:

Week 2: Progress Report 1

Week 3: Literature Presentation

Week 4: Progress Report 2

Week 5: Study Proposal

Week 6: Progress Report 3

Week 7:

Week 8: Progress Report 4

Week 9:

Week 10: Progress Report 5 / Documentation and Packaging

Week 11: Draft Report

Week 12: Final Report

Week 13: Defense

Timeline for Biology/Biochemistry/Chemistry Honors Thesis**Term 1**

Week 1:

Week 2: Progress Report 1

Week 3: Literature Presentation

Week 4: Progress Report 2

Week 5:

Week 6: Progress Report 3

Week 7:

Week 8: Progress Report 4

Week 9: Literature Presentation / Term Report (Chemistry only)

Week 10: Progress Report 5

Week 11:

Week 12: Term Report (non-Chemistry)

Term 2

Week 13:

Week 14: Progress Report 6

Week 15:

Week 16: Progress Report 7

Week 17: Term Report (Chemistry only)

Week 18: Progress Report 8

Week 19:

Week 20:

Week 21:

Week 22: Draft Final Report

Week 23: Final Report / Poster

Week 24: Poster Defense

Grade Letter Assignment:

A+: Outstanding – Publishable work that establishes a new approach or discovers new knowledge.

A: Excellent – Work that will lead to a publication in combination with other efforts and describes an approach along with novel insights.

A-: Good – Work that may be publishable, but does what it is supposed to do and identifies expected results.

B+: Satisfactory – Work of acceptable quality.

B: Minimal – Work that was minimally expected from the milestones.

B-: Poor – Work of poor quality, with erroneous approaches and poor reporting.

C+: Unsatisfactory – Work of terrible quality, missed milestones and weak effort.

F: Unacceptable – no valuable contribution.

Intent to Pursue an Honors Thesis

I have read and understand my obligations towards successfully completing my honors thesis in the Dumontier Lab. In the event that I am having difficulty in completing these requirements, I will immediately discuss my options with my supervisor, Dr. Michel Dumontier. I understand that if I speak with him after the deadline, I forfeit marks allocated to that activity.

Date:

x _____

Michel Dumontier