CS 1332 SYLLABUS, Fall 2017
Data Structures and Algorithms

Professor Information

Dr. Mary Hudachek-Buswell
Office: CCB 137
Office Hours: By appointment (no office hours the first or last week of the semester)
Email: hudachek@cc.gatech.edu

Teaching Assistants (TA):

Raymond Ortiz – Head TA, rortiz9@gatech.edu
Chad Turner – Senior TA, cturner45@gatech.edu
Ashley Noll – Senior TA, ashleynoll@gatech.edu
Grayson Bianco, gbianco6@gatech.edu
Deb Banerji, dbanerji3@gatech.edu
Andrew Suh, asuh9@gatech.edu
Alexandra Durso, adurso3@gatech.edu
Jacqueline Elliott, jelliott40@gatech.edu
Stephanie Baione, sbaione61@gatech.edu
Maya Pogrebinsky, mpogrebinsky3@gatech.edu
Clifford Panos, cpanos3@gatech.edu
Samuel Copeland, scopeland31@gatech.edu
Bartosz Narkiewicz, bnarkiewicz3@gatech.edu
Kevin Chen, kchen367@gatech.edu
Neil Goel, ngoel32@gatech.edu
Timothy Aveni, taveni3@gatech.edu
Alok Tripathy, atripathy8@gatech.edu
Scott Messing, smessing3@gatech.edu
Andrew Bailey, abailey43@gatech.edu
Shaurye Aggarwal, saggarwal46@gatech.edu
Joey Jackson, ejackson61@gatech.edu
Chunlok Lo, clo42@gatech.edu

Where to Find your TA:

- Help Desk or TA Office Hours will be held in the College of Computing – CCB 104A.
- Schedule of Help Desk hours will be posted on T-Square. You may see any CS1332 TA for help.

Prerequisite:

You must have a C or better in CS1331 to remain in this course. If you do not have this prerequisite you will be dropped.

Recommended Textbook:

Data Structures and Algorithms in Java. 6/edition by Goodrich, Tamassia, and Goldwasser 2014 ISBN: 9781118771334 (Kindle edition is fine. The 5th edition is probably also fine.)

Course Website/Resources:

- T-Square: https://t-square.gatech.edu
- Java 8
- IDE is your choice, the TAs officially endorse IntelliJ as an IDE

Course Objectives:

- Develop more skills in individual Java programming
- Work with common data structures used in software development by coding their low-level implementation
  - Arrays, ArrayLists,
  - LinkedLists (Singular, Doubly, Circular)
  - Stacks, Queues, Deques, Priority Queues
  - Various Trees: Binary, Binary Search, AVL, Splay, Heaps, 2-4 Trees, etc…
  - Hash Maps/Tables; External Chaining and Probing

- Graphs and their algorithms

- Become familiar with common algorithms on these data structures
  - Sorting Algorithms: Bubble, Insertion, Selection, Cocktail Shaker, Merge, Quick, Radix etc...
  - Pattern Matching Algorithms: Brute force, Boyer-Moore, KMP, Rabin-Karp
  - Graph Algorithms: Dijkstra's Shortest Path and multiple MSTs
  - Dynamic Programming Algorithms
- Work with Big-O notation, allowing good choices about the appropriate data structure and algorithm to use for a particular programming problem
- Improve one's ability to test and debug programs

Assessments and Grading Policies

There will be homeworks every week and exams are roughly 4 weeks apart. Expect for a homework to be due during the last instructional days of the semester. There are NO "dropped" tests or homeworks. The final exam is mandatory.

In addition to having a passing average, you must have a *passing exam average* (all exams and the final are averaged together) to pass this class. Passing is hereby defined as 70% or higher. There is no curve in this course. Letter grade cutoffs use a straight scale.

Type Assessment	Points Possible
Homework/Programming	20%
Tests (3)	60%
Final Exam	20%
Total Percentage Points	100%

Grade Scale	Percentage
A	90.0%
B	80.0%
C	70.0%
D	60.0%
F	< 60%

No-Makeup Policies:

- There are no makeups for missed exams. Institute approved absences are rare and do qualify for an exception. Any request for exceptions to the no-makeup policy must be made in advance of the exam unless that is impossible (like a car wreck happens on the way to the exam).
- *Documented* incapacitating illness, death in the family, judicial procedures, military service, or official school functions are considered valid excuses. Be aware that *documentation* must be provided on letterhead with the signature of a physician, supervisor, or other appropriate official. All situations will be referred to the Dean of Students Office for verification. Therefore, contact the Dean of Students with your documentation, and they will inform you of the proper procedures. https://studentlife.gatech.edu/ The Dean of Students Office then contacts your professor directly with any accommodations to be provided. The final decision regarding an exception is made solely at the discretion of your professor.
- If you will be observing religious holidays during the semester, then please inform your professor at the beginning of the semester, especially of any conflicts with exam dates.
- *Events such as vacations, weddings, graduations, errands, interviews, work conflicts, sleeping through your alarm, alarm malfunction, not being aware of the exam are not valid excuses.*
- If you miss any assignment without a valid excuse, then you receive a 0.

*** Again, all excuses are to be taken to the Dean of Students Office directly, and not sent to your professor or TA. ***

Sitting In/Auditing:

"Sitting in" is against GT Policy, and is explicitly not allowed. We do not violate Institute policy. You are not allowed to attend without being registered. Problems with this will be turned over to the Dean of Students and/or GT Police.

