

# SYLLABUS

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## **CS2302 CRN 11048: Data Structures Fall 2023**

Lectures: MW 9AM to 10:20AM in CCSB G.0208

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## INSTRUCTIONAL TEAM and OFFICE HOURS

- Leobardo Valera (instructor, [lvalera@utep.edu](mailto:lvalera@utep.edu)): MTWR 12:00M to 1:00PM in CCSB2.0902F
- [TA] Juan Puebla ([jlpuembra@miners.utep.edu](mailto:jlpuembra@miners.utep.edu)): TBA
- [IA] Arturo Olmos ([aeolmos@miners.utep.edu](mailto:aeolmos@miners.utep.edu)): TBA
- [IA] Kevin Guerra ([kguerra3@miners.utep.edu](mailto:kguerra3@miners.utep.edu)): TBA

## COURSE DESCRIPTION

This is the third and last course of the Computer Science introductory sequence. Students will further develop their understanding of algorithms and the data structures that support them. They will be able to make pertinent choices of data structures and algorithms to solve given problems and discuss their performance. They will practice recursion and study new problem-solving strategies and types of algorithms, e.g., dynamic programming and greedy algorithms. They will cover a number of algorithms, including graph algorithms. The programming language of this course is Python.

**Prerequisite:** ( [CS 2401](#) w/C or better )

AND

{ ( [MATH 2300](#) w/C or better ) OR ( [CS 2101](#) w/C or better AND [CS 2202](#) w/C or better ) }

### **Knowledge and Abilities Required Before Entering the Course:**

Students are assumed to be comfortable with programming in Java. Students should be able to code and discuss sort and search algorithms, as well as data structures covered in CS2. They should have an understanding and working knowledge of time complexity.

## MODE OF INSTRUCTION AND PLATFORMS

This course is scheduled in person.

We will use an **MS Team** + its integrated **OneNote notebook**, to share information, store lecture notes, etc. All quizzes and exams will be uploaded to **Gradescope** by our instructional team, and students will be able to review their grades and feedback directly from their Gradescope account.

*Note: By now, you should all have received an email from MS Teams and Gradescope informing you that you had been added to my MS Team and Gradescope course.*

## TEXTBOOK

It is essential that everyone uses the class textbook. We will be using a textbook from zybook. You are expected to acquire the book by the end of Week 1. Please follow instructions below:

1. Sign in or create an account at [learn.zybooks.com](https://learn.zybooks.com)
2. Enter zyBook code  
**UTEPCS2302ValeraFall2023**
3. Subscribe

And SELECT my section “2302 Valera Morning”. Subscription is **\$89**. Students may begin subscribing on August 14, 2023, and the cutoff to subscribe is Dec. 02, 2023. Subscriptions will last until Dec. 30, 2023.

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## COURSE ASSIGNMENTS/ASSESSMENT AND GRADING

There will be 5 types of assignments / assessments this semester:

1. Homework assignments
2. Lab assignments

3. Quizzes
4. Examinations
5. Professionalism

### *1. Homework assignments*

Homework assignment will usually be activities (participation and/or challenge activities) assigned on your zybook. You are expected to make yourself familiar with the textbook and locate the assignments: there is work already assigned and you should be able to complete it already. On occasion, additional assignments will be given in class, either to complete during class or at home.

*Note: if you must miss class, it is your responsibility to inquire with your classmates about whether any homework was assigned during class.*

### *2. Lab assignments*

Lab assignments are designed for students to further their practice of the concepts presented in class and to demonstrate their level of mastery on these concepts.

*Note: in CS2302, there is no closed lab.*

*Note: Labs will not be graded. Instead, they will yield a grade under professionalism (see further below).*

### *3. Quizzes*

The purpose of each quiz is to ensure that students are staying current with the concepts covered in class, with their homework assignments, and that they are completing their labs. They are a way to verify that students have acquired the skills presented and practiced in class, and also an opportunity for students to demonstrate mastery. **Quizzes are unannounced but at least weekly.** All quizzes are **in-person quizzes**. There will be no make-up on missed quizzes, but quizzes will be available on our class notebook for students to practice even if they missed them.

