

CSCE 221:200 Spring 2022 Syllabus

Course Information

Course Information

Course Number: CSCE 221H

Course Title: Honors Data Structures and Algorithms

Section: 200

Time: Monday, Wednesday, Friday 9:10 AM – 10:00 AM (lecture); Friday 12:40 – 2:20 PM (lab)

Location: HRBB 126 (lecture); EABA 118(lab)

Credit Hours: 4 (3 lecture hours and 2 lab hours per week)

Instructor Details

Instructor: Dr. Roger Pearce

Office: PETR 110

E-Mail: rpearce@cse.tamu.edu

Office Hours: Monday, Wednesday, Friday 10:00 AM – 11:00 AM; other times by appointment.

Teaching Assistant: Trevor Bolton

E-Mail: tbolton2000@tamu.edu

Office Hours: TBD

Course Description

Specification and implementation of basic abstract data types and their associated algorithms including stacks, queues, lists, sorting and selection, searching, graphs, and hashing; performance tradeoffs of different implementations and asymptotic analysis of running time and memory usage; includes the execution of student programs written in C++.

Course Prerequisites

Prerequisite is CSCE 113 or CSCE 121 as well as honors eligibility. Corequisite is CSCE 222 / ECEN 222 (that is, you must have already taken this course or be taking it this semester).

Course Learning Outcomes

At the end of the semester, the student should be fluent in the use of the basic data structures and their associated algorithms; be familiar with the performance tradeoffs of different implementations of the data structures; understand and apply the principles of abstraction, modularity, and information hiding; appreciate and adhere to good software development practices; and be able to program competently in the subset of C++ covered in the course.

Textbook and/or Resource Materials

Recommended textbook: *Data Structures and Algorithm Analysis in C++ (Fourth Edition)*, Mark Allen Weiss, Addison-Wesley, 2013. ISBN: 978-0132847377. Webpage for the book, including errata (list of errors) is <https://users.cs.fiu.edu/~weiss/#dsaac++3> (Links to an external site.).

Grading Policy

Your grade will be based on these components:

- 30% Exams (15% for midterm, 15% for final)
- 25% Weekly Quizzes (12 approx.; two lowest grades will be dropped)
- 30% Lab Programming Assignments (5 approx.)
- 10% Culture Report (written report and oral presentation)
- 5% Participation (class discussion, etc.)

Course grades will be assigned according to this scale:

% total points	90–100	80–89	70–79	60–69	< 60
letter grade	A	B	C	D	F

Late Work Policy

10% of the maximum possible points will be deducted for each 24 hours that an assignment is late. For example, if the assignment is due at midnight on Sep 1, and you turn it in any time on Sep 2, 10% of the maximum points will be deducted; if you turn it in any time on Sep 3, 20% of the maximum points will be deducted; etc. Once solutions have been discussed or handed out, the assignment will not be accepted (grade of 0). Make-up assignments will only be available for university-excused absences; see Student Rule 7, Attendance (<http://student-rules.tamu.edu/rule07>[Links to an external site.](#)). Since your lowest two quiz grades will be dropped, a make-up quiz will only be available if you have three or more *excused* absences on quiz days.

Course Schedule

Approximate Course Schedule

Approx. Week of	Lecture Topic	Lab Topic	Textbook
1: Jan 18	Introduction	C++ Review	Chap. 1
2: Jan 24	Algorithm Analysis	Code Asymptotic Analysis	Chap. 2
3: Jan 31	Lists	Pointers	Chap. 3
4: Feb 7	Stacks and Queues	Recursion	Chap. 3
5: Feb 14	Trees	Measuring Code Running Time	Chap. 4
6: Feb 21	Binary Search Trees	C++ STL Maps and Sets	Chap. 4
7: Feb 28	Hashing – Chaining	Debugging Tools	Chap. 5
8: Mar 7	Hashing – Probing	Debugging Exercises	Chap. 5
9: Mar 21	Priority Queues – Heaps	Make Files	Chap. 6
10: Mar 28	Priority Queues – Applications	Exceptions	Chap. 6
11: Apr 4	Sorting – Algorithms	C++ Templates	Chap. 7
12: Apr 11	Sorting – Lower Bounds	C++ Templates	Chap. 7
13: Apr 18	Graph Algorithms	Graph Data Structures Practice	Chap. 9

14: Apr 25	Graph Algorithms – Applications	Graph Data Structures Practice	Chap. 9
15: May 2	Review	Review	

Exam Dates:

- Midterm: Wed, Mar 9
- Final: Friday, May 6, 8:00 AM – 10AM

University Policies

This section outlines the university level policies. The TAMU Faculty Senate established the wording of these policies.

