

# CS 1401 Introduction to Computer Science

## Fall 2015 Syllabus

### *Sections:*

- Lecture session MW 9:00-10:20 p.m., in room COBA 326, instructor Martine Ceberio, final exam Wednesday, December 9, 10:00 a.m. - 12:45 p.m.
- Lecture session TR 9:00-10:20 a.m., in room Miners 300, instructor Kay Roy, final exam Tuesday, December 8, 10:00 a.m. - 12:45 p.m.
- Lecture session TR 1:30-2:50 p.m., in room CCSB 1.0704, instructor David Novick, final exam Thursday, December 10, 1:00 - 3:45 p.m.

You should be enrolled in one lab section. You must attend the lecture section and the lab section that you are enrolled in; do not drop in on another lab section without prior approval.

### *Instructor Contact Information:*

- Martine Ceberio, [mceberio@utep.edu](mailto:mceberio@utep.edu), CCSB 3.0406
- Kay Roy, [mkroy@utep.edu](mailto:mkroy@utep.edu)
- David Novick, [novick@utep.edu](mailto:novick@utep.edu), CCSB 3.0610

**Course Objectives:** Students in this first course for majors in Computer Science will learn to be active learners, to understand the motivations for computing, basic concepts of algorithms, basic computer organization, and impacts of computing, to develop problem-solving skills, to implement solutions to computing problems in a high-level programming language, and to 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 the Students Enter the Course:** Students entering the course are not required to have a background in Computer Science or programming. They should be familiar with running software applications and using a computer, and they should be familiar with topics from Pre-calculus, including algebraic functions, proofs, and base representations of numbers.

### **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 history of computing
2. the relation between computing and society, including main social, ethical, and legal issues
3. computing as a profession, from required knowledge and skills to major career options
4. computer representation of simple data types and operations, including operations with binary numbers
5. technical aspects of computing, including memory, operating systems, editors, interpreters, compilers, debuggers, and virtual machine
6. differences among programming languages
7. the purpose and use of exceptions

**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. use teamwork roles and methods 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 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

**Textbook:** Programming in Java, zybooks, available at [zybooks.zyante.com](http://zybooks.zyante.com). Your instructor will provide instructions on how to log into to the site for the text.

**Software:** Software used in this course will be available on the Windows computers in the main computer lab and in the two instructional labs on the first floor. For those who wish to use the course software on your home computer, instructions will be given in the labs.

**Assignments:** Reading and homework assignments will be handed out, announced in class and in labs, and/or posted on the class Web site, which is hosted on [piazza.com](http://piazza.com). Homework assignments are due by the beginning of the class on the due date. If you miss a class or lab session, it is your responsibility to find out what you missed. You should expect to spend at least ten hours per week outside of class and lab on reading and homework.

**Grading:** Your semester grade will be based on a combination of homework and lab assignments, weekly quizzes, lab attendance, exams, and a final exam. The approximate percentages are as follows:

- 30% lab assignments (approximately 12-13 lab assignments)
- 14% Class and lab participation
- 12% Quizzes and homework
- 3% Experiment participation or short research papers
- 21% Exams (3 exams)
- 20% Final exam

The nominal percentage-score-to-letter-grade conversion 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

You must earn a C or better to continue to the next course in this sequence.

**Lab Assignments:** Reading assignments are intended to prepare you for the class. Lab assignments are designed to allow you to practice using the concepts presented in lecture and in your reading. Lab assignments may include written problems, tutorial exercises, and programming problems. Assignments usually will be due at the start of your lab session. Assignments turned in up to three days late will have scores reduced by 20%. Assignments turned in more than three days late will not be graded.

Lab assignments must be done individually, unless otherwise instructed. For some lab assignments, you will be working with a partner on pair programming assignments (see below for more details).

Because the lab assignments are worth 30% of the final grade, failure to turn in lab assignments usually poses a significant risk of not the passing course.

Students can earn extra credit toward their lab assignment grade by either (a) completing extra “challenge” assignments or (b) by attending sessions of the course’s Problem-Solving Club.

**Attendance:** Attendance at and participation in all class and lab sessions are critical components of this course. Students should attempt to be on time for all scheduled sessions and attend the entire session. Students should notify the instructor prior to missing a session if at all possible. The instructor will allow two unexcused absences per semester before having the option to deduct points from the final grade. Any assignments due on the date of the absence will be considered late if not turned in as specified by the assignment guidelines unless an exception is granted by the instructor. 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. It is the student's responsibility to obtain the content covered during missed class(es).

