

CS 2413 – Data Structures – Spring 2023

Syllabus

Instructor: Dr. Sridhar Radhakrishnan, sridhar@ou.edu

Office Location: DEH 244

Office Hours: 12:00 P.M to 1:30 P.M (Monday and Wednesday).

<https://oklahoma.zoom.us/j/93045588357?pwd=bHUwT2VGSTR4dU10YmJqcysrTHptdz09>

Class Location: Felgar Hall 300

Class Time: 1:30 PM to 2:45 PM (MW)

Teaching Assistants:

- Aditya Narasimhan - adinaras@ou.edu (Monday and Wednesday 3:00 PM – 4:00 PM) on Zoom.
 - Meeting ID: 955 1585 5408
 - Passcode: 11341523
 - Link:
<https://oklahoma.zoom.us/j/95515855408?pwd=YTF5akRoY25NMEEFrRUtiZU12NXM3Zz09>
- Manisha Mandava - manisha.mandava@ou.edu

Course Pre/Co-requisite: CS 2334 and (CS 2813 or MATH 2513 as a corequisite)

Textbook: Radhakrishnan, S., Wise L., and Sekharan, N. 2013. *Data Structures Featuring C++: A Programmer's Perspective (Links to an external site.)* This textbook is available on Amazon.

Course Requirements: Students are required to take two exams and a final. There will be no makeup exams except in cases of emergencies. Failure to take the final exam will result in an automatic F as the overall course grade. There will be set of six programming projects that each student should individually complete and all programming projects must be written in C/C++ and will be specified. There will be a number of pop quizzes. These quizzes will be during class time. The quizzes will be on canvas and released just before the actual quiz time and will be closed in about 10-15 mins. Exactly 20% of the lowest scoring quizzes will be dropped. If a quiz is not taken, then you will receive an automatic zero on the quiz. If there is a legitimate and documented reason (for example, health), then that quiz will not be considered when evaluating the quiz grades. The course letter grade will be assigned based on the overall percentage: ≥ 90 (A), ≥ 80 and < 90 (B), ≥ 70 and < 80 (C), ≥ 60 and < 70 (D), and < 60 (F). The allocation of percentages is given below:

	Percentages
Pop Quizzes	10%
Exam 1	15%
Exam 2	15%
Final	25%
Programming Projects	35%

ABET Outcomes of Instruction in CS 2413:

1. Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.
2. Design, implement and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline.

Persons with Disability or Special Accommodation or Accommodation for any reason:

Please advise/inform your instructor of any of your special needs if you are an individual with disability. Also, please advise/inform your instructor of any special accommodation that you need, and all such matters will be addressed after conversations with relevant experts. It is important that you reach out to your instructor in a timely manner to address all matters relating to the need for accommodation. We will follow the makeup policies as provided in [\[See Faculty Handbook 4.7, 4.9, 4.10, and 4.11\]](#)

Programming Projects:

Projects have to be coded in C/C++. You will use colab. We will provide instructions to install the compute image that we have created for this course. We will use ANSI C/C++ and hence if your program compiles on any g++ compiler then you are set to go.

1. You will also use the gradescope facility to submit the source program.
2. For every 24 hours late, you will be deducted 10% of the grade of the programming project. Any project that is more than 5 days late will not be evaluated.
3. A programming project that does not meet the specifications will receive an automatic deduction of 50% of the grade.
4. You are better off submitting a working project on the fifth day rather than the one that does not work on the day it is due.
5. Programs have to be documented clearly. Programs that lack or are weak in documentation will receive a deduction of up to 30% of the grade. Follow the documentation methods that were used in programs presented in your data structures book.
6. You will demo your project to the grader during the grader assigned special office hours **if the grader so wishes**. Graders are not responsible for debugging your programs.
7. The specification for the projects presented by the instructor may not contain all the details of implementation. It is your responsibility to understand the specifications thoroughly. Please ensure that all relevant questions regarding the project are asked during class time.
8. **Copying programs or consulting others for coding is strictly prohibited and will be treated as plagiarism. Additionally, copying programs from the Internet is also strictly prohibited. All projects are individual projects and hence you are required to work on your own without any help from others.**
9. Apart from the above general policies for evaluating, each programming project will also have a set of specifications that should be met.

Programming Tools:

All the programming projects should be carried out through the [Google CoLab](#).