[NOTE: Faculty members should not change the written statements. A faculty member may add separate paragraphs if additional information is needed.]

Attendance Policy

The university views class attendance and participation as an individual student responsibility. Students are expected to attend class and to complete all assignments.

Please refer to **Student Rule 7** [Links to an external site.](#) in its entirety for information about excused absences, including definitions, and related documentation and timelines.

Makeup Work Policy

Students will be excused from attending class on the day of a graded activity or when attendance contributes to a student's grade, for the reasons stated in Student Rule 7, or other reason deemed appropriate by the instructor.

Please refer to **Student Rule 7** [Links to an external site.](#) in its entirety for information about makeup work, including definitions, and related documentation and timelines.

Absences related to Title IX of the Education Amendments of 1972 may necessitate a period of more than 30 days for make-up work, and the timeframe for make-up work should be agreed upon by the student and instructor" (**Student Rule 7, Section 7.4.1** [Links to an external site.](#)).

"The instructor is under no obligation to provide an opportunity for the student to make up work missed because of an unexcused absence" (**Student Rule 7, Section 7.4.2** [Links to an external site.](#)).

Students who request an excused absence are expected to uphold the Aggie Honor Code and Student Conduct Code. (**See Student Rule 24** [Links to an external site.](#)).

Academic Integrity Statement and Policy

"An Aggie does not lie, cheat or steal, or tolerate those who do."

"Texas A&M University students are responsible for authenticating all work submitted to an instructor. If asked, students must be able to produce proof that the item submitted is indeed the work of that student. Students must keep appropriate records at all times. The inability to authenticate one's work, should the instructor request it, may be sufficient grounds to initiate an academic misconduct case" (**Section 20.1.2.3, Student Rule 20** [Links to an external site.](#)).

Texas A&M at College Station

You can learn more about the Aggie Honor System Office Rules and Procedures, academic integrity, and your rights and responsibilities at aggiehonor.tamu.edu[Links to an external site.](#).

Texas A&M at Galveston

You can learn more about the Honor Council Rules and Procedures as well as your rights and responsibilities at tamug.edu/HonorSystem. ([Links to an external site.](#))

Texas A&M at Qatar

You can learn more about academic integrity and your rights and responsibilities at Texas A&M University at Qatar by visiting the [Aggie Honor System](#)[Links to an external site.](#) website.

Americans with Disabilities Act (ADA) Policy

Texas A&M University is committed to providing equitable access to learning opportunities for all students. If you experience barriers to your education due to a disability or think you may have a disability, please contact Disability Resources office on your campus (resources listed below). Disabilities may include, but are not limited to attentional, learning, mental health, sensory, physical, or chronic health conditions. All students are encouraged to discuss their disability related needs with Disability Resources and their instructors as soon as possible.

Texas A&M at College Station

Disability Resources is located in the Student Services Building or at (979) 845-1637 or visit disability.tamu.edu[Links to an external site.](#).

Texas A&M at Galveston

Disability Resources is located in the Student Services Building or at (409) 740-4587 or visit tamug.edu/counsel/Disabilities ([Links to an external site.](#)).

Texas A&M at Qatar

Disability Services is located in the Engineering Building, room 318C or at +974.4423.0316 or visit <https://www.qatar.tamu.edu/students/student-affairs/disability-services>.[Links to an external site.](#)

Title IX and Statement on Limits to Confidentiality

Texas A&M University is committed to fostering a learning environment that is safe and productive for all. University policies and federal and state laws prohibit gender-based discrimination and sexual harassment, including sexual assault, sexual exploitation, domestic violence, dating violence, and stalking.

With the exception of some medical and mental health providers, all university employees (including full and part-time faculty, staff, paid graduate assistants, student workers, etc.) are Mandatory Reporters and must report to the Title IX Office if the employee experiences, observes, or becomes aware of an incident that meets the following conditions (see [University Rule 08.01.01.M1](#)[Links to an external site.](#)):

- The incident is reasonably believed to be discrimination or harassment.
- The incident is alleged to have been committed by or against a person who, at the time of the incident, was (1) a student enrolled at the University or (2) an employee of the University.

Mandatory Reporters must file a report regardless of how the information comes to their attention – including but not limited to face-to-face conversations, a written class assignment or paper, class discussion, email, text, or social media post. Although Mandatory Reporters must file a report, in most instances, a person who is subjected to the alleged conduct will be able to

control how the report is handled, including whether or not to pursue a formal investigation. The University's goal is to make sure you are aware of the range of options available to you and to ensure access to the resources you need.

Texas A&M at College Station

Students wishing to discuss concerns in a confidential setting are encouraged to make an appointment with [Counseling and Psychological Services](#)[Links to an external site.](#) (CAPS).

