CS 581: Introduction to the Theory of Computation

Lecture 1

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Welcome!

Contact Information

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- Office hours: Monday's 4 - 6pm (downtown) (no office hours on 4/4 or 4/11)

Assumptions:

1. Students have been exposed to the concepts of
   1. regular expressions,
   2. context free grammars, and
   3. programming in a general purpose language.
2. They have applied these concepts to solve problems such as lexical analysis, parsing, and code generation.
3. Students are familiar with discrete mathematics, including sets, sequences, induction and elementary graph theory.

Course Objectives

Introduce students to the classic results in theoretical computer science that classify problems according to the machines that can solve them and the resources required by those machines. This includes basic results relating to computable functions, decidability, and complexity theory.

Master basic proof techniques used in these results including induction, diagonalization, and reduction.

Illuminate the relationship between logic and computation.

Collaboration Policy

Unless explicitly instructed otherwise, please hand in solutions that you prepared individually without directly consulting other sources or notes.

Never represent the work of others as your own work.

Collaboration Policy (cont)

You may meet with other students to discuss homework problems, but please discard all notes from these sessions.

- Do not consult notes from discussions with other students or other solutions when preparing your solution.
- Do not provide other students with access to your solution.

Collaboration Policy (cont)

- If you require resources other than the book to solve a problem please identify those resources with proper citations (but, as for collaborations, set the source aside and do not consult it directly when preparing your solution).
- When selecting other resources, give priority to original sources, texts, and lecture notes.
- Do not consult sample solutions specific to the problems assigned.

Collaboration Policy (cont)

- No exam problems are to be discussed until all students have handed in their exams.
- Students are responsible to keep their exam answers to themselves. Allowing a solution to be copied is as serious a breach of academic integrity as copying.

Academic Integrity

- Violations of academic integrity will be taken seriously
- There will be an in-class penalty
- I will invoke the appropriate university mechanism

Exams

- There will be two exams:
  - Mid-term, May 3, 2005, in-class
  - Final, June 7, 3:30 -- 5:20pm, in-class, comprehensive