CSC 172: Data Structures and Algorithms

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Online (Zoom)

Classroom Behavior Requirements related to COVID-19

Students are expected to comply with University of Rochester policies regarding social distancing and masking in classroom.

Students are also expected to adhere to the principles outlined in the UR COVID-19 Community Commitment

Course Description

This course presents the fundamental data structures, their design and use. The course also covers various algorithms and their analysis. Java is the official laguage for all the programming tasks. The data structures covered are Lists, Stacks, Queues, Trees and Graphs. This course also covers various sorting and searching algorithms.

Topics covered

The course gives you a comprehensive understanding of various data structures and when to use them. Topics include:

- Basic data structures: lists, stacks, queues, trees, hash tables, trees, graphs.
- Aalysis of data structures with respect to time/space complexity.
- Various cost-benefit tradeoffs in designing, implementing, and using them.
- Implementation of the data strucutures in Java.
- Various algorithms including algorithms for searching and sorting, recursive algorithms, graph-based algorithms.

• Dynamic Programming basics.

Required Readings

- Lecture notes
- Additional materials for each topic as posted by the instructor on Blackboard.

Additional Readings

- Algorithms 4th Edition, Sedgewick Wayne
- Cormen, Leiserson, Rivest, Stein, Introduction to Algorithms, MIT Press.

Prerequisites

CSC 171 or equivalent, MTH 150

Grading

- Letter grades will follow the **Official University of Rochester Grading Scheme**.
- All appeals of grades for any component of the course (homework, project, quiz, exam, etc.) must be made within ONE WEEK of the grade being posted.
- I reserve the right to curve the scale dependent on overall class scores at the end of the semester.
- The final percentage (max 100%) for the course will be determined taking into account the following:
 - Exams are worth **20%** each.
 - Labs are worth **20%**.
 - Projects are worth **20%**.
- The following table is an estimate of how the numeric grades will map onto the letter grades (subject to change):

Percentage score	Letter grade
90-100	А
85-89	A-
80-84	B+
75-79	В
70-74	В-
65-69	C+
60-64	С
55-59	C-
50-54	D
0-49	F

• For an S/F grade you will have to submit a request to CCAS. You can see more on this in the satisfactory/fail page.

Course Policies

Accommodations for Disabilities

- The University of Rochester respects and welcomes students of all backgrounds and abilities. In the event you encounter any barrier(s) to full participation in this course due to the impact of disability, please contact the Office of Disability Resources. The access coordinators in the Office of Disability Resources can meet with you to discuss the barriers you are experiencing and explain the eligibility process for establishing academic accommodations. You can reach the Office of Disability Resources at: disability@rochester.edu; (585) 276-5075; Taylor Hall.
- After you receive accommodation approval, it is *imperative* that you reach out to the instructor for the appropriate arrangements.

Communication and information about the course

- Relevant information and updates about the course will be posted on the website of the course and/or on Blackboard.
- Emails sent to the instructor about this course (better) include in the subject "CSC172: ".
- It is student's responsibility to regularly read posts on Blackboard every 24 hours.
- This term we will be using Piazza for class discussion. The system is highly catered to getting you help fast and efficiently from classmates, the TA, and myself. Students are encouraged to post questions on Piazza in order to get a faster response.
 - Find our class signup link at: piazza.com/rochester/fall2020/csc1722020fall

- Access code: 1111

During lecture

- Distribution of notes, videos, pictures, slides, code presented in the course is prohibited.
- Please note Section V.7 of the College's Academic Honesty policy regarding Unauthorized Recording, Distribution or Publication of Course-Related Materials.
- Every exception to the above has to be agreed with the instructor of the course beforehand.

Attendance Policy

- Attendance in lectures is recommended, but not required. If you choose not to attend, please make sure you don't miss important announcements or information about the course.
- Attendance in workshops is *highly recommended*, but not required.

Policies on 'Incomplete' Grades

- A grade of "I" can be given only in circumstances beyond the students' control, such as illness or personal emergency, that prevented the students from finishing the coursework on time. Please refer to the Academic Procedures for more information on this.
- Late submissions are *not* permitted in this course.

0.1 Minimum Technological Requirements

According to College policies, students have to meet the following minimal requirements: "In general, for a typical online course, students will need a laptop with a webcam, 8GB of memory and 256GB of local storage. Standard would be defined in this case as requiring the student to use Blackboard, library resources, and the web (to access journals, articles, etc.), to have the ability to watch Zoom lectures (synchronously and asynchronously), and potentially be available for use with Zoom proctoring".

A desktop computer satisfying the minimal requirements above is also acceptable.

Academic Integrity and Honesty

- All assignments and activities associated with this course must be performed in accordance with the University of Rochester's Academic Honesty Policy. More information is available at http://www.rochester.edu/college/honesty
- All the work you do in this course must be *mainly* your own contribution. Collaboration on coding assignments is permitted, subject to the following requirements:
 - You must acknowledge your collaborators in your submission.
 - You must be able to explain anything you submit in person at any time.
- Additional requirements/details may be posted with each assignment/exam.