The University of Texas at El Paso
Department of Computer Science
CS 2302 – Data Structures
Spring 2025 Syllabus

1. General Information

Instructor:
Daniel Mejía, Ph.D.
Email: dmmejia2@utep.edu
Office Hours: MTWR 2:30pm – 3:30pm, or by appointment
Office: CCSB 3.1018

Instructional Team			
CRN	21137		January 21 - May 8, 2025
Time	TR 10:30 - 11:50am		UGLC 126
TA	Ana	Rodriguez	amrodriguez28@miners.utep.edu
TA	Andrea	Villagomez	avillagomez1@miners.utep.edu
IA	Daniel	Aguilar	djaguilar3@miners.utep.edu
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IA	Daniela	Gutierrez	dagutierrez17@miners.utep.edu
IA	Rogelio	Lozano	rlozano12@miners.utep.edu
IA	Joe	Mota	jamota@miners.utep.edu
IA	Kristofer	Valerio	kmvalerio2@miners.utep.edu

Important Dates:

- First Day of Class – January 21, 2025
- Census Day – February 5, 2025
- Spring Break – March 10-14, 2025
- Cesar Chavez (No Classes) – March 28, 2025
- Drop Deadline (Automatic W) – April 4, 2025
- Spring Study Day – April 18, 2025
- Last Day of Classes – May 8, 2025
- Dead Day – May 9, 2025
- Final Exam – May 15, 2025 (10:00 – 12:45pm) - https://www.utep.edu/student-affairs/registrar/scheduling/final%20exams%20schedule/final-exam-schedule-spring-2025.pdf

Please communicate with the instructor, TA, or IA anytime you have questions, concerns, or wish to discuss anything. Reach out as often and frequently as necessary so that you may succeed.

NOTE: When emailing the instructor, TA or IA, please use [CS 2302 SP25] in the subject.

Prerequisites:
CS 2401 with C or better
MATH 2300 or (CS 2101 & CS 2202) with C or better

Textbook:
Introduction to Python Programming and Data Structures, 3rd Edition
Y. Daniel Liang

Purchase/Rent the book through Pearson+: https://www.pearson.com/en-us/subject-catalog/p/introduction-to-python-programming-and-data-structures/P200000003438/9780137915972

You do not need to get the "Study & Exam Prep Pack"

2. Objectives & Outcomes

Course Description:
CS 2302 is the third and final course in the fundamental computer science sequence (required). Students will learn about fundamental data structures and analysis and design of algorithms.

Course Objectives and Learning Outcomes:
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

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 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 space requirements of algorithms in relation to the size of their inputs.

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 in relation to the size of the input, 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 in relation to the size of the input, 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

3. General Information

Grading:

Category	**Percentage**
Class Participation/Attendance	3%
Homework/In-Class Assignments	10%
Quizzes	15%
Labs	16%
Exam 1	12%
Exam 2	12%
Exam 3	12%
Final Exam	20%

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

Percentage Range	**Letter Grade**
90% or higher	A
80-89%	B
70-79%	C
60-69%	D
Below 60%	F

Note: Regardless of the overall average, a final grade of **F** will be assigned if any of the following conditions are met:

- Obtaining an average of less than 60% on lab projects.
- Obtaining a grade of less than 50% on the final exam.
- Obtaining an average of less than 50% on partial exams.
- Failing to submit **all** lab projects by the end of the semester, even if too late to receive credit.

Note: You **must earn a C or better** to pass this course.

Attendance:
Attendance and participation are essential for success in this course. Students must attend all scheduled sessions on time and remain for the entire duration. Attendance will primarily be recorded through iClicker but may also be tracked via Blackboard, sign-in sheets, roll call, or other methods at the instructor's discretion. "Checking in and leaving" or checking in for another student is considered academic dishonesty and will be reported to the Office of Community Standards. Students may also be required to check in at the end of class.

