

CSC220: Data Structures

Fall 2013

Description: Per the bulletin: “The definition, representation, and manipulation of basic data structures such as arrays, stacks, queues, trees, and graphs. Practical applications of these structures will be emphasized.”

Textbook: None. They’re way too expensive.

Course Overview: To develop an understanding of the design, implementation, and run-time analysis of data structures and related algorithms.

Course Outcomes: This course is designed to address the following outcomes:

1. An ability to apply knowledge of computing and mathematics appropriate to the discipline.
2. An ability to analyze a problem, and identify and define the computing requirements appropriate to its solution.
3. An ability to design, implement and evaluate a computer-based system, process, component, or program to meet desired needs.
4. An ability to use current techniques, skills, and tools necessary for computing practices.

Prerequisite: CSC122 (must have received a grade of **C** or better).

Teaching Philosophy: See www.jeangourd.com:4352/cv/jgourd_teaching_philosophy.php.

Grades: Your grade for this class will be determined by dividing your total earned points by the total points offered in the class at that point in time. In general, this will fall into the following categories:

Programs, quizzes, homework:	~50%
Major test(s):	~20%
Final exam:	~30%

TOPICS COVERED

- Preliminaries, Java vs. C/C++
- C++ functions, structs, classes, overloading, and generics
- Pointers
- Introduction and complexity (of time and space)
- Arrays
- List processing (searching and sorting)
- Linked lists
- Stacks
- Queues
- Recursion
- Binary trees
- Advanced sorting
- 2-3 trees, general trees, heaps
- Hash tables
- Graphs
- When to use what

