Background Required

The course may use a bit more math. than you are used to for a computer science class. Important prerequisites are CIS 101 and CE 16 or an equivalent math course. The course does not have enough time to review all the topics covered in these courses. It is your responsibility of review the material from these courses: basic proof techniques such as proofs by contradiction and induction, $O(.)$ notation.

Course Description

The aim of this course is to give you a solid grounding in the design of algorithms, analysis of their efficiency in the use of resources, and proofs of their correctness. Some of the techniques we will use are induction, recurrence relations, counting techniques, adversary arguments, and probability theory. We will discuss algorithm design techniques such as Divide and Conquer, Dynamic Programming and Greedy Heuristics. We may also cover Network Flow or NP-completeness.

Evaluation Criteria (tentative)

- Homeworks: 25%. There will be 8 written homeworks. Homeworks are always due at the beginning of a class (to be turned in physically). We encourage you to typeset your homeworks (LaTeX is best).

  We might not be able to grade all homeworks. In that case the whole grade will be based on a subset of the assignments of our choosing.

- Midterm: 35%. There will be one midterm during one class period in the middle of the quarter.

- Final: 40%. The final exam will be comprehensive.

If you miss an exam or an homework, an alternative will be provided only on medical grounds. You will need to show a letter from your doctor stating that you could not take the exam or have enough time to do the homework due to ill health. I need to be notified about your illness before the exam actually held. In order to pass the course, you must pass the final and have an overall passing score.

Students should bring a picture identification with them to all examinations and be prepared to show it upon request.
Communication

Our main mode of communication will be via the class web page. Occasionally I will prompt you via Piazza. Joseph will monitor and moderate the Piazza conversations.

Academic Honesty

Students are expected to do the homeworks on their own and not in groups. Similar problems will be covered in sections and you are encouraged to study together for exams.

Students will be expected to adhere to the highest standards of academic integrity. This means that plagiarism in any form is unacceptable. The work done must be solely that of the student. This refers to examinations and homeworks. Should a student be found guilty of cheating, the student will obtain a zero score for that assignment and a letter will be sent to the student’s academic preceptor. The instructor reserves the right to stronger action, to the extreme of giving the student an NP grade for the entire course, should the situation warrant it.

Grading

If you have problems with grading, them please immediately talk to Ankit. If you can’t resolve things then please talk to the instructor. All grading problems have to be resolved by one week after the homeworks/midterm is returned.

Sections and reading groups

We will have five sections per week. You need to atten at least one of them. Also we strongly encourage you to form reading groups of going over the class notes and book. These groups should however not be misused for solving the homeworks problems together. However we strongly encourage you to study together for the tests.

Sorry - No incompletes for a class of this size ! No cell phone usage during class and during the tests !