### *4. Examinations*

There will be 3 midterm exams (1 hour and 20 minutes each in class), and one comprehensive final exam. Because we will be covering so many concepts this semester, it is essential that you work consistently, giving your best at each exam, so you are better prepared to perform at the final exam.

The purpose of the midterm exams is to allow you to demonstrate mastery of course concepts covered thus far during the semester (hence each exam is comprehensive). **Mid-term exams will be given in person during class time.** Their tentative schedule is October 9, October 30, and November 20 (see schedule below). Make-up exams will be scheduled only as a result of extremely unusual circumstances. If you must miss an exam, please meet with an instructor BEFORE the exam. One make-up exam time will be scheduled per midterm examination (during the session immediately following the scheduled exam). There will not be any other make-up options.

*Note: Regardless of your grade in the course at that time, you must score 70% or better on the final exam to pass this course.*

If you have test-taking difficulties in general, or if you have difficulties with our tests in particular, please request appropriate accommodation from UTEP's Center for Accommodation and Students' Services – CASS (see below for more details).

## 5. Professionalism / Effort

Professionalism includes:

- Reading and understanding the syllabus and abiding by its rules;
- Communicating effectively with the instructional team, which will require you to check your MS Team messages at least once a day (and reply to them if relevant);
- Communicating with the instructional team if you are to miss class or be late to / leave early from class, if you struggle with anything in class or while working on your lab assignments;
- Actively participating in class, being on task, directing your attention to the task / activity as directed by the instructor;
- Actively working on your lab in a timely manner and checking in with the IAs/TA as expected (see lab assignments);
- Putting yourself up to speed when you must have missed a class or part of a class.

And certainly not: e.g., texting, social-networking, working on homework for another course, checking other courses / goldmine / etc., watching videos, etc. Missing an undue number of lectures, even if excused, is also considered to negatively affect your level of professionalism (see below).

Failing to behave professionally (including missing more than 4 lectures without justification, or 6 with justification – note: 2 incomplete sessions = 1 absence) may result in the student being dropped.

### Due Date of Assignments

Deadlines will consistently be on Sunday at 11:59PM.

### GRADES

Grades will be available to students in a timely manner. Quizzes and exams' grades will be available on Gradescope (students can also request regrades on Gradescope). Homework grades will be available on the course's Zybook. As a result, students can easily keep track of their grades.

In case of any doubt about their standing, students are encouraged to contact the instructor. Your semester grade will be based on a combination of the performance you demonstrated on each of the above types of assignments, as shown below:

Professionalism	20%
Homework / Quizzes	10%
Midterm exams (3) & Final exam	70%

The nominal percentage-score-to-letter-grade conversion for CS 2401 is as follows:

- 90% or higher is an A
- 80-89% is a B
- 70-79% is a C
- 60-69% is a D
- Below 60% is an F

**Important Note:** Regardless of your standing in the class at that time, in order to pass the course, you need to earn a C or better at the final exam.

## EXPECTATIONS

As you were told during UTEP orientation (possibly a few semesters ago), you should expect to spend 3 hours per credit hour working on your classes outside of class. As a result, you should spend about 9 hours per week working on CS2302 outside of class.

## COMMUNICATION

Communication with all members of the instructional team (instruction / TA / IAs) is expected to be as follows:

- **How to reach us? How will we reach out to you?** All communication is to take place within the private messages of MS Teams and on our class MS Team's General Channel. Emails may not be answered.
- **Communication style** Although we will be using the MS Teams messages to communicate, communication is expected to be professional. You are expected to use proper greetings (certainly not "hey", "hello?", etc.).
- **Communication pace** Our plan (and, we expect, yours too) is to reply messages within 2 business days. This means that you are expected to check your messages at least every other day. If for any reason, we fail (or you do) to reply your message within this time, kindly try again and simply assume that we must have received many messages and may not have seen yours yet. We will do the same for you. Of course, we do not expect such situations to repeat; that is, we do not expect to miss your messages more than one time; and we will expect the same from you.

