UNIVERSITY OF CALIFORNIA, MERCED

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SANTA BARBARA · SANTA CRUZ

CSE30: Data Structures Syllabus

Semester	Fall 2024
Instructor	Angelo Kyrilov (akyrilov@ucmerced.edu)
Designation	Data Structures
Catalog Description	Through the course of this semester, we will explore C++, basic object-oriented programming, recursion, analysis of algorithms, and data structures such as arrays, linked lists, queues, stacks, trees, graphs, and hash tables.
Textbook	Data Structures with STEAMplug (available through Follett Access)
Course Objectives & Learning Outcomes	At the end of the course, student will be able to: • Correctly use recursion to solve a problem with a binary search tree or graph. • Correctly implement appropriate data structures for a given problem. • Correctly determine the relative runtimes of different algorithms. • Analyze unstructured problems and design computer solutions. • Apply or a create suitable algorithm to solve a particular problem.
Prerequisites	CSE 24
Course Policies	Due to the Project-Based Learning nature of the course, students are expected to have a laptop computer with access to the internet at all times in order to complete practical exercises and work through course materials, both in and out of class. All homework and assignments are to be completed on STEAMplug. Failure to adhere to this rule will result in a grade of 0 assigned for the particular assignment. For example, if a student writes the code for a programming assignment outside STEAMplug and copy-pastes it in, the student will receive 0 points. Students are expected to attend all lectures. Although lecture materials will be accessible online and outside of lecture times, there will be in-class activities that count towards semester grades. Students are expected to attend all exams, including the midterm and final. There will be no online versions of exams. Students are expected to attend weekly laboratory sessions to receive help on programming assignment and get a participation token from their Teaching Assistant. No late submissions of assignments are accepted without a valid reason.

Grades: Semester grade will be made up as follows:

Lab Assignments	15%
Lab Participation	5%
Programming Project	25%
Midterm Exam	25%
Final Exam	30%

Office Hours: Thursdays 1:30pm - 3:30pm, SE2 224

Important Dates Midterm Examination - Wednesday October 16, 2024, 6:00pm - 7:15pm, ACS 120

Final Examination - Wednesday December 11, 2024, 6:00pm - 7:15pm, ACS 120

Course Outline Structs and Templates

Resizable Arrays

Singly and Doubly Linked Lists

Queues and Stacks

Searching and Sorting Algorithms

Hash Tables and Binary Search Trees

Graphs and Graph Algorithms

Academic Integrity Policy Academic integrity is the foundation of an academic community. Academic integrity applies to research as well as undergraduate and graduate coursework. Academic misconduct includes, but is not limited to cheating, fabrication, plagiarism, altering graded examinations for additional credit, having another person take an examination for you, or facilitating academic dishonesty or as further specified in this policy or other campus regulations.

Cheating is the unauthorized use of information in any academic exercise, or another attempt to obtain credit for work or a more positive academic evaluation of work through deception or dishonesty. Cheating includes, but is not limited to: copying from others during an examination; sharing answers for a take-home examination without permission; using notes without permission during an examination; using notes stored on an electronic device without permission during an examination; using an electronic device to obtain information during an exam without permission; taking an examination for another student; asking or allowing another person to take an examination for you; tampering with an examination after it has been corrected, then returning it for more credit than deserved; submitting substantial portions of the same academic work for credit in more than one course without consulting the second instructor; preparing answers or writing notes in a blue book before an examination; falsifying laboratory, or other research, data or using another person's data without proper attribution; allowing others to do the research and writing of an assigned paper (for example, using a commercial term paper service or downloading a paper from the internet); and working with another person on a project that is specified as an individual project.

