

CS1190: Special Topics in Computing Problem Solving and Algorithms

Course Objectives. In this course, students will learn problem-solving approaches and hone their problem-solving skills on a variety of problems in a wide range of domains and articulating the risks and benefits of various solutions.

Logistics. This course will meet in room CCSB 1.0510 on:

- Wednesdays from 9 a.m. to 9:50 a.m.
- Fridays from 12 p.m. to 1:20 p.m.

From August 28, 2017 until October 6, 2017.

There will be no textbook.

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/fall2017/cs1190/home>.

Grading. Grades are turned in 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 attendance with active class participation, presentations, homework assignments, one midterm exam, and one final exam. The approximate percentages are as follows:

- 10% Attendance and Active participation in class
- 35% Homework assignments
- 20% Presentations
- 15% Exam 1
- 20% Exam 2

The nominal percentage-score-to-letter-grade conversion for CS 1190 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

Expectations:

Class Participation: Attendance at and participation in all lecture sessions are critical factors of your success in this 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 attendance 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).

It is the student's responsibility to obtain the content covered during missed class(es) and be up to date with the homework given in the missed class(es).

Homework: Homework assignments will be announced in class and/or posted on piazza (under the Homework section of Resources). 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 homework.

Presentations: Students will be asked to present their class work and homework in class on a regular and frequent basis. Each presentation will turn into a grade. The average of these grades will contribute to the student's overall final grade.

Exams: There will be 1 midterm exam and 1 final exam. These 2 exams together weigh 35% of your overall final grade for CS1190. If you have test-taking difficulties in general, or if you have difficulties with our tests in particular, please come and let me know as soon as possible and/or request appropriate accommodation from UTEP's Center for Accommodation and Students' Services.

The purpose of the midterm exam is to allow you to demonstrate mastery of course concepts covered thus far during the semester. The final exam will be comprehensive. Both exams will be given during the regularly scheduled lecture sessions: on September 13 and on October 6, 2017. Make-up exams will be given only in extremely unusual circumstances. If you must miss an exam, please meet with your instructor, BEFORE the exam.

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, 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. The material has been presented only at a superficial level. Upon successful completion of this course, students will be able to:

- 1.1 Describe two problem-solving approaches.
- 1.2 Describe the difference between clarifying and probing questions.

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:

- 2.1 Apply the IDEAL and 7-step problem-solving approaches to familiar problems.
- 2.2 Evaluate information or situations.
- 2.3 Break down a problem into its key components.
- 2.4 Assess the benefits and risks of given solutions.
- 2.5 Contribute to brainstorming activities in which needed resources are identified to solve a given problem.
- 2.6 Ask clarifying and probing questions to improve understanding of a problem.
- 2.7 Rephrase a problem description to demonstrate understanding.
- 2.8 Reflect on one's own process to identify possible improvements.

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. Upon successful completion of this course, students will be able to:

- 3.1 Refine a problem description by asking relevant clarifying and probing questions.
- 3.2 Identify resources (e.g., data and expertise) that are necessary to attack the problem.
- 3.3 Examine different perspectives to solving a problem.
- 3.4 Articulate and defend the solution to a problem over other options.

In summary, students who complete the course will have the follows capabilities:

[Applying] Articulate an approach for problem solving.

[Asking] Ask both clarifying and meaningful probing questions.

[Identifying] Identify the resources needed to solve given problems.

[Presenting/Modeling] Succinctly and unambiguously define the problem to be solved (e.g., by using modeling techniques, problem decomposition techniques).

[Expanding] Apply techniques or tools for extending considerations related to the problem (e.g., domains should not be assumed). They will be able to challenge assumptions about the problem at hand by examining different perspectives.