CSE 332
Data Structures and Parallelism
Winter 2023

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Course Web Page: http://www.cs.washington.edu/332/

Description: Covers abstract data types and structures including dictionaries, balanced trees, hash tables, priority queues, and graphs; sorting; asymptotic analysis; fundamental graph algorithms including graph search, shortest path, and minimum spanning trees; multithreading and parallel algorithms; P and NP complexity classes. **Prerequisites:** CSE 311

Course Text: (Optional) *Data Structures and Algorithm Analysis in Java* 3rd Ed., Mark Allen Weiss, Addison Wesley: 2012, ISBN-10: 0132576279. Our course calendar will list sections of the textbook that are most relevant to the topic discussed in class that day. You may find the textbook useful to clarify topics and find more examples as well as to examine Java implementations of the data structures and algorithms discussed during lecture. We will not be assigning problems from the textbook. We will use a set of free on-line notes for the material on parallelism and concurrency.

Computing Resources: We will use Java for programming assignments. We strongly recommend although will not require that you use the IntelliJ development environment. Links for downloading and installing Java and IntelliJ can be found on our course web page.

Communications: The course message board should be your first stop for questions about course content and assignments. Before posting, first check that your question has not already been answered on the message board, and if not, ask it there. If it is not possible to ask your question on the message board without revealing details of your solution, please either use a *private* post on the message board or send email to cse332-staff at cs.washington.edu, which will go to the instructor and TAs. In general we prefer that you send questions to the cse332-staff list instead of to an individual staff member so that you will get a faster response time and the entire staff can remain aware of questions and issues. You will be automatically subscribed to the course email list if you are registered for the course and will be held responsible for anything posted there (only course staff will post to the course email list).

Assignments: Assignments will be a mix of smaller exercises and larger programming projects:

> **Exercises**: There will be approximately weekly exercises. These will directly test your understanding of topics we are covering and the theory behind them. Some exercises require you to write short bits of code or complete an activity online, while others are more traditional "written" exercises. For "written" exercises, we require these to be turned in electronically. LaTex is one option, but neatly written scanned documents will also be fine as long as they are readable. Exercises are to be done ***individually***. When calculating final grades, we will drop your lowest two exercise scores.

Programming Projects: There will be three large programming projects. Programming projects will be graded on correctness, architecture and design, and analysis. Note that your answers to the analysis questions will be part of the grade. We will not grade you on code style, as long as your code is readable and you follow the guidelines explicitly given in the project handouts. Program design/architecture and analysis are crucial in this course. Projects will be done *individually*.

Exams: We will be holding an in-person midterm and final exam. The midterm date is TBA in the afternoon/evening, location TBA. The final exam will be held Thursday March 16, 12:30-2:20pm, location TBA.

Late Policy: **Exercises may not be turned in late**. (Although when calculating final grades, we will drop your lowest two exercise scores.) You will, however, have four late days that may be used to gain an extra 24 hours for a programming project. If you have used up your late days, a penalty of 10% per day will be assessed. **Programming projects will not be accepted beyond 48 hours from the original due date.**

Late days are intended to help you manage your time and unexpected life circumstances; please save them for this purpose. Leftover late days will not contribute to your grade in any way. If there are extenuating circumstances that prevent you from submitting an assignment on time, you should discuss this with the instructor (preferably in advance).

Grading and Evaluation: Grades will be computed *approximately* as follows (weights may be modified):

- 25% - Exercises
- 35% - Programming Projects
- 40% - Exams (15% midterm, 25% final)

Extra Credit: We will keep track of any extra features you implement for programming projects (the Above and Beyond parts). You won't see these affecting your grades for individual projects, but they will be accumulated over all projects and used to bump up borderline grades at the end of the quarter. The bottom line is that these will only have a small effect on your overall grade (possibly none if you are not on a borderline) and you should be sure you have completed the non-extra credit portions of the homework in perfect form before attempting any extra credit. They are meant to be fun extensions to the assignments.

Collaboration & Academic Integrity: We expect all work you submit to be your own. **<u>You must at least attempt a problem on your own before discussing it in a group</u>**–but after first attempting on your own, we do encourage you to brainstorm together! During brainstorming sessions, you may use a whiteboard, but you may not take any typed/written or photographed work outside of the session. After discussion, take a 30-minute break before writing up your solution **individually**. If you collaborate with anyone in any capacity, you must identify them at the top of your assignment as a collaborator.

<u>Referring to solutions found on the web or solutions from this or other courses from previous quarters is also considered cheating, as is requesting help with an assignment on an outside</u>

message board. We plan on running similarity-detection software over all submitted student assignments, including assignments from past quarters.

If you do not follow these rules, you will be considered to have cheated. Cheating is a very serious offense. If you are caught cheating, you can expect a failing grade and initiation of a cheating case in the University system. Cheating is an insult to the instructor, to the department, and most importantly, to you. If you feel that you are having a problem with the material, or don't have time to finish an assignment, or have any number of other reasons to cheat, then talk with the instructor. Copying others' work is not the solution.

To avoid creating situations where copying can arise, never e-mail or post your solution files. You can post general questions about interpretation and tools but limit your comments to these categories. If in doubt about what might constitute cheating, send the instructor email describing the situation. For more details see the Academic Misconduct web page.

COVID-19 Safety

We must all do our part to keep our community safe. If you are sick or have potentially been exposed to COVID-19, please **stay home**. Attendance at lecture and section is not required. Lectures will be recorded on Panopto and will be made available to the class for viewing afterwards. We will post materials used in section. We will be holding a combination of in-person and Zoom office hours and our course message board is always available. If the instructor becomes sick we will either revert to Zoom lectures briefly or have guest lectures. A similar policy will be followed for sections or office hours in case other staff members become sick.

Disability Resources

The Disability Resources for Students (DRS) is a unit within the Division of Student Life and is dedicated to ensuring access and inclusion for all students with disabilities on the Seattle campus. They offer a wide range of services for students with disabilities that are individually designed and remove the need to reveal sensitive medical information to the course staff. If you have a medical need for extensions of assignment deadlines, these will only be granted through official documentation from DRS. Browse to this link to start the process as soon as possible to avoid delays.

You can refer to the university policies regarding Disability Accommodations for more information.

Religious Accommodations

Washington state law requires that UW develop a policy for accommodation of student absences or significant hardship due to reasons of faith or conscience, or for organized religious activities. The UW's policy, including more information about how to request an accommodation, is available at Religious Accommodations Policy. Accommodations must be requested within the **first two weeks of this course** using the Religious Accommodations Request form.

Extenuating Circumstances and Inclusiveness

We recognize that our students come from varied backgrounds and can have widely-varying circumstances. If you have any unforeseen or extenuating circumstance that arise during the course, please do not hesitate to contact the instructor in office hours, via email, or private message board post to discuss your situation. The sooner we are made aware, the more easily these situations can be resolved. Extenuating circumstances include work-school balance, familial responsibilities, military duties, unexpected travel, or anything else beyond your control that may negatively impact your performance in the class.

Additionally, if at any point you are made to feel uncomfortable, disrespected, or excluded by a staff member or fellow student, please report the incident so that we may address the issue and maintain a supportive and inclusive learning environment. Should you feel uncomfortable bringing up an issue with a staff member directly, you may consider sending [anonymous feedback](#) or contacting the [Office of the Ombud](#).