Students must notify the instructor and TA in advance of absences whenever possible or immediately after if prior notice is not feasible. It is the student's responsibility to catch up on missed content. Participation includes completing post-lecture and post-lab quizzes (when applicable). Assignments due on the day of an absence will be marked late unless an exception is granted. Points lost for unexcused absences cannot be made up; points lost for excused absences must be coordinated with the instructor.

Attendance issues (e.g., iClicker or Blackboard discrepancies) must be reported to the TA via email (cc the instructor) within 48 hours of the attendance posting. Changes will not be made after this period.

Students arriving up to 10 minutes late will be marked tardy, with two tardies equaling one absence. Arrival after 10 minutes will be marked as an absence.

Drop Policy:
Students with only 50% attendance (including excessive tardiness) by the 4-week checkpoint will be dropped from the course and assigned a grade of "F." Additionally, students with 30% unexcused absences (including excessive tardiness) at the 8-, 10-, or 12-week checkpoints will also be dropped and assigned an "F." This grade is final and will not be changed to a "W."

Incomplete Policy:
Incomplete grades may be granted only in exceptional circumstances after completing at least half the course requirements. If you believe an incomplete is warranted, contact the instructor immediately to establish a contract outlining the work to be completed and deadlines.

Quizzes:
Quizzes ensure you stay current with course content and develop key skills. They will typically be administered through test proctoring tools such as Respondus Lockdown Browser and to

ensure academic integrity, but may also be paper-based or use other platforms. Make-up quizzes are not allowed unless explicitly permitted by the instructor.

Homework:
Reading and homework assignments will be announced in class and/or posted on Blackboard. If you miss a session, it is your responsibility to determine what was missed. Plan to spend at least four hours per week outside of class on assignments.

Deadlines will be specified in each assignment description. Late assignments will be accepted up to 72 hours after the deadline, with a 10% penalty per day.

Labs:
There will be multiple coding labs that will utilize Google Colab or another suitable tool. The labs will be posted on Blackboard and will have a specified deadline. All labs will consist of a coding portion, lab report, and demo.

Exams:
There will be three midterm exams and one comprehensive final exam. If you experience general test-taking difficulties or require accommodations, notify the instructor promptly and contact UTEP's Center for Accommodation and Students' Services for assistance. You may be required to provide a photo ID (i.e., Miner Gold card, Driver's License, etc.) to take the exam.

Midterm Exams:
Midterm exams will assess your understanding of course concepts covered up to that point. These exams are tentatively scheduled for weeks 5, 10, and 14 but may change. You will be notified at least one week in advance through in-class announcements, email, or Blackboard. Midterm exams will be held during regular lecture sessions. Make-up exams are only allowed in exceptional circumstances; if you must miss an exam, contact the instructor *before* the scheduled exam.

Final Exam:
The final exam will be comprehensive, and a minimum score of 65% is required to pass the course. The final must be taken during the time scheduled for your lecture section, as per University policy. If you have a scheduling conflict (e.g., another exam at EPCC or three finals in one day), contact the instructor in advance to arrange accommodations.

Proctoring Software:
Exams may utilize test proctoring tools such as Respondus Lockdown Browser and Respondus Monitor within Blackboard to ensure academic integrity. Familiarize yourself with these programs before the first exam.

Office Hours:
Students are encouraged to attend office hours with the instructor or TA/IA team as scheduled.

Review Sessions:
Review sessions will be offered periodically to help prepare for exams and provide additional practice on course topics. These sessions, primarily led by the TA/IA team, will typically be conducted in English. In some cases, additional sessions may be offered in Spanish, though all

exams, assignments, and other course materials will be in English, and students are expected to submit their work in English.

Technology:
Course content will be delivered through Blackboard, with additional resources provided via Microsoft Teams and GitHub Classroom. Ensure your UTEP MINERS account is active and that you have reliable internet access. Supported web browsers include Edge, Chrome, Firefox, and Safari; if you encounter issues, try switching browsers.

You will need a computer or laptop with a webcam and microphone, as well as access to a tablet or smartphone for tasks such as scanning and submitting homework as PDFs. Certain assignments may require video submissions, which can be recorded using a phone, webcam, or other video-capable devices. Verify that your hardware and software are up-to-date and capable of accessing all course materials. For technical issues, contact the UTEP Help Desk.

