# Syllabus for COMP 232, Data Structures and Problem Solving

Fall 2022

Dickinson College

Instructor: John MacCormick

Learning goals

* Understand the implementation and analysis of data structures including lists, stacks, queues, trees, and hash tables.
* Be able to select and apply data structures and object-oriented programming techniques to solve broadly stated computational problems.
* Gain familiarity with implementing and using generic and functional programming techniques.
* [Writing in the Discipline goal] Develop the ability to write clear software library documentation for developers.

Inclusivity

Everyone in the course belongs equally to our classroom community. The instructor aims to create an atmosphere where everyone feels a sense of belonging and feels free to ask questions.

Teaching methods

* Required reading in advance of most lectures
* Lectures and class discussions
* Homework and exams to reinforce understanding of concepts

When and where

* Class meetings:
  + Section 1: Tuesday and Thursday 9:00–10:15am in Tome 118
  + Section 2: Monday and Thursday 3:00–4:15pm in Tome 232
* Office hours: see the instructor's [office hour webpage](http://users.dickinson.edu/~jmac/office-hours.html).

Books

We use a free electronic textbook based on materials created by OpenDSA. The course website provides details.

Assessment and grading

* Final grade will comprise:

|  |  |
| --- | --- |
| Homework assignments (about 10 x 4% each) | 40% |
| Midterm exams (2 x 15% each) | 30% |
| Final exam | 30% |

* **Homework assignments:** There will be approximately 10 homework assignments, due at the start of class on the dates specified on the class schedule. All homework assignments must be submitted electronically to Github. Homework that consists of Java source code will be submitted as Java source code files. Questions that require written or typed answers must be submitted to GitHub in a single PDF document for each homework assignment. Any reasonable formatting may be used; in particular, digitized handwritten solutions are acceptable. Only a random subset of homework questions will be graded for correctness; the remainder of questions will be graded on completeness only. The weighting of homework assignments is not equal. The weight of a homework assignment will be proportional to the total number of points of the questions graded on that assignment, plus a completeness component. In all cases, it is the responsibility of the student to consult the provided solutions and understand the correct approach to every question, whether or not it was graded.
* **Midterm exams:** There will be two midterm exams, beginning in class on 10/6 and 11/10. Arrangements for these exams will be explained later.
* **Final exam:** The official final exam slots are:
  + Section 1: Monday December 12, 2pm-5pm
  + Section 2: Friday December 16, 9am-12noon

In fact, the final exam is likely to be a take-home exam with a duration of 48 hours, ending at the officially scheduled time of the exam slot. Therefore, it is likely that the section 1 exam will run from 5pm on 12/10/2022 until 5pm on 12/12/2022; and the section 2 exam will run from noon on 12/14/2022 until noon on 12/16/2022.

* The midterm and final exams are open note and open web. Students may consult any printed or digital materials and may perform web searches. However, no communication with other humans is permitted.
* Final scores will be converted to grades according to the following thresholds (or possibly more generous thresholds): 93%=A; 90%=A-; 87%=B+; 83%=B; ...; 60%=D-.

What will be on the exam?

Technically speaking, any material covered in any lecture, reading, or homework assignment is eligible to appear in the midterm or final exams. In practice, a strong majority of exam questions will be similar to a homework question, an example done in class, or other assigned practice questions.

Amount of work

College policy recommends approximately 3 hours of independent work for every hour of class time. Our class meets for 2.5 hours per week. Therefore, you should expect to spend 7-9 hours per week (outside of class time) on this course.

Plagiarism, copying, and collaborating

The College's standard policy on plagiarism applies and you should be familiar with it, but here are some key points that apply particularly to this course:

* All work must be your own.
* Never copy work from someone else or allow your own work to be copied.
* You may not copy or consult assignment or exam solutions from any source, including online repositories or solutions provided for previous instances of the course. Exception: after submitting a given homework assignment, you may consult the solutions to that assignment provided for this instance of the course, after they have been posted to Moodle.
* If you use exact words taken from any source, you must use quotation marks and cite the source.
* Students are encouraged to help each other understand concepts, including concepts that apply to homework and programming assignments. However, all work must still be your own. So if you discuss a problem with someone, you must destroy any written or electronic material that results from the discussion, and re-create it later on your own.
* Be especially careful not to copy computer code from another student, or from the Internet (unless an assignment question specifically states that it is permitted—and even then, state the origin of any copied code clearly using a comment in your source code). Sharing or copying computer code is easy and often tempting, but it is not permitted and will suffer the same penalties as any other form of cheating.

Accommodations

The instructor will follow college policy on [Accommodating Students with Disabilities](http://users.dickinson.edu/~jmac/accommodations.html).

Late Work Policy

Each student is permitted a total of four no-penalty days of lateness for submitted work over the entire semester; every subsequent day of lateness incurs up to a 25% penalty for the late assignment. Late days can be used only in whole day units. Accounting for late days is mostly via an honor system: students should keep count of their late day usage. To use one or more late days on a given assignment, there is no need to notify the instructor or obtain permission in advance. When submitting a late assignment, state clearly at the start of your submission how many days you are using, and the total used so far in the semester.

Recording and posting of class content

The instructor may record some or all class meetings. If a class is recorded, the content will be made available only to members of the class. Do not share or repost class recordings or other content; doing so would be a breach of Dickinson’s [Community Standards](https://www.dickinson.edu/info/20273/dean_of_students/867/community_standards). Classes may also be recorded for accommodation purposes.