Comp 481

Automata, Formal Languages, and Computability
Comp 481 Web Page

Instructor

Professor Ron Goldman

DH-3116

rng@rice.edu

Tuesday, Thursday 1:00-2:00PM (or by appointment)
Yun Yu
yy@rice.edu
Wednesday 2:00-3:00PM (or by appointment)
Friday, 11:00AM -- Noon (or by appointment)

Angela Zhu
yz2@rice.edu
Monday, Wednesday 1:00 -- 2:00PM (or by appointment)
Text and Syllabus

Text

• *Automata, Computability, and Complexity: Theory and Applications* -- Elaine Rich

Syllabus

• Chapters -- 5-14, 17-21, 23, 25-28

• May Skip Some Sections

• Will Begin in Chapter 5 -- Finite State Machines

• Pace ≈ 10-20 Pages/Lecture
Topics

I. *Finite State Automata and Regular Languages*
   - Chapter 5-10 ≈ 7 Lectures

II. *Push Down Automata and Context Free Languages*
   - Chapter 11-14 ≈ 7 Lectures

III. *Turing Machines and Undecidability*
    - Chapters 17-26 ≈ 7 Lectures

IV. *Complexity*
   - Chapters 27, 28 ≈ 7 Lectures
Prerequisites

1. Chapter 2
   - Languages and Strings

2. Appendix A
   - Sets, Logic, Relations, Functions, Closures

SKIM THESE CHAPTERS BEFORE THURSDAY’S LECTURE
Lectures

• Posted on Comp 481 web page BEFORE each class
  -- Unless Attendance < 90%

• Questions about Lectures and Text should be directed to Professor Goldman
**Homework**

**Weekly**
- Due each Thursday at **START** of Lecture
- 5 Exercises per Week from Textbook (Rich)
- Solutions Sets -- After Homework is Collected

**Grading**
- 33% of Final Grade $\approx$ 3% per Week
- Must Work Alone, NOT in Study Groups (Honor System)
- Googling for Solutions is NOT Allowed
- Can Seek Help **Only** from Labbies
Rules for Handing in Homework

Exercises

• One Problem per Page
• Type or Ink -- Pencil Forbidden
• Write Large

VIOLATORS WILL RECEIVE ZERