CS1101 Introduction to Computer Science – Lab

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.

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.

Logistics:

Lab sessions: MW either 7:30 a.m. -8:50 a.m. or 9 a.m. -10:20 a.m. in CCSB 1.0704

Instructor: Dr. Martine Ceberio – mceberio@utep.edu – office room: CCSB 3.0406

Office hours: T from noon to 1:30 p.m. + R from 10:30 a.m. to noon
+ by appointment & open-door policy

Textbook: *Programming in Java*, by Zybooks, available at zybooks.zyante.com. To subscribe to your textbook, please enter the following code:

UTEPCS1301CeberioSpring2018

Communication platform: This term we will be using Piazza for class discussion. The system is highly catered to getting you help fast and efficiently from classmates, the TA, and myself. Rather than emailing questions to the teaching staff, I encourage you to post your questions on Piazza. If you have any problems or feedback for the developers, email team@piazza.com.

Find our class page at: https://piazza.com/utep/spring2018/cs1101/home

Software: Software used in this course is available on the desktop computers in the main computer lab and in the two instructional labs on the first floor. To use the course software on your home or laptop computer, instructions will be given in the labs and available online on our piazza page.

Important rule about using your personal laptop computers:

It is your choice 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 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 situation you could for instance use Dropbox (dropbox.com on which you get extra free space based on your utep.edu address) and hence make sure that you can access your work from anywhere. Any option you pick, you need to be able to produce your work at any time in 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 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 lab assignments, homework assignments, pop quizzes and in-lab assignments, and lab participation.

The approximate percentages are as follows:

- 58% Lab assignments (between 13 and 16 per semester)
- 12% Homework: Challenge activities from the online textbook zybook
- 25% Pop quizzes and in-lab assignments
- 5% Lab participation (includes on-time attendance, participation in labs, any quizzes for attendance and survey purposes)

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 CS1301 and CS1101 to continue to the next course in this sequence, which is CS2401. In order to pass CS1101, you need to:

- Earn a C or better overall
- **AND** have submitted all 3 comprehensive labs and obtain at least a C average on them
- **AND** out of the last 5 labs, submit at least 3 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 very specific topics covered at that time of the semester (11 to 13 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. Comprehensive labs will weigh 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 3 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 as it is really important that students understand, early on, that computer science is about designing ways to solve problems and that these approaches (algorithms) most usually do not depend on any specific language.

Deadlines for lab assignments will be clearly specified in the description of each assignment. Assignments 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 students asking probing questions about the topics covered in the assignments: these questions will be asked regardless of whether you completed the assignment or not. This allows you flexibility, in case something happened and you were not able to complete an assignment, to make up for some points.

Homework: Homework will be assigned weekly from the online textbook of the course. They will be the challenge 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 lab. Homework will be assigned with plenty of time for students to complete it. Lateness to complete the assigned homework will be penalized by 5 points per day of lateness.

Quizzes and in-class assignments: The purpose of each quiz and in-class assignments is to ensure that you are staying current with the weekly assignments and to verify that you have acquired the skills developed in lab so far. Quizzes will usually be on-line quizzes on socrative.com. Individual checks on the homework where the TA asks a student to explain his or her 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.

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 will count towards your class participation grade.

Students should **notify the instructor prior to missing a session** if at all possible, and certainly 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 points per subsequent unexcused absence). Note that excessive absence may result in being dropped from the lab.

It is the **student's responsibility to obtain the content covered during missed labs**. Participation points also include completing post-labs online quizzes (when requested, if any) that are administered as surveys to monitor students' overall progress and potential struggles.

Resources

Special Accommodations: 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, 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. CASS' staff are the only individuals who can validate and if need be, authorize accommodations for students with disabilities.

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, and 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, 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: http://sa.utep.edu/osccr/wp-content/uploads/sites/8/2012/09/Avoiding-Plagiarism.pdf

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.

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. Computer representation of simple data types and operations, including operations with binary numbers
2. Technical aspects of computing, including memory, operating systems, editors, interpreters, compilers, debuggers, and virtual machine
3. Differences among programming languages
4. The purpose and use of exceptions
5. Pseudocode and implementation in a programming language of the use of Multi-D arrays
6. Pseudocode and implementation in a programming language of the use of Linked lists

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:

1.To analyze problems and express solution algorithms in pseudocode
2. To implement pseudocode algorithms in a high-level language, including the correct use of:
    a. Arithmetic and logical expressions
    b. Simple I/O operations
    c. User-defined subprograms, including recursive methods
    d. User-defined types
3. To use testing and debugging strategies, including black-box and white-box testing, test drivers, stubs and test suites, to identify software faults
4. Development of teamwork skills, including the use of teamwork roles.

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 higher-level language to express solutions to programming problems, including the correct use of:

1. Basic variable types such as integer, real number, character, string, 1-D array
2. Assignment, arithmetic, and logical operations
3. Basic control structures: if-then, for-loop, while-loop