Only UTEP-licensed platforms—Microsoft Teams, Microsoft Office (via your MINERS account), and Blackboard—may be used for course-related communication and collaboration. Unauthorized platforms such as Discord, Twitch, WhatsApp, or GroupMe are strictly prohibited. Laptops and tablets may be used for notetaking or coursework, but must not be used for unrelated activities such as browsing the internet or running non-course-related applications during class.

Cell Phone Policy:
The use of cell phones during class is strictly prohibited unless explicitly permitted for educational purposes. Phones must be silenced and put away to maintain focus and avoid distractions. Violations of this policy may result in being asked to leave the class.

Accommodations Policy:
UTEP 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 (CASS); please contact the office at (915) 747-5148, or by email to cass@utep.edu. Students are required to discuss their accommodations with the instructor for a proper plan to be made.

4. Standards of Conduct, Academic Dishonesty, and Other Information

COVID-19/Illness Precautions:
Please stay home if you have been diagnosed with COVID-19 or are experiencing COVID-19 symptoms. If you are feeling unwell, please let the instructor know as soon as possible, so that appropriate accommodations can be made. If you have tested positive for

COVID-19, you are encouraged to report your results to covidaction@utep.edu, so that the Dean of Students Office can provide you with support and help with communication with your professors. The Student Health Center is equipped to provide COVID 19 testing.

The Center for Disease Control and Prevention recommends that people in areas of substantial or high COVID-19 transmission wear face masks when indoors in groups of people. The best way that Miners can take care of Miners is to get the vaccine. If you still need the vaccine, it is widely available in the El Paso area. For more information about the current rates, testing, and vaccinations, please visit epstrong.org.

In general, if you are ill, please stay home.

Copyright Statement for Course Materials:
All materials used in this course are protected by copyright law. The course materials are only for the use of students currently enrolled in this course and only for the purpose of this course. It is not permitted to share, reproduce, or alter any assignment for any purpose. Students are not permitted from sharing code, uploading assignments online in any form, or viewing/receiving/modifying code written from anyone else. Assignments are part of an academic course at The University of Texas at El Paso and a grade will be assigned for the work produced individually by the student.

Class Recordings:
Course lectures may be recorded by the instructor/department. Students are not permitted to record the course (i.e., video, audio, etc.) without expressed permission from the instructor.

The use of recordings will enable you to have access to class lectures, group discussions, and so on in the event you miss a synchronous or in-person class meeting due to illness or other extenuating circumstance. Our use of such technology is governed by the Federal Educational Rights and Privacy Act (FERPA) and UTEP's acceptable-use policy. A recording of class sessions will be kept and stored by UTEP, in accordance with FERPA and UTEP policies. Your instructor will not share the recordings of your class activities outside of course participants, which include your fellow students, teaching assistants, or graduate assistants, and any guest faculty or community-based learning partners with whom we may engage during a class session. **You may not share recordings outside of this course.** Doing so may result in disciplinary action.

Support Services:
Technology Resources

- 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, email, chat, website, or in person if on campus.

Academic Resources

- 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.
- University Writing Center (UWC): Submit papers here 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.
- History Tutoring Center (HTC): Receive assistance with writing history papers, get help from a tutor and explore other history resources.
- RefWorks: A bibliographic citation tool; check out the RefWorks tutorial and Fact Sheet and Quick-Start Guide.

Individual Resources

- Military Student Success Center: Assists personnel in any branch of service to reach their educational goals.
- Center for Accommodations and Support Services: Assists students with ADA-related accommodations for coursework, housing, and internships.
- Counseling and Psychological Services: Provides a variety of counseling services including individual, couples, and group sessions as well as career and disability assessments.

UTEP provides a variety of student services and support. Please refer to the QR code below for a listing of campus resources.

Standards of Conduct:
You are expected to conduct yourself in a professional and courteous manner, as prescribed by the UTEP Standards of Conduct.