**Laboratory Sessions:** You are required to sign up for and attend the lab section associated with this course, meeting two times a week for a total of 3 hours per week. Laboratory sessions are designed to give you guidance and assistance with projects. In a typical lab session, a Teaching Assistant will present additional material that will help you understand the concepts and complete your assignments successfully. They also will model professional techniques and work habits, and you should feel free to ask questions. Although you may discuss lab assignments in a general way with other students, if you (or you and your partner(s) for team projects) need help coding or testing your programming assignments you should consult the TA, a tutor (in the ACES lab), or the instructor, rather than other students. **Do not exchange programs or let other students look at your code, even “just so they can see how you did it.”**

Your TA will be grading lab assignments, and you should work closely with your TA to make sure you understand the assignment and any specific instructions clearly. Lab attendance is part of your grade and you should make arrangements with your TA (and your lab partner(s) on team projects) if you must miss a lab. To earn full credit for attendance, you must show up on time, stay for the entire session, and work only on your assignment. You will be working individually on lab projects most of the time, but some assignments require that you work with a lab partner or partners. For those projects, your participation and cooperation with your lab partner(s) will be a factor in your grade. You will be getting your lab grades from your TA.

**Research Participation:** During the course of the semester, you must participate as a subject in two Computer Science experiments or write two short (1-2 pages each) papers describing some aspect of the research going on within the Computer Science Department. The purpose of this requirement is to make you aware of the research going on within this department (or elsewhere) and/or to allow you to participate in an authentic research experience.

**Quizzes:** The purpose of each quiz is to ensure that you are staying current with the weekly reading assignments and video lectures and to verify that you have mastered the skills developed in class. Quizzes usually will be on-line take-home quizzes on socrative.com. There will be no make-up on missed quizzes.

**Midterm exams:** The purpose of the midterm exams is to allow you to demonstrate mastery of course concepts. Each exam will focus on the material from the previous four or five weeks. Exams will take place during the regular class session. There will be three exams, contributing 21% to the overall course grade. 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 come let me know as soon as possible. Exams are planned for the following dates (subject to change):

- Tuesday, September 22 or Wednesday, September 23, depending on your class section
- Tuesday, October 20 or Wednesday, October 21
- Tuesday, November 24 or Wednesday, November 25

Make-up exams will be given only in extremely unusual circumstances. If you must miss an exam, please meet with an instructor, BEFORE the exam if at all possible.

**Final Exam:** The final exam will be comprehensive and will count 20% toward your course grade. You must score 60% or better on the final exam to pass this course. If you are planning to take CS 2401 and cannot demonstrate your understanding of the concepts and skills needed for success in CS 2401, you cannot pass this course even if you have enough points to do so.

You must take the final exam during the time shown in the schedule for the class section that you are formally enrolled in. Do not simply "drop in" to the other section; there will not be a copy of the exam for you. This is University policy. 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 one of the instructors in advance.

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

Graded work (for example, homework or exams), is to be completed independently and should be unmistakably your own work (or, in the case of pair work, your pair's work). You may not represent as your own work material that is transcribed or copied from another person, book, or any other source, such as a web page. Professors are required to—and will—report academic dishonesty and any other violation of the Standards of Conduct to the Dean of Students.

**Use of Unauthorized Electronic Devices during Class Sessions:** Any use of unauthorized electronic devices that disrupts the learning environment (e.g., surfing the Web, listening to music, checking Facebook, Twittering, playing Angry Birds Rio, or playing online Scrabble while class is in session) will not be tolerated. Electronic devices should serve as tools for learning and are limited to course-related work only; any other use is considered inappropriate. Inappropriate use of electronic devices will be considered a disruption of the classroom and may be reported to the Dean's office. All unauthorized electronic devices should be silenced or shut off upon entering the classroom. In the event of an emergency or other urgent situation, the student should step outside of the classroom beyond hearing range or text silently. It is the student's responsibility to ensure that all electronic devices are managed within the guidelines. The instructor reserves the right to disallow use of any electronic equipment during class sessions.

**Disabilities:** If you feel that you may have a disability that requires accommodation, contact the Center for Accommodations and Support Services at 747-5184, go to Room 106E Union, or email [cass@utep.edu](mailto:cass@utep.edu).