

## Course Project Overview

Students may choose to complete the project individually or in groups of two.

The purpose of the course project is for students to select and explore an advanced topic in theoretical computer science, to study a current research problem in that topic, to make a new contribution on that topic (see below), and to present the results, in both a written report and a class presentation.

The nature of the project can vary; examples include:

- writing a survey paper that examines and discusses one or more current data structures or algorithmic techniques,
- writing code to implement and compare the performance of algorithms or data structures for solving a given problem, or
- exploring possible solutions to an open problem on a given topic.

The components of the project include:

1. a written preliminary project proposal
  - 1–2 pages
  - Briefly describe and motivate the topic you have selected.
  - Describe the format of your proposed project.
  - Provide a partial list references on the selected topic.
  - Include a brief list of milestones and dates by which you plan to complete these.
2. a final written report
  - 7–12 typed, single-spaced pages
  - Your report should include an introduction motivating your work, complete and precise definitions of the problems you are examining, a clear overview of your project, an overview of significant results related to your topic, a detailed description of the findings of your project, a conclusion (which may include a discussion of possible future research directions in which the project could be extended), and a bibliography.
  - Encountering unexpected challenges is normal: the final outcome of your project may differ from the project originally proposed. Describe these challenges, and any resulting changes in your report.
3. a class presentation
  - 10 minutes
  - Provide an overview of your project for the class in an oral presentation.

**Academic Integrity.** All sources must be cited and documented properly, including any direct quotes, rephrased concepts or ideas, figures, tables, pseudocode, or proofs that were not entirely your own originally. Academic integrity is extremely important. Suspected plagiarism will be dealt with in accordance to University of Manitoba policy. See the course information handout for further details. Please speak with Steph Durocher if you have any questions regarding appropriate use of reference and research publications.