Academic Integrity Policy

Plagiarism refers to the use of another's ideas or words without proper attribution or credit. This includes, but is not limited to: copying from the writings or works of others into one's academic assignment without attribution, or submitting such work as if it were one's own; using the views, opinions, or insights of another without acknowledgment; or paraphrasing the ideas of another without proper attribution. Credit must be given: for every direct quotation; when work is paraphrased or summarized, in whole or in part (even if only brief passages), in your own words; and for information which is not common knowledge. The requirement to give credit applies to published sources, information obtained from electronic searches, and unpublished sources.

Collusion is when any student knowingly or intentionally helps another student to perform any of the above acts of cheating or plagiarism. Students who collude are subject to discipline for academic dishonesty. No distinction is made between those who cheat or plagiarize and those who willingly facilitate cheating or plagiarism.

Cheating vs. Collaboration: Collaboration is a very good thing. On the other hand, cheating is considered a very serious offense. Please don't do it! Concern about cheating creates an unpleasant environment for everyone. If you cheat, you risk losing your position as a student in the college. The school's policy on cheating is to report any cases to the university judicial office. What follows afterward is not fun. So how do you draw the line between collaboration and cheating? Here's a reasonable set of ground rules. Failure to understand and follow these rules will constitute cheating and will be dealt with as per university guidelines.

Computer Science Department Academic Honesty Policy

As stated in the campus-wide Academic Honesty Policy (AHP), "academic integrity is the foundation of an academic community". Accordingly, the CSE faculty takes this matter very seriously and has embraced a zero tolerance on this matter. The process described in the following establishes the minimum consequences for violations of the AHP in CSE courses, but repercussions may be more severe for egregious violations. The Computer Science Department Policy on Academic Honesty ("CSE Policy" from now onwards), does not substitute the AHP but rather specifies how it will be implemented when students enrolled in classes offered by the Computer Science and Engineering (CSE) department are found in violation of the AHP. In particular, the CSE Policy defines how the CSE faculty implements the "Instructor-Led Process" described in AHP 802.00.A. This policy and the associated processes have been developed in collaboration with the Office of Student Conduct and the School of Engineering and is jointly implemented by the CSE Faculty, the School of Engineering, and the Office of Student Conduct. The CSE Policy becomes effective starting from the Fall 2019 term.

Preamble

Computer science education relies on a variety of methods to assess students' preparation and learning. The term "assignment" shall be interpreted as any method or process resulting in a grade or contributing to the final grade for a class. Accordingly, the term "assignment" used in the following includes, but is not limited to: homeworks, quizzes, in-class exams, take-home exams, programming assignments, software projects, and presentations.

Computer Science Department Academic Honesty Policy

Shared Responsibility

Maintaining an environment where academic integrity is valued and enforced requires commitments by both instructors and students. Instructors will specify what type of collaboration is allowed or disallowed for a given assignment, and students should strictly follow the provided guidelines. When in doubt, students should contact the instructor and ask for clarification.

First Infraction

If it is determined that a student has cheated, plagiarized, or otherwise violated the AHP, the student will receive a 0 (or equivalent grade) for the assignment. As per the AHP, violations will be reported to the Dean of the School of Engineering and the Office of Student Conduct for review of possible violations of the Code of Student Conduct.

Additional Infractions

The School of Engineering keeps a record of all infractions reported by its faculty. If upon receiving a notification it is determined that the student has one or more prior violations of the AHP, the School will inform the instructor who reported the new violation. The additional violation will immediately lead to a failing grade (F) for the course. The student will be informed in writing and will not be allowed to withdraw from the class. According to CSE Policy, students should note that even the first infraction in a class may lead to a failing grade if after reporting it is determined that the student had been previously sanctioned for one or more infractions in other classes. Students will have the right to appeal the instructor's decision as per AHP 802.00.A.

Class Cheating Policy

STEAMplug is equipped with plagiarism detection tools. If a student gets flagged for potential plagiarism, the case will be reviewed by the instructional team, and if deemed appropriate, it will be escalated according to the policy above. What this means is that we don't simply report students for plagiarism because a software system flagged their work as suspicious. We conduct a thorough review first, during which time we may solicit input from the student involved.