

Dumontier Lab Guidelines for Directed Studies

Objective

The objective of Directed Studies course is to pursue a limited investigation into a broad area of study. It is meant to immerse you into an area of research that you are particularly interested in. This course should form a pre-requisite for an honors thesis or honors project course. In taking this course you will

- i) provide an overview of a field of research and describe the state of the art
- ii) identify core challenges and sub-problems
- iii) propose realistic solutions towards one identified core and one sub-problem
- iv) undertake a limited investigation into a sub-problem
- v) describe your work in the form of a short paper
- vi) present 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) quickly and effectively present scientific literature using illustrations and analogies
- d) initiate and support a discussion in a group setting
- e) identify outstanding research problems that you can work on during your honors project/thesis

Deliverables

Progress Reports: Bi-weekly progress reports will state objectives of the study, hours devoted, expected and actual objective completion dates. Each of the weekly reports must clearly identify short term goals for the next two weeks, describe problems and offer realistic solutions. 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 (“cool”) paper that you found during your literature 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.

Presentation: This is your opportunity to provide a brief overview of the field, and the work you undertook towards a sub-problem. You will be evaluated in terms of your background knowledge and the quality of your presentation. 15 minute presentation + questions.

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. 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.

Evaluation

10% Progress Reports (5 @ 2% each)

10% Literature Presentation

10% Draft Report

50% Report

20% Presentation

Timeline

Week -3: Identification of Topic

Week -2: Proposal Submission

Week 1:

Week 2: Progress Report 1

Week 3: Literature Presentation

Week 4: Progress Report 2

Week 5: Proposal for sub-problem

Week 6: Progress Report 3

Week 7:

Week 8: Progress Report 4

Week 9:

Week 10: Progress Report 5 - Work Complete

Week 11: Draft Report

Week 12: Final Report

Week 13: Presentation