Class Policies

Fall 2013

Instructor: Dr. Jean Gourd
Office: NH 247
Phone #: 318.257.4301 or 318.257.4921 (program office)
Office Hours: MW 1:30-3, TTh 9-11:30 (or by appointment)
Class Times: CSC122/CYEN122: MWF 9:30-10:45, CSC220: MWF 11-12:15
Email: jgourd@latech.edu or jean.gourd@gmail.com
Web: www.jeangourd.com:4352/classes
Grading Scale:

```
if (avg >= 90) return 'A';  
if (avg >= 80) return 'B';  
if (avg >= 70) return 'C';  
if (avg >= 60) return 'D';  
return 'F';
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NOTE: A grade of **C** or better is required on all courses counted toward a Computer Science degree.

ACADEMIC HONESTY: I do not tolerate plagiarism or cheating of *any* kind. This includes—but is not limited to—copying of or collaboration on programs, copying of assignments, wandering eyes or using cell phones or laptops during tests, etc. Students are expected to do their own work on all assignments unless it has been deemed a collaborative project. Students are expected to adhere to the Academic Honor Code (see below for more information). The first time you cheat on any assignment (except tests), you will receive a score equal to the *negative* of what you would have received had you not cheated; subsequent occurrences result in an **F** for the course. If you cheat on a test, you will receive an **F** for the course. Please note that I am very supportive of the discussion of general techniques or logical insights used to complete assignments, but absolutely no code or specific implementation(s) may be shared (i.e., you must write your own code without the assistance of others). Note that I am not able to determine if your code is being used with or without your permission.

The Academic Honor Code can be viewed at www.latech.edu/documents/honor-code.pdf.

CLASS ATTENDANCE: Good class attendance is very important and tends to convince me that you are making an effort; this may help boost borderline grades at the end of the quarter. Although I do take roll, it is solely for the purpose of university bookkeeping (note that attendance may affect your university/financial aid standing); attendance is not included as a part of your final grade. Whenever you are absent, it is **your** responsibility to obtain the material that was covered in class (including assignments/programs and due dates, announcements of tests/quizzes, etc). Remember that if you are absent when a quiz is given, you will receive a zero for that grade. Also note that it is your responsibility to turn in assignments on time even if you are absent. Even though attendance is left at your discretion, attention is absolutely required. If you do not pay attention in class (e.g., playing

games or checking your favorite team's scores on the laptop, doing homework for this or any other class, sleeping, etc), you will be asked to leave. If tardiness becomes excessive and/or distracting, I will simply lock the doors at the beginning of class.

TESTS: Absolutely **NO** makeup tests or quizzes are given! However, if you miss a major test—and you provide a valid written excuse (preferably in advance of the test)—I will replace your test score with your final exam score (at my discretion). If no valid written excuse is given, the missed test grade will be a zero. A maximum of one test score can be replaced. Please note that I am not responsible for lost email should you choose to preface your written excuse with one. Also note that I am the sole judge of the validity of an excuse. Be on time for tests; late arrivals *may* be allowed to take a test with a valid excuse (to be decided by me) and may only have the remaining time to complete it. Absolutely no late tests allowed if another student has already completed and turned in theirs.

ASSIGNMENTS: All assigned work is due at the beginning of class on the due date. The only exception is for assignments to be turned in via the upload facility on the class Web page; in this case, the assignment is due at the specified time (my server's time) on the day it is due. Absolutely **NO** late assignments are accepted! Unless otherwise specified, all assignments will be turned in via the upload facility (an *upload* link will be provided next to each item necessitating such a submission). If no such link exists, then the assignment must be turned in to me personally at the beginning of class or in my office during office hours prior to class on the day it is due. **No help is given on an assignment the day that it is due.** Please note that I rarely offer *extra* assignments, so do not ask.

ASSISTANCE WITH ASSIGNMENTS: You are strongly encouraged to ask questions in class to clarify any uncertainties you may have. If you don't understand any topic, concept, or idea, you should ask immediately. Please don't convince yourself of going home, studying the material, and then asking a *smart* question later; if you don't understand and don't ask immediately, that's not very smart. I will be glad to help you during my office hours so long as you have demonstrated a reasonable attempt at thinking about the problem on your own first. **For help with programs, please email me your source code prior to our meeting.** If your schedule conflicts with my office hours, see me immediately before or after class to make an appointment.

ELECTRONIC DEVICES: You may use electronic devices in my class (except for devices that inherently cause you not to pay attention such as MP3 players, cell phones, etc) so long as they are **quiet** and until such time that they become a nuisance to me or to others, or if I catch you using the device for chatting, sending/checking email, browsing the Web, playing games, doing homework of any kind, etc. Please set your cell phone to vibrate mode (or turn it off) when entering my class. I find it extremely disrespectful when a cell phone rings during class. Do not embarrass yourself by letting it ring in my class and do not—under any circumstances—answer your telephone in the classroom. If you must answer a call, please leave the room before doing so. **You may not use any electronic device during an examination.**

REGRADING: I am human and make mistakes just like everyone else. If you feel that I

have made a mistake in grading your test/program/assignment, please let me know within one week of it having been returned to you. I will gladly refund erroneously deducted points; however keep in mind that I reserve the right to regrade it in its entirety.

TEAM PROJECTS: All members of the same team receive the same grade. Period. Work out the details of team dynamics on your own.

COMPUTER LABS: The computer lab in NH 243 is open to all Computer Science and Cyber Engineering students. Although it is used for lectures, it is open to you when available. There is also a Mac/PS2 lab in NH 142.

DROP DEADLINE: Friday, October 25, 2013

This is the last day to drop/resign from a class with a **W**. After this date, you may not drop this class with any grade other than an **F** regardless of your current grade in the class.

FINAL EXAMS: Final exams will be given on one of the final two class periods of the quarter. All students must take the final exam at the designated time. Note that it is *my* responsibility to keep all final exam papers; it is *your* responsibility to keep all other returned graded tests/programs/assignments. I recommend that you do so in case you have a dispute regarding your final grade. **NOTE: you must pass the final exam to pass the class no matter your current grade in the class.**

ACCOMMODATIONS FOR STUDENTS WITH DISABILITIES: Students requiring testing or classroom accommodations based on a disability are encouraged to discuss those needs with me as soon as possible. For more information, please see www.latech.edu/ods.

<p>Please be aware that Computer Science and Cyber Engineering are production-oriented disciplines. As such, simply <i>trying hard</i> is not enough; we want students who succeed!</p>
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