

CSC460 Theory of Computation

Today

- Understand the course learning goals
- Understand the course organization
 - Syllabus
 - On-line resources
- Identify the first things to do

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Intro example 1

This Course

- Theme: Apply the Theory of Computation
 - **Application**: Your computational needs
 - **Theory**: A small number of principles
- Approach: Problems, Transform, Compute, Discuss, and Evaluate
 - Emphasis on **discussion** during class
 - Take-home **exercise** after every class
 - No memorization; no exams

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Initial survey: General, Technical 2

Section 1

Course Learning Goals

- Content goals
 - Understand ... (*ideas*)
- Performance goals
 - Being able to do ... (*actions*)

might appear complicated initially...

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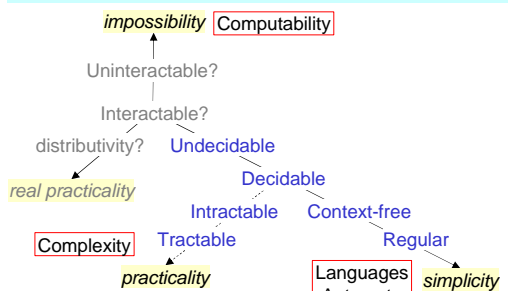
Content Goals: **Understand**

1. Problem
2. Theory
3. Interactive computation
4. Computability
5. Formal languages and automata
6. Complexity
7. Power set

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Preview: Theory of Computation



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Performance Goals: **Do**

1. Awareness
2. Transformation
3. Analysis/evaluation
4. Critical attitude
5. Communication
6. Initiative
7. Reflection

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Course Organization

- Syllabus
- On-line resources
 - Course web pages
 - Instructor's page for students
 - SOCS: E-mail, discussion, grades
- Textbook
- Schedule, Course modules

Alignment of goals - assessment - activities

Course Modules

- A. Problems, Theory, Computability (1)
- B. Computability (2)
- C. Formal Languages and Automata
- D. Complexity

Each module: Roughly a quarter of the semester
(6-7 class meetings)

Assessment

- Module evaluation materials (portfolio)
 1. Evaluation form
 2. Support notes (word-processed)
 3. Take-home exercises (and in-class notes)
 4. Materials completed during Evaluation Workshop

Carry these materials to class

Work: Collaborate
Assessment: **Individual**

Class Meetings

- Clarification of the learning goals, etc.
- Survey (occasionally)
- Presentation of examples, cases, etc.
- Discussion of ideas, principles, etc.
- Class and group discussions
- Practice using the evaluation form
- Explanation of the take-home exercises
- Evaluation workshop

Current Plan and Flexibility

- The current plan based on my experience
 - Observed some positive aspects in other courses
- This class: A small number of presumably motivated students
 - Can modify the plan fairly flexibly
 - Your suggestions on course organization welcome

Self-Introduction

- Name
- How you want to be called
- Why you are here (i.e., taking this course or was at least interested in this course)

First Things to Do

By the next class meeting on Friday

- Exercise 00 [all exercises to be put on-line]
 - Part 1 (essay): Your own problem(s) that can be solved computationally **Class discussion next time**
 - Part 2: Course Preview
 - Read and *understand* the syllabus
 - Read Module A Evaluation Form
 - Visit the course page [try most links]
 - Read the instructor's *page for students*
 - Set SOCS discussion **e-mail notification**