Students can learn more about filing a report, accessing supportive resources, and navigating the Title IX investigation and resolution process on the University's [Title IX webpage](#)[Links to an external site.](#)

Texas A&M at Galveston

Students wishing to discuss concerns in a confidential setting are encouraged to make an appointment with the Counseling Office in the Seibel Student Center, or call (409)740-4587. For additional information, visit tamug.edu/counsel [\(Links to an external site.\)](#).

Students can learn more about filing a report, accessing supportive resources, and navigating the Title IX investigation and resolution process on the Galveston Campus' [Title IX webpage](#) [\(Links to an external site.\)](#).

Texas A&M at Qatar

Texas A&M University at Qatar students wishing to discuss concerns in a confidential setting are encouraged to visit the [Health and Wellness](#)[Links to an external site.](#) website for more information.

Students can learn more about filing a report, accessing supportive resources, and navigating the Title IX investigation and resolution process on the University's [Title IX webpage](#)[Links to an external site.](#)

Statement on Mental Health and Wellness

Texas A&M University recognizes that mental health and wellness are critical factors that influence a student's academic success and overall wellbeing. Students are encouraged to engage in healthy self-care by utilizing available resources and services on your campus.

Texas A&M College Station

Students who need someone to talk to can contact [Counseling & Psychological Services](#)[Links to an external site.](#) (CAPS) or call the [TAMU Helpline](#)[Links to an external site.](#) (979-845-2700) from 4:00 p.m. to 8:00 a.m. weekdays and 24 hours on weekends. 24-hour emergency help is also available through the National Suicide Prevention Hotline (800-273-8255) or at suicidepreventionlifeline.org [\(Links to an external site.\)](#).

Texas A&M at Galveston

Students who need someone to talk to can call (409) 740-4736 from 8:00 a.m. to 5:00 p.m. weekdays or visit tamug.edu/counsel [\(Links to an external site.\)](#) for more information. For 24-hour emergency assistance during nights and weekends, contact the TAMUG Police Dept at (409) 740-4545. 24-hour emergency help is also available through the National Suicide Prevention Hotline (800-273-8255) or at suicidepreventionlifeline.org [\(Links to an external site.\)](#).

Texas A&M at Qatar

Texas A&M University at Qatar students wishing to discuss concerns in a confidential setting are encouraged to visit the [Health and Wellness](#)[Links to an external site.](#) website for more information.

Campus Specific Policies

Texas A&M at Galveston

Classroom Access and Inclusion Statement

Texas A&M University is committed to engaged student participation in all of its programs and courses and provides an accessible academic environment for all students. This means that our classrooms, our virtual spaces, our practices and our interactions are as inclusive as possible and we work to provide a welcoming instructional climate and equal learning opportunities for everyone. If you have an instructional need, please notify me as soon as possible.

The Aggie Core values of respect, excellence, leadership, loyalty, integrity and selfless service in addition to civility, and the ability to listen and to observe others are the foundation of a welcoming instructional climate. Active, thoughtful and respectful participation in all aspects of the course supports a more inclusive classroom environment as well as [our mutual \(Links to an external site.\)](#) responsibilities to the campus community.

The following statements below are optional. Leave as is to include, or delete if preferred. Either way, delete this note.

Statement on the Family Educational Rights and Privacy Act (FERPA)

FERPA is a federal law designed to protect the privacy of educational records by limiting access to these records, to establish the right of students to inspect and review their educational records and to provide guidelines for the correction of inaccurate and misleading data through informal and formal hearings. Currently enrolled students wishing to withhold any or all directory information items may do so by going to howdy.tamu.edu [Links to an external site.](#) and clicking on the "Directory Hold Information" link in the Student Records channel on the MyRecord tab.

The complete [FERPA Notice to Students](#) [Links to an external site.](#) and the student records policy is available on the Office of the Registrar webpage.

Items that can never be identified as public information are a student's social security number, citizenship, gender, grades, GPR or class schedule. All efforts will be made in this class to protect your privacy and to ensure confidential treatment of information associated with or generated by your participation in the class.

Directory items include name, UIN, local address, permanent address, email address, local telephone number, permanent telephone number, dates of attendance, program of study (college, major, campus), classification, previous institutions attended, degrees honors and awards received, participation in officially recognized activities and sports, medical residence location and medical residence specialization.

College and Department Policies

College and departmental units may establish their own policies and minimum syllabus requirements. As long as these policies and requirements do not contradict the university level requirements, colleges and departments can add them in this section. ***Please remove this section if not needed.***

Click [here](#) [Links to an external site.](#) for more information on Texas A&M University's new syllabus requirements.