

**CS 1101**

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**Syllabus**

MTWRF 10:45am - 11:50am

**Summer 2022**

CCSB 1.0704

**Instructor:** Julio César Urenda CastañedaOffice: CCSB 2.0902 or virtually at [MS Teams: Office](#)

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**Lab Objectives:** Students will learn the foundations of algorithmic thinking and algorithm development and learn how to implement them in a variety of languages. They will also learn to be active learners. They will develop problem-solving skills and build team skills, critical-thinking skills, and professionalism.

**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 Precalculus, including algebraic functions, proofs, and base representations of numbers.

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

**Corequisites:** You should be enrolled in CS 1301 or have already passed it.

**Topics covered this semester:** The semester (8 weeks) will be structured in four phases:

- During the first phase, we will cover algorithms, abstraction, memory, and variables, including arrays. We will also go over conditionals and repetitions as they appear in our daily lives.
- In the second phase, we will introduce how conditionals and repetitions as loops can be used in algorithm design in Java, blending this with methods.
- During phase 3, we will introduce recursion and practice integrating the essential components presented in phases 1 and 2 with recursion.
- Finally, in our last phase, we will learn about user-data types and introduce the use of linked lists.

**Textbook:** *Introduction to Java Programming, Comprehensive Version 10th Edition* by Y. Daniel Liang. We will skip some sections, as announced in class. The textbook is required at all class meetings.

*Secondary Text: Introduction to programming in Java: an interdisciplinary approach* by Robert Sedgewick and Kevin Wayne. Both of these books are available at our library.

**Software:** Software used in this course is available on the desktop computers in the main computer lab and the two instructional labs on the first floor. Instructions will be given in the labs to use the course software on your home or laptop computer.

You choose to use your personal computer or UTEP's desktop to complete the labs assigned to you. However, it is essential that **you be able to show your work anytime we ask you for it in the lab**. For instance, we will not accept that "your work is on your laptop – or somewhere else – and you cannot produce it at the time we request it." To avoid such a situation, you could use Dropbox ([dropbox.com](https://dropbox.com), on which you get extra free space based on your utep.edu address) and make sure that you can access your work anywhere. Any option you pick, you need to be able to produce your job at any time in the lab for our review and grading. There will be no exception to this rule.

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

**Grading:** Grades are communicated to students promptly. 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 lab assignments, homework assignments, pop quizzes, in-lab assignments, and lab participation.

- 58% Lab assignments (between 8 and 10 per semester)
- 12% Homework
- 25% Pop quizzes and in-lab assignments
- 5% Lab participation (includes on-time attendance, participation in labs, quizzes for attendance, and survey purposes)

The nominal percentage-score-to-letter-grade conversion for CS 1101 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 is CS2401. To pass CS 1101, you need to:

- Earn a C or better overall
- AND have submitted all three comprehensive labs and obtained at least a C average on them
- AND out of the last five labs, submit at least three and obtain at least a C in each

### **Expectations:**

**Lab assignments** are designed to allow you to practice the topics that constitute the outcomes of this course. Lab assignments will be either:

- Regular lab assignments meant to provide practice on a couple of particular topics covered at that time of the semester (8 to 10 total); or
- Comprehensive lab assignments (3 total) meant to check the acquisition of a broader set of skills already addressed earlier in the semester in regular programming assignments.

Regular and comprehensive lab assignments will not weigh the same. Extensive labs will consider more and will usually require more time to complete. Also, please note that to pass this class, students need to obtain a C average on the three comprehensive labs. All lab assignments will include a part that has to be done without a computer: the description of the algorithms you designed to address the problems at hand. Such algorithms are not written in code. Students must understand early on that computer science is about creating ways to solve the issues and that these approaches (algorithms) most usually do not depend on any specific language. Deadlines for lab assignments will be specified in the description of each project. Projects turned in up to three days late will have scores reduced by 15% for each day of lateness. When assessing labs, TAs will spend 5 to 10 minutes with each student asking probing questions about the topics covered in the assignments: these questions will be asked regardless of whether you completed the work.

**Quizzes and in-class assignments:** The purpose of each quiz and in-class assignment is to ensure that you are staying current with the weekly assignments and to verify that you have acquired the skills developed in the lab so far. Individual checks on the homework where the TA asks students to explain their work will also count towards the quizzes and in-class assignments grade. There will be no make-up on missed quizzes, in-class assignments, or homework checks, so attendance is crucial.

**Homework:** Homework will be assigned weekly from the online textbook of the course. They will be the challenging activities of this book (as participation activities will be assigned as homework for CS1301) and assignments from other web-based sources. Completing homework on time is essential to staying on track with the work done in the lab. Homework will be assigned with plenty of time for students to complete it. To complete the assigned homework, lateness will be penalized by 5 points per day of lateness.

