

CS 1301 Introduction to Computer Science

Fall 2022 Syllabus

<p>CRN: 18414</p> <p>Time: TR 1:30 PM – 2:50 PM</p> <p>Location: CCSB G.0208</p> <p>Textbook: Revel Person ebook. Details will be shared in class.</p>	<p>Instructor: Monika Akbar (makbar@utep.edu)</p> <p>Office: CCSB 3.0422</p> <p style="text-align: center;"><u>Office Hours</u></p> <p>TR (in-person, in office): 3:00 - 3:30 PM</p> <p>Friday (virtual): 8:20 to 9:20 AM (MS Teams)</p> <p>Or, by appointment</p>
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Instructional Team:

Role	Name	Email	Office hours and location
Teaching Assistant (TA)	Alejandro Vargas Acosta	ravargasaco@miners.utep.edu	TBA
Instructional Assistant (IA)	Adilene Alaniz	aalaniz@miners.utep.edu	TBA
	Tyler Garrett	tylergarrett@google.com	TBA
	Mohammad Akidul Hoque	mhoque2@miners.utep.edu	TBA

Note: When emailing the instructor or TA/IA, please use [CS1301] in the subject.

Note: You should be enrolled in **one lab section**. **Your lab and class should have the same instructor**. Do not drop in on a lab or lecture section other than yours, without prior approval from your instructor.

Course Objectives: Students will learn to be active learners, understand the motivations for computing, basic concepts of algorithms, basic computer organization, and impacts of computing. They will develop problem-solving skills, implement solutions to computing problems in a high-level programming language, and build team skills, critical-thinking skills, and professionalism.

Prerequisite: MATH 1508 or MATH 1411 with a grade of C or better.

Knowledge and Abilities Required Before Entering the Course: Students entering the course are not required to have a background in Computer Science or programming. They should be familiar with topics from Pre-calculus, including algebraic functions, proofs, and base representations of numbers.

Course materials: All the course materials will be available through **Blackboard (Bb)**. Please check Bb regularly to stay updated with the class.

Hardware and Software: We will need the following two software:

1. Java Development Kit (JDK)
2. Any text editor, such as notepad, notepad++, Visual Studio Code.

*Instructions will be given in the labs and in Blackboard on how to install and use **JDK**.*

Additionally, you will need to have access to a computer/laptop (preferably with a webcam and a microphone). Check that your computer hardware and software are up-to-date and able to access all parts of the course. If you encounter technical difficulties of any kind, contact the [CS Tech](#).

Please talk to the instructor or the TA/IA anytime you have questions, concerns, or want to discuss anything. Reach out as often and as frequently as you need, so that we can help you succeed.

DETAILED 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 describe, at a high level:

1. The major advances in the history of computing
2. The relation between computing and society, including social, ethical, and legal issues
3. The importance of computing in a variety of professions: required knowledge and skill sets for major career options
4. Classes of programming languages, including:
 - a. Imperative,
 - b. Object oriented,
 - c. Declarative, and
 - d. Functional
5. The purpose of multi-dimensional arrays (dimension 3 and above)
6. The purpose of and relationship between classes and objects
7. The purpose of pre/post conditions, in particular as related to verification
8. Compilation and interpretation

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. Analyze problems, design and implement solution algorithms, including correct use of:
 - a. User-defined types and their implementation as classes
 - b. Basic string manipulation techniques using language functions, including:
 - i. Traversing strings,
 - ii. Accessing characters,
 - iii. Comparing strings,
 - iv. Concatenating strings
2. Algorithm-tracing techniques to ensure solution correctness including method calls
3. Use testing and debugging strategies to identify software faults by creating test suites that include:
 - a. Black-box test cases
 - b. Basic white-box test cases
4. Use general software engineering principles, including abstraction and problem decomposition in problem and solution analysis
5. Use informal pseudocode to describe algorithms
6. Use 2D arrays
7. Apply Binary arithmetic to solve problems. This includes:
 - a. Conversion between binary, decimal, and hexadecimal numbers,

- b. Application of arithmetic operations on binary and hexadecimal numbers
8. Use recursion for solving simple problems
9. Use linked lists

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 use the syntax and semantics of a high-level language to express solutions to programming problems, including the pseudocode correct use of:

1. Basic variable types including Booleans, integers, real numbers, characters, strings
2. 1-D arrays
3. Assignment and arithmetic
4. Logical propositions to define conditional and loop statements
5. For-loops
6. While-loops
7. Methods/functions, parameter passing, return values
8. Algorithmic building blocks including
 - a. Min
 - b. Max
 - c. Average
 - d. Summation
 - e. Linear search

GRADING

Grades are communicated to students in a timely manner. *It is the students' responsibility to keep track of their grades by compiling the grades they receive.* Your semester grade will be based on a combination of homework assignments, quizzes, class participation, 3 mid-term exams, CS engagement points, and a final exam.

The approximate percentages are as follows:

- 10% Homework
- 25% Quizzes
- 50% Exams (3 mid-term exams and 1 final exam)
- 12% Class participation (includes on-time lecture attendance, active participation in class, completion of any quizzes for attendance and survey purposes).
- 3% Student Engagement in Computer Science

The nominal percentage-score-to-letter-grade conversion for CS 1301 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

Note: You must earn a C or better in each of these two courses, CS1301 and CS1101, to continue to the next course in this sequence, which is CS2401.

EXPECTATIONS

Class Participation: Attendance at and participation in all lecture sessions are **mandatory** and critical factors of your success in this course. Students should be **on time** for all scheduled sessions

and **attend the entire session**. *Students should notify the instructor before missing a session if at all possible, and certainly right after if earlier was not possible.*

It is the student's responsibility to obtain the content covered during missed class(es). Participation points include completing post-lecture study materials (quiz, homework) that are administered as surveys to monitor students' overall progress and potential struggles.

Points lost due to an unexcused absence may not be made up. Any points lost due to an excused absence will need to be made up by arrangement with the instructor.

Quizzes: The purpose of each **quiz** is to ensure that you are staying current with the class content, weekly reading, and to verify that you have acquired the skills developed in class. Quizzes can be paper-based, or online on Blackboard, or other platform(s) as mentioned in the class. **There will be no make-up on missed quizzes.**

Homework: Reading and homework assignments will be announced in class and/or posted on Blackboard. If you miss a lecture session, it is your responsibility to find out what you missed. You should expect to spend **at least four hours per week outside of lecture on reading and homework (more hours are better)**. Most of your homework will be assigned on your online **Revel Pearson ebook**: completing the assigned activities on time will be crucial for your success in the class (since these activities prepare you for classwork) and to getting a good grade (since late completion will be penalized). Any homework due on the date of the absence will be considered late if not turned in as specified by the homework guidelines unless an exception is granted by the instructor.

Exams: There will be **three (3) midterm exams** and **one final exam**. All **four** exams together will weigh 50% of your overall final grade for CS1301. Because the exams contribute so heavily to your total grade, it is vital that you do well on them. If you have test-taking difficulties in general, or if you have difficulties with our tests in particular, please let me know as soon as possible and/or request appropriate accommodation from UTEP's Center for Accommodation and Students' Services (CASS, see below).

The purpose of the **midterm exams** is to allow you to demonstrate mastery of course concepts covered thus far during the semester. Mid-term exams will take place during the regular lecture session and are *tentatively* scheduled to be held around week 5, week 10, and week 14. Make-up exams will be given only in extremely unusual circumstances. **If you must miss an exam, please contact the instructor as soon as possible, preferably BEFORE the exam.**

The **final exam** will be comprehensive. You **must score 65% or better on the final exam** to pass this course. You must take the final exam during the time shown in the schedule for the lecture section that you attend. If you have a scheduling conflict (e.g., if you are taking a final at EPCC) or if you are scheduled for three final exams in one day, see your instructor in advance for accommodation.

Student Engagement in Computer Science: During the course of the semester, you must engage as a computer scientist in activities as shown below, in a way that you cumulate at least 3 points (towards your final grade). Possible activities (along with the number of points each yields) include (but are not limited to – check with Dr. Akbar if you'd like to do something that is not on the list):

- **1 point** for each of the following:
 - Write a summary of a CS webinar you attended (proof of attendance needs to be provided as well).
 - Attend two review sessions provided by your undergraduate TAs (known as IAs) or peer leaders before exams.
 - Participate in a Department's open house as a volunteer student.

- Design a video about a specific career in Computer Science.
- Other CS engagement opportunities will be announced in class.
- **2 points** for each of the following:
 - Be an active participant in a CS student organization/club (provide proof from faculty advisor).
 - Be an active undergraduate researcher in one of the Computer Science Research labs and present to the class your work.

Note: These points should be acquired **by the end of week 12** of the semester. **No submission will be accepted past this deadline.**

Drop Policy: You will not be dropped by the instructor in this course. However, if you feel that you are unable to complete the course successfully, please let me know and then contact the Registrar's Office to initiate the drop process. If you do not, you are at risk of receiving an "F" for the course.

Technology: Course content is shared via the Internet through the Blackboard learning management system (LMS), supplemented by Microsoft Teams. Ensure your UTEP MINERS account is working and that you have access to the Internet. You may use any of the primary Web browsers—Edge, Google Chrome, Firefox, Safari, etc. When having technical difficulties, try switching to another browser.

The use of laptops, cell phones, or tablets of any kind, will be necessary for this course (homework). It may be necessary to have a cell phone with a PDF Scanning App (Adobe Scanner, Notes (iPhone), CamScanner, etc.) to scan class/lab activities/assignments. You may use a tablet (iPad, Surface Pro, etc.) to handwrite certain homework assignments and submit as PDF documents.

Students should not use any electronic devices during the course meetings, other than those necessary. This includes, but is not limited to cell phones, or consoles of any kind. Students who wish to take notes using any electronic means should request permission from the course instructor prior to use.

You are not authorized to use any online services that is not licensed by UTEP, including, but not limited to Discord, Twitch, WhatsApp or GroupMe during the class. You should not use these services for communication, collaboration, or the like in any way with respect to this course. You are only permitted to use Microsoft Teams, Microsoft Office (Licensed through your Miners account), and Blackboard.

Netiquette: We will be using an online LMS to share course content and communicate to some extent. As we know, sometimes communication online can be challenging. It's possible to miscommunicate what we mean or to misunderstand what our classmates mean given the lack of body language and immediate feedback. Therefore, please keep these netiquette (network etiquette) guidelines in mind. Failure to observe them may result in disciplinary action.

- Always consider the audience. This is a college-level course; therefore, all communication should reflect polite consideration of other's ideas.
- Respect and courtesy must be provided to classmates and to the instructor at all times. No harassment or inappropriate postings will be tolerated.
- When reacting to someone else's message, address the **ideas**, not the person. Post only what anyone would comfortably state in a face-to-face situation.
- 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.

RESOURCES

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.

Help Desk: Please contact UTEP [Help Desk](#) if you are experiencing technological challenges (email, Blackboard, software, etc.), and submit a digital ticket for assistance. Contact the Helpdesk via phone, email, chat, website, or in-person if on campus.

Individual Resources

- [Military Student Success Center](#): Assists personnel in any branch of service.
- [Counseling and Psychological Services](#): Provides a variety of counseling services, including individual, couples, and group sessions as well as career and disability assessments.

Standards of Conduct

You are expected to conduct yourself in a professional and courteous manner, as prescribed by the UTEP [Standards of Conduct](#).

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.

Scholastic Dishonesty: Any student who commits an act of scholastic dishonesty is subject to discipline. Scholastic dishonesty includes, but not limited to cheating, plagiarism, collusion, submission for credit of any work or materials that are attributable to another person.

Cheating is:

- 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)
- Substituting for another person to take a test
- Falsifying research data, reports, academic work offered for credit
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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: https://www.utep.edu/student-affairs/osccr/_Files/docs/Avoiding-Plagiarism.pdf

Collusion is:

- Unauthorized collaboration with another person in preparing academic assignments

Collaboration: Collaboration among students is strongly encouraged. It is acceptable to:

- Talk with other students about approaches and ideas.
- Get ideas and additional information from the internet, books, etc.

However, it is **not acceptable** to:

- Share code with another student (if a piece of code is submitted by two or more students, both students are guilty of cheating, regardless of who wrote the original code).
- Use code acquired from an outside source (the internet, a friend, etc.)
- Look at another student's code
- Debug another student's code

Software to detect plagiarized programs are used; appropriate disciplinary actions will be taken as necessary. Communications with websites like Chegg and public or private forums to find solutions in full or in part will be considered as an act of scholastic dishonesty. Such activities will be reported to the Office of Student Conduct and Conflict Resolution (OSCCR) at UTEP.

All suspected violations of academic integrity at The University of Texas at El Paso must be reported to the [Office of Student Conduct and Conflict Resolution \(OSCCR\)](#) for possible disciplinary action. Students are expected to comply with the standards of conduct, to learn more about student conduct visit [HOOP: Student Conduct and Discipline](#).

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.

NOTE: When in doubt about any of the above, please contact your instructor to check if you are following the authorized procedure.

COVID-19 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 me know as soon as possible, so that we can work on appropriate accommodations. 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.

TENTATIVE TOPICS COVERED

Following is a list of tentative topics that will be covered in this course:

History of computing and introduction to problem solving, abstraction, algorithm and pseudo-code, variables, conditionals, repetitions, array, decomposition (method), testing, object, and linked list.