## ATTENDANCE POLICY

**This course is scheduled in person.** Attendance is crucial to your success. Too many absences (starting at 4) along with a lack of communication on your part will result in being dropped from the course. In case of absence, you are expected to catch up with the material and make yourself aware of assignments that might have been given during your absence.

## INCOMPLETE POLICY

Incomplete grades may be requested only in exceptional circumstances after you have completed at least half of the course requirements. Talk to me immediately if you believe an incomplete is warranted. If granted, we will establish a contract of work to be completed with deadlines.

## DROP POLICY

Every semester, some students drop courses. We, instructors, completely understand and respect that. We only hereby ask students to inform us, ideally before, but in the worst-case right after, of their intention to drop the course. This is really important for us as it possibly informs us of ways in which to better serve our students. To drop this course, please contact your academic advisor and then the [Registrar's Office](#) to initiate the drop process. If you do not, you are at risk of receiving an "F" for the course.

Fall Semester Drop/Withdrawal Deadline: November 3<sup>rd</sup>.

## ACCOMMODATION POLICY

The University is committed to providing reasonable accommodations and auxiliary services to students, staff, faculty, job applicants, applicants for admissions, and other beneficiaries of University programs, services and activities with documented disabilities in order to provide them with equal opportunities to participate in programs, services, and activities in compliance with sections 503 and 504 of the Rehabilitation Act of 1973, as amended, and the Americans with Disabilities Act (ADA) of 1990 and the Americans with Disabilities Act Amendments Act (ADAAA) of 2008. Reasonable accommodations will be made unless it is determined that doing so would cause undue hardship on the University. Students requesting an accommodation based on a disability must register with the [UTEP Center for Accommodations and Support Services](#). If you have a disability and need classroom accommodations, please contact the Center for Accommodations and Support

Services (CASS) at 747-5148 or by email to [cass@utep.edu](mailto:cass@utep.edu), or visit their office located in UTEP Union East, Room 106. For additional information, please visit the CASS website at [www.sa.utep.edu/cass](http://www.sa.utep.edu/cass). CASS' staff are the only individuals who can validate and if need be, authorize accommodations for students with disabilities.

### SCHOLASTIC INTEGRITY

Academic dishonesty is prohibited and is considered a violation of the UTEP Handbook of Operating Procedures. It includes, but is not limited to, cheating, plagiarism, and collusion. Scholastic dishonesty includes, but not limited to cheating, plagiarism, collusion, and submission for credit of any work or materials that are attributable to another person.

**Cheating** may involve:

- Copying from the test paper of another student
- Communicating with another student during a test to be taken individually
- Giving or seeking aid from another student during a test to be taken individually
- Possession and/or use of unauthorized materials during tests (i.e. crib notes, class notes, books, etc.)
- Substituting for another person to take a test
- Falsifying research data, reports, academic work offered for credit

**Plagiarism** is:

- Using someone's work in your assignments without the proper citations
- Submitting the same paper or assignment from a different course, without direct permission of instructors

To avoid plagiarism, see this [website about avoiding plagiarism](#).

**Collusion** is: Unauthorized collaboration with another person in preparing academic assignments

**Important!** When in doubt on any of the above, please contact your instructor to check if you are following authorized procedure. [Also, please check the UTEP's Handbook of Operating Procedures at: hoop.utep.edu.](#)

**Any act of academic dishonesty attempted by a UTEP student is unacceptable and will not be tolerated. Any student who commits an act of scholastic dishonesty is subject to discipline.**

All suspected violations of academic integrity at The University of Texas at El Paso will be reported to the [Office of Student Conduct and Conflict Resolution \(OSCCR\)](#) for possible disciplinary action. To learn more [HOOP: Student Conduct and Discipline](#).

### GUIDANCE ON ARTIFICIAL INTELLIGENCE

The use of generative AI tools such as Chat GPT is permitted in this course for the following activities, which must be noted or cited:

- Asking **general questions** about concepts covered in class – Note that if you use this information, in an assignment, you should cite the use of AI along with the question you asked to produce the knowledge used.