Grade Disputes:

- Grade disputes are rare, but if you find yourself not clear about why points were lost, we have a strict policy and procedure to follow. Disputes of grading on assignments, exams, etc. must be discussed within one week of assignment being returned. All regrade requests go through the Head TA. Should you find yourself having an issue with a grade, contact the Head TA. Regrade forms are available on T-Square for assignments and exams. For exams, the regrade must accompany any Gradescope regrade request.
- If the Head TA is unable to resolve the issue, contact your instructor.
- Every regrade request must have a detailed reason why a regrade is needed. "I'd like to get more points" is not a valid reason and will result in the request being promptly declined. Furthermore, any regrade request that is not respectful and professional will be declined. Be aware that any regrade request may result in your entire exam or homework being regraded. Your grade may go up or down.
- It is your responsibility to ensure that all the grades in T-Square are correct ***before finals week.*** After that, the only grade discussion will be about the grading of your final exam. Any discussion of your grades after the final exam must be done in person, and ***cannot occur*** until the 3rd week of the next semester you are in school. Final exams are not released or returned to students. They remain on file for the college.

Academic Honesty:

Every Student is expected to read, understand and abide by the Georgia Tech Academic Honor Code. http://www.honor.gatech.edu/

- The work in this course is to be the product of your own programming efforts unless otherwise specified. Plagiarism detection software will be used on your submissions. Evidence of plagiarism will be turned in the Office of Student Integrity.
- File sharing is expressly forbidden. Do not give your code to another student, nor take code from another student. Both activities are academic misconduct and forms of cheating.
- Proper collaboration means talking through problems, assisting each other with de-bugging, explaining a concept, etc… Diagramming and high-level discussions are acceptable forms of collaboration.
- You may only use pseudocode provided in the course materials. This means, you are ***NOT*** allowed to use pseudocode from the internet, or from your peers.
- You are not allowed to simply exchange code or write code for others. This still applies even if you make trivial changes such as variable names, comments, styling, etc.
- You are allowed to share JUnits. Use JUnits from other students at your own risk. We will not be endorsing them. See assignments for more details. If you share JUnits, they must be shared on a site that we specify and not in random locations like Facebook, your GitHub account, etc.

Violators of the collaboration policy for this course will be turned into the Office of Student Integrity.

Lecture Attendance is required, Recitation Attendance is highly encouraged, and it is assumed you are attending.

Homework Submission & Responsibility:

All course information and resources can be found in T-square https://t-square.gatech.edu/portal to include: Syllabus, Assignments, Submissions, Announcements, Grades & Feedback, Resources, ….

- Homework will be due on Friday nights at 11:55:00 pm for full credit consideration. If you submit after 11:55:00 pm, but before 4:00:00 am on Saturday, then you will be penalized 25 percentage points for that assignment. *Do not ask for an exception to the late policy unless you have a valid excuse accompanied by documentation that has been submitted to the Dean of Students office.*
- Homework turn-in is via T-Square. Turning in homework properly on T-Square is solely your responsibility. That last statement bears repeating.

  Turning in homework properly on T-Square is solely your responsibility.
- T-Square is NOT forgiving about due dates and times. Imagine a train taking off whether or not you are fully onboard. It has no love.

T-Square submissions:

- It is completely within your power to make sure your homework is submitted properly. If you are not conscientious about your submission, then there is a high likelihood you will trip up and not turn in one or more assignments correctly. You are to upload the .java files and any other files required by the assignment. .class files will not be graded and will be given a 0.
  1) T-Square will send you a confirmation email. Do not delete that email. If you do not get the email, then trust that we did not get your HW submission. You should get the email almost immediately. No email means no submission, and hence, no grade.
  2) After submitting your file(s) for a HW, reload T-Square going to the Assignments link within the CS1332 tab. Look at the assignment in question. You should now see that it says it has been submitted and when.
  3) Download a fresh copy of the files from T-Square, saving to a new folder, and then recompile and run that code. Following steps 1, 2, and 3 is truly the only way to confirm what you have turned in.

- Failure to upload the proper file(s) for a homework will result in a zero for the assignment. Programs that do not compile or run also receive no credit.
- If you want to resubmit an assignment, remove your old, uploaded solution first before uploading your new solution.

Exam Instructions:

- Signing and/or taking the exam signifies you are aware of and in accordance with the Academic Honor Code of Georgia Tech and the Georgia Tech Code of Conduct.
- Special seating assignments may be required at the start of the exam.
- Notes, books, calculators, phones, laptops, smart watches, headphones, etc. are NOT allowed.
- *Under NO circumstances are you allowed to leave the exam room until you have turned in this exam.*
- Extra paper is NOT allowed. If you have exhausted all space on this test, talk with your instructor.
- Pens/pencils and erasers are allowed. Do not share.
- All code must be in Java.
- Efficiency matters. For example, if you code something that uses O(n) time or worse when there is an obvious way to do it in O(1) time, your solution may lose credit. If your code traverses the data 5 times when once would be sufficient, then this also is considered poor efficiency even though both are O(n).
- Style standards such as (but not limited to) use of good variable names and proper indentation is always required. (Don't fret too much if your paper gets messy, use arrows or whatever it takes to make your answer clear when necessary.)
- Comments are not required unless a question explicitly asks for them.

Important Dates (all dates are tentative and subject to change):

First Lecture Day . . . . . August 21, 2017
First Recitation Day - Week 2 . . . . . August 29, 2017
Labor Day (No class). . . . . September 4, 2017
Exam 1 . . . . . September 20, 2017
Progress Reports . . . . . September 29, 2017
Fall Break Holiday (No class) . . . . . October 9-10, 2017
Exam 2 . . . . . October 18, 2017
Withdrawal Deadline . . . . . October 27, 2017
Exam 3 . . . . . November 15, 2017
Thanksgiving Holiday (No class). . . . . November 22-24, 2017
Last Lecture Day . . . . . December 4, 2017
Final Section A. . . . . December 13, 2017, 8:00am - 10:50am
Final Section B. . . . . December 11, 2017, 11:30am - 2:20pm