Generative AI:
Generative AI is widely being used throughout the world, however, in an effort to ensure that you fully understand the topics, ChatGPT/Gemini or other GenAI tools and services are generally prohibited. Certain assignments may note that Generative AI tools are allowed, only in these cases, where explicitly written will Generative AI be permitted. Use of GenAI on submissions that do not explicitly state that it is allowed is considered cheating and will be reported to OSCCR.

Etiquette:
Respect and courtesy must be always provided to classmates and to the instructor/TA/IA. Absolutely no harassment or any inappropriate behavior will be tolerated. This course is a space for learning and should be treated as such. When reacting to someone else's message, address the ideas, not the person. Blackboard is not a public internet venue; all postings to it should be considered private and confidential. Whatever is posted on in these online spaces is intended for classmates and professor only. Please do not copy documents and paste them to a publicly accessible website, blog, or other space. If students wish to do so, they have the ethical obligation to first request the permission of the writer(s). Disciplinary action will be taken against any inappropriate behavior in this course.

A fundamental principle for any educational institution, academic integrity is highly valued and seriously regarded at The University of Texas at El Paso. More specifically, students are expected to maintain absolute integrity and a high standard of individual honor in scholastic work undertaken at the University. At a minimum, you should complete any assignments, exams, and other scholastic endeavors with the utmost honesty, which requires you to:

- Acknowledge the contributions of other sources to your scholastic efforts.
- Complete your assignments independently unless expressly authorized to seek or obtain assistance in preparing them.
- Follow instructions for assignments and exams, and observe the standards of your academic discipline; and
- Avoid engaging in any form of academic dishonesty on behalf of yourself or another student.

Graded work, e.g., homework and tests, is to be completed independently and should be unmistakably your own work (or, in the case of group work, your team's work), although you may discuss your project with other students in a general way. You may not represent as your own work material that is transcribed or copied from another person, book, or any other source, e.g., a web page.

Any student who commits an act of scholastic dishonesty is subject to discipline. Scholastic dishonesty includes, but not limited to cheating, plagiarism, collusion, the submission for credit of any work or materials that are attributable to another person. The below information is not necessarily an exhaustive list of cheating, plagiarism, nor collusion.

- **Cheating**
  - Copying from the test paper of another student
  - Communicating with another student during a test
  - Giving or seeking aid from another student during a test
  - Possession and/or use of unauthorized materials during tests without authorization (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**
  - 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

- **Collusion**
  - Unauthorized collaboration with another person in preparing academic assignments

Collaboration:
The following are **not allowed**:
- Posting any assignment (or any of its parts) online in any form
- Sharing assignments outside of the course (i.e., to other students)
- Copy/pasting any code from anywhere other than from Instructor/TA/IA
  - This includes copy/pasting code snippets (or entire assignments) from online resources such as, but not limited to:
    - stackoverflow.com
    - Chegg
    - Course Hero
    - ChatGPT/Gemini
- Sharing your code with other students (unless otherwise specified).
- Reading code from other students (unless otherwise specified).
- Look at another student's code
- Debug another student's code

The following are **allowed**:
- Communicating with the instructor/TA/IA regarding homework, assignments, and labs
- Searching for basic syntax online
- Copy/pasting examples from any reference material (slides, practice problems, etc.) distributed by your instructor/TA/IA
- Use any small code snippets that instructor/TA/IA share with students.
- Using simple predefined libraries (ask the instructor/TA if you are not sure if it is allowed)

When in doubt, *ask*. It is better to ask if something is permitted, rather than doing something that is not permitted and causing issues later.

Plagiarism Detection:
All coursework and assignments are subject to be submitted to cheating and plagiarism detection software including, but not limited to SafeAssign and MOSS.

A full description of the University Standards of Conduct and Academic Dishonesty can be found in the Handbook of Operating Procedures. Professors are required to -- and will -- report academic dishonesty and any other violation of the Standards of Conduct to the Dean of Students and OSCCR.