However, you may not use AI tools to complete the following activities:

- Asking the AI tool to answer any question or assignment given to you in class or in a lab assignment (whether verbatim or rephrased).

- Asking specific questions whose answer leaves no room for critical thinking and application of knowledge.

Students must cite any borrowed content sources to comply with all applicable citation guidelines, copyright law, and avoid plagiarism. Instances that violate these guidelines will be referred to the Office of Student Conduct and Conflict Resolution.

### STUDENT RESOURCES

UTEP provides a variety of student services and support:

- [UTEP Library](#): Access a wide range of resources including online, full-text access to thousands of journals and eBooks plus reference service and librarian assistance for enrolled students.

- [Help Desk](#): Students experiencing technological challenges (email, Blackboard, software, etc.) can submit a ticket to the UTEP Helpdesk for assistance. Contact the [Helpdesk](#) via phone (915-747-4357), email ([helpdesk@utep.edu](mailto:helpdesk@utep.edu)), [chat](#), or [website](#).
- [University Writing Center \(UWC\)](#): Submit papers to [UWC](#) for assistance with writing style and formatting, ask a tutor for help and explore other writing resources.
- [Math Tutoring Center \(MaRCS\)](#): Ask a tutor for help and explore other available math resources.
- [Military Student Success Center \(MSSC\)](#): UTEP welcomes military-affiliated students to its degree programs. The Military Student Success Center and its dedicated staff (many of whom are veterans and students themselves) are there to help personnel in any branch of service to reach their educational goals.
- [RefWorks](#): A bibliographic citation tool; check out the RefWorks tutorial and Fact Sheet and Quick-Start Guide.

[More complete and updated information can be accessed at this address.](#)

### COURSE CALENDAR (tentative)

		GENERAL CONTENT	LABS
<b>Week 1</b>	28-Aug	Introduction of CS2302, syllabus, grading	
	30-Aug	What you've learned so far	<b>LAB 1:</b> review and intro to python
<b>Week 2</b>	6-Sep		
<b>Week 3</b>	11-Sep		
<b>FALL CENSUS DAY = 9/13</b>	13-Sep	Trees	<b>LAB 2:</b> trees, balanced trees
<b>Week 4</b>	18-Sep		
	20-Sep		
<b>Week 5</b>	25-Sep		
	27-Sep		
<b>Week 6</b>	2-Oct	Heaps + <b>EXAM 1 on 10/9</b>	
	4-Oct		
<b>Week 7</b>	<b>9-Oct</b>		
	11-Oct	Dictionaries	<b>LAB 3:</b> heaps and dictionaries
<b>Week 8</b>	16-Oct		
	18-Oct		
<b>Week 9</b>	23-Oct		
	25-Oct	Graphs	<b>LAB 4:</b> graphs and everything
<b>Week 10</b>	<b>30-Oct</b>		
<b>DROP DEADLINE = 11/3</b>	1-Nov		
<b>Week 11</b>	6-Nov		
	8-Nov		
<b>Week 12</b>	13-Nov	Practice & Review	
	15-Nov		
<b>Week 13</b>	<b>20-Nov</b>		
<b>THXGIVING WEEK</b>	22-Nov		
<b>Week 14</b>	27-Nov		
	29-Nov		
<b>Week 15</b>	4-Dec		
	6-Dec		
<b>FINAL EXAM</b>	<b>13-Dec</b>	<b>10AM-12:45PM</b>	

### COURSE OUTCOMES

Level 3: Synthesis and evaluation:

Level 3 outcomes are those in which the student can apply the material in new situations. This is the highest level of mastery. On successful completion of this course students will be able to:

1. Given a problem, judge which data structures are required to solve it efficiently and justify the selection.
2. Solve problems using arrays and lists.
3. Given a non-recursive algorithm, examine its loop structure, assess its asymptotic running time, and express it using big-O notation.
4. Given a recursive algorithm, examine its structure, formulate, and solve a recurrence equation defining its running time, and express it using big-O notation.
5. Design and implement solutions to computational problems based on iteration and recursion.
6. Trace the behavior of functions and algorithms involving iteration and recursion.

### **Level 2: Application and analysis:**

Level 2 outcomes are those in which the student can apply the material in familiar situations, e.g., can work a problem of familiar structure with minor changes in the details.

Upon successful completion of this course, students will be able to:

1. Describe, implement, and use the following data structures:
  - a) Heaps
  - b) Balanced search trees
  - c) Graphs
2. Solve problems using hashing, specifically using language-specific data structures (e.g., sets and dictionaries in Python)
3. Describe, implement, and apply the following graph algorithms:
  - a) Breadth-first search
  - b) Depth-first search
  - c) Topological sorting
  - d) Minimum spanning trees (Kruskal's and Prim's)
  - e) Single-source shortest paths (Dijkstra's algorithm)
4. Assess the running times and space requirements of algorithms in relation to the size of the problem.

### **Level 1: Knowledge and comprehension:**

Level 1 outcomes are those in which the student has been exposed to the terms and concepts at a basic level and can supply basic definitions. On successful completion of this course, students will be able to:

1. Identify and explain the following algorithm design techniques:
  - a) Greedy algorithms
  - b) Divide and conquer
  - c) Dynamic programming
  - d) Backtracking
  - e) Randomized algorithms

## **NETIQUETTE**

As part of our interactions (outside the classroom) will be online, please read UTEP's [rules for online courses](#). They are available for you to read below. Here is also a link where you can access [the core rules of netiquette](#).



# NETIQUETTE GUIDE FOR ONLINE COURSES

It is important to recognize that the online classroom is in fact a classroom, and certain behaviors are expected when you communicate with both your peers and your instructors. These guidelines for online behavior and interaction are known as netiquette.

## SECURITY

Remember that your password is the only thing protecting you from pranks or more serious harm.

- Don't share your password with anyone
- Change your password if you think someone else might know it
- Always logout when you are finished using the system

## GENERAL GUIDELINES

When communicating online, you should always:

- Treat instructor with respect, even in email or in any other online communication
- Always use your professors' proper title: Dr. or Prof., or if you in doubt use Mr. or Ms.
- Unless specifically invited, don't refer to them by first name.
- Use clear and concise language
- Remember that all college level communication should have correct spelling and grammar
- Avoid slang terms such as "wassup?" and texting abbreviations such as "u" instead of "you"
- Use standard fonts such as Times New Roman and use a size 12 or 14 pt. font
- Avoid using the caps lock feature AS IT CAN BE INTERPRETTED AS YELLING
- Limit and possibly avoid the use of emoticons like :) or ☺
- Be cautious when using humor or sarcasm as tone is sometimes lost in an email or discussion post and your message might be taken seriously or offensive
- Be careful with personal information (both yours and other's)
- Do not send confidential patient information via e-mail

## EMAIL NETIQUETTE

When you send an email to your instructor, teaching assistant, or classmates, you should:

- Use a descriptive subject line
- Be brief
- Avoid attachments unless you are sure your recipients can open them
- Avoid HTML in favor of plain text
- Sign your message with your name and return e-mail address
- Think before you send the e-mail to more than one person. Does everyone really need to see your message?
- Be sure you REALLY want everyone to receive your response when you click, "reply all"
- Be sure that the message author intended for the information to be passed along before you click the "forward" button

## MESSAGE BOARD NETIQUETTE AND GUIDELINES

When posting on the Discussion Board in your online class, you should:

- Make posts that are on topic and within the scope of the course material
- Take your posts seriously and review and edit your posts before sending
- Be as brief as possible while still making a thorough comment
- Always give proper credit when referencing or quoting another source
- Be sure to read all messages in a thread before replying
- Don't repeat someone else's post without adding something of your own to it
- Avoid short, generic replies such as, "I agree." You should include why you agree or add to the previous point
- Always be respectful of others' opinions even when they differ from your own
- When you disagree with someone, you should express your differing opinion in a respectful, non-critical way
- Do not make personal or insulting remarks
- Be open-minded