This is a free tool used on your browser. You will need a google account to use this (gmail). An example program and setup instructions will be released.

Tentative Course Schedule

Date	Topics	Projects
January 18, 2023	C++ Programming	Project 1 Assigned
January 23, 2023	C++ Programming	
January 25, 2023	Chapter 1 Introduction (Object-Oriented Programming)	
January 30, 2023	Chapter 1 Introduction (Object-Oriented Programming)	
February 1, 2023	Chapter 2 Algorithms and Recursion	
February 6, 2023	Chapter 2 Algorithms and Recursion	Project 1 Due; Project 2 Assigned
February 8, 2023	Chapter 3 Arrays, Strings, and Vectors	
February 13, 2023	Chapter 3 Arrays, Strings, and Vectors	
February 15, 2023	Chapter 3 Arrays, Strings, and Vectors	
February 20, 2023	Chapter 4 Linked Lists	
February 22, 2023	Chapter 4 Linked Lists	
February 27, 2023	Chapter 5 Stacks and Queues	Project 2 Due; Project 3 Assigned
March 1, 2023	Chapter 5 Stacks and Queues	
March 6, 2023	Exam – 1	
March 8, 2023	Chapter 6 Single Dimensional Binary Trees	Project 3 Due; Project 4 Assigned
March 13, 2023	Spring Break	
March 15, 2023	Spring Break	
March 20, 2023	Chapter 6 Single Dimensional Binary Trees	
March 22, 2023	Chapter 6 Single Dimensional Binary Trees	
March 27, 2023	Chapter 7 Self-Modifying Search Trees	
March 29, 2023	Chapter 7 Self-Modifying Search Trees Chapter 8 Priority Search Trees	
April 3, 2023	Chapter 8 Priority Search Trees	Project 4 Due; Project 5 Assigned
April 5, 2023	Exam – 2	
April 10, 2023	Chapter 9 Sorting	
April 12, 2023	Chapter 9 Sorting	
April 17, 2023	Chapter 9 Sorting Chapter 10 Hashing	
April 19, 2023	Chapter 10 Hashing	Project 5 Due; Project 6 Assigned
April 24, 2023	Chapter 11 Graphs	
April 26, 2023	Chapter 11 Graphs	
May 1, 2023	Chapter 11 Graphs	
May 3, 2023	Review for the Final Examination	Project 6 Due
May 11, 2023	Final Examination; 8:00 AM – 10:00 AM (Thursday)	

Make-up Policy

In this section, you should clearly state a make-up policy that is in agreement with the relevant statements in the Faculty Handbook. [\[See Faculty Handbook 4.7, 4.9, 4.10, and 4.11\]](#)

Absences

In this section, you should clearly state an attendance policy that is in agreement with the relevant statements in the Faculty Handbook. [\[See Faculty Handbook 4.19\]](#)

University Policies

Academic Integrity

Cheating is strictly prohibited at the University of Oklahoma, because it devalues the degree you are working hard to get. As a member of the OU community it is your responsibility to protect your educational investment by knowing and following the rules. For specific definitions on what constitutes cheating, review the Student's Guide to Academic Integrity at http://integrity.ou.edu/students_guide.html and <https://www.ou.edu/integrity/students#OU-and-Integrity>.

To be successful in this class, all work on exams and quizzes must be yours and yours alone. If you become aware of a fellow student engaging in suspicious behavior, I encourage you to report it to us or directly to the Office of Academic Integrity Programs. That student is devaluing not only their degree, but yours, too. Be aware that it is our professional obligation to report academic misconduct, which we will not hesitate to do. Sanctions for academic misconduct can include expulsion from the University and an F in this course, so don't cheat. It's simply not worth it.

Religious Observance

It is the policy of the University to excuse the absences of students that result from religious observances and to reschedule examinations and additional required classwork that may fall on religious holidays, without penalty.

Reasonable Accommodation Policy

The Accessibility and Disability Resource Center is committed to supporting students with disabilities to ensure that they are able to enjoy equal access to all components of their education. This includes your academics, housing, and community events. If you are experiencing a disability, a mental/medical health condition that has a significant impact on one or more life functions, you can receive accommodations to provide equal access. Possible disabilities include, but are not limited to, learning disabilities, AD(H)D, mental health, and chronic health. Additionally, we support students with temporary medical conditions (broken wrist, shoulder surgery, etc.) and pregnancy. To discuss potential accommodations, please contact the ADRC at 730 College Avenue, (ph.) 405.325.3852, or adrc@ou.edu.

Title IX Resources and Reporting Requirement

Anyone who has been impacted by gender-based violence, including dating violence, domestic violence, stalking, harassment, and sexual assault, deserves access to resources so that they are supported personally and academically. The University of Oklahoma is committed to offering resources to those impacted, including: speaking with someone confidentially about your options, medical attention, counseling, reporting, academic support, and safety plans. If you would like to speak with someone confidentially, please contact [OU Advocates](#) (available 24/7 at 405-615-0013) or another confidential resource (see [“Can I make an anonymous report?”](#)). You

may also choose to report gender-based violence and discrimination through other means, including by contacting the [Institutional Equity Office \(ieo@ou.edu\)](mailto:ieo@ou.edu), 405-325-3546) or police (911). Because the University of Oklahoma is committed to the safety of you and other students, I, as well as other faculty, Graduate Assistants, and Teaching Assistants, are mandatory reporters. This means that we are obligated to report gender-based violence that has been disclosed to us to the Institutional Equity Office. This includes disclosures that occur in: class discussion, writing assignments, discussion boards, emails and during Student/Office Hours. For more information, please visit the [Institutional Equity Office](#).

Adjustments for Pregnancy/Childbirth Related Issues

Should you need modifications or adjustments to your course requirements because of documented pregnancy-related or childbirth-related issues, please contact your professor or the Accessibility and Disability Resource Center at 405/325-3852 as soon as possible. Also, see the Institutional Equity Office [FAQ on Pregnant and Parenting Students' Rights](#) for answers to commonly asked questions.

Final Exam Preparation Period (required)

Pre-finals week will be defined as the seven calendar days before the first day of finals. Faculty may cover new course material throughout this week. For specific provisions of the policy please refer to OU's [Final Exam Preparation Period policy](#).

Emergency Protocol (required)

During an emergency, there are official university [procedures](#) that will maximize your safety.

Severe Weather: If you receive an OU Alert to seek refuge or hear a tornado siren that signals severe weather.

1. Look for severe weather refuge location maps located inside most OU buildings near the entrances
2. Seek refuge inside a building. Do not leave one building to seek shelter in another building that you deem safer. If outside, get into the nearest building.
3. Go to the building's severe weather refuge location. If you do not know where that is, go to the lowest level possible and seek refuge in an innermost room. Avoid outside doors and windows.
4. Get in, Get Down, Cover Up
5. Wait for official notice to resume normal activities.

Additional [Weather Safety Information](#) is available through the Department of Campus Safety.

Armed Subject/Campus Intruder: (required)

If you receive an OU Alert to shelter-in-place due to an active shooter or armed intruder situation or you hear what you perceive to be gunshots:

1. *Avoid:* If you believe you can get out of the area WITHOUT encountering the armed individual, move quickly towards the nearest building exit, move away from the building, and call 911.
2. *Deny:* If you cannot flee, move to an area that can be locked or barricaded, turn off lights, silence devices, spread out, and formulate a plan of attack if the shooter enters the room.
3. *Defend:* As a last resort fight to defend yourself.

For more information, visit [OU's Emergency Preparedness site](#).

[Shots Fired on Campus Procedure – Video](#)

Fire Alarm/General Emergency: (required)

If you receive an OU Alert that there is danger inside or near the building, or the fire alarm inside the building activates: 1. *LEAVE* the building. Do not use the elevators. 2. *KNOW* at least two

building exits 3. *ASSIST* those that may need help 4. *PROCEED* to the emergency assembly area 5 *ONCE* safely outside, *NOTIFY* first responders of anyone that may still be inside building due to mobility issues. 6. *WAIT* for official notice before attempting to re-enter the building.
[OU Fire Safety on Campus](#)

Mental Health Support Services: (required)

If you are experiencing any mental health issues that are impacting your academic performance, counseling is available at the University Counseling Center (UCC). The Center is located on the second floor of the Goddard Health Center, at 620 Elm Rm. 201, Norman, OK 73019. To schedule an appointment call (405) 325-2911. For more information, please visit [University Counseling Center](#).

COVID - 19 policies

For information about the changes to the course from the University side, please keep yourself updated from OU's learn anywhere website - <https://www.ou.edu/learnanywhere> .