**Lab Participation:** Attendance at and participation in all lab sessions are critical factors of your success in this lab course. Students should be on time for all scheduled sessions and attend the entire session. Attendance

will be taken at every session and count towards your class participation grade. Students should notify the instructor before missing a session if possible and right after if earlier was not possible. The instructor will allow two unexcused absences per semester before having the option to deduct points from the final grade (5 issues per subsequent unexcused absence). Note that extreme lack may result in being dropped from the lab. The student's responsibility is to obtain the content covered during missed labs. Participation points also include completing post-labs online quizzes (when requested) that are administered as surveys to monitor students' progress and potential struggles.

*COVID-19 Accommodations:* Students are not permitted on campus when they have a positive COVID-19 test, exposure, or symptoms. If you are not permitted on campus, you should contact me as soon as possible so we can arrange necessary and appropriate accommodations. (classes with on-campus meetings) According to CDC guidelines, students who are considered high risk and those who live with individuals regarded as high risk may contact the Center for Accommodations and Support Services (CASS) to discuss temporary accommodations for on-campus courses and activities.

*ONLINE ETIQUETTE* As we know, sometimes, communication online can be challenging. We can miscommunicate or misunderstand what our classmates mean, given the lack of body language and immediate feedback. Therefore, please keep this 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 others' ideas.
- Respect and courtesy must be provided to classmates and the instructor. 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 should be considered private and confidential. What is posted in these online spaces is intended for classmates and professors? Please do not copy documents and paste them to a publicly accessible website, blog, or other space.
- Be reminded that some materials are subject to copyright, and violations are prosecuted, so be cautious about what you share!

### Detailed Learning Outcomes

**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 on a problem of familiar structure with minor changes in the details. Upon successful completion of this course, students will be able to:

- Analyze problems, design and implement solution algorithms, including correct use of:
- Simple I/O operations (reading from and printing to the terminal)
- User-defined types and their implementation as classes
- Basic string manipulation techniques using language functions, including:
  - Traversing strings,
  - Accessing characters,
  - Comparing strings,
  - Concatenating strings
- Algorithm-tracing techniques to ensure solution correctness, including method calls
- Use testing and debugging strategies to identify software faults by creating test suites that include:
  - Black-box test cases
  - Basic white-box test cases
- Use general software engineering principles, including abstraction and problem decomposition in problem and solution analysis

- Use informal pseudocode to describe algorithms
- Use 2D arrays
- Apply Binary arithmetic to solve problems. This includes:
  - Conversion between binary, decimal, and hexadecimal numbers,
  - Application of arithmetic operations on binary and hexadecimal numbers
- Use recursion for solving simple problems
- Use linked lists
- Instead of IDEs, command-lined line interface (terminal) to compile and execute programs.
- Use teamwork roles and strategies in the classroom

**Level 3 Outcomes:** 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 correct pseudocode use of:

- Basic variable types including Booleans, integers, real numbers, characters, strings,
- 1-D arrays
- Assignment and arithmetic
- Logical propositions to define conditional and loop statements
- For-loops
- While-loops
- Methods/functions, parameter passing, return values
- Algorithmic building blocks including:
  - Min
  - Max
  - Average
  - Summation
  - Linear search
- Coding and documentation standard

## Policies

*Academic dishonesty:* It is UTEP's policy, and mine, for all suspected cases or acts of academic dishonesty to be referred to the Office of Student Conduct and Conflict Resolution for investigation and appropriate disposition. See Section II.1.2.2 of the Handbook of Operating Procedures.

*Attendance:* I strongly encourage you to attend every class, though there is no particular grade penalty for absences. You are responsible for finding out any assignment that must be made up if you are absent. My goal is for class meetings and activities to complement, rather than echo, the textbook, and every class is worth attending.

*Courtesy:* We all have to show courtesy to each other and the class as a whole during class time. Please arrive to class on time (or let me know when you have to be late and why); do not engage in side conversations when one person (me or another student) is talking to the whole class; and do not engage in the phone, email, or text conversations during class.

*Disabilities:* If you have, or suspect you have, a disability and need an accommodation, you should contact the Center for Accommodations and Support Services (CASS) at 747-5148, [cass@utep.edu](mailto:cass@utep.edu), or Union East room 106. You are responsible for presenting to me any CASS accommodation letters and instructions.

*Exceptional circumstances:* If you anticipate the possibility of missing large portions of class time due to exceptional circumstances such as military standards/or training or childbirth, please let me know as soon as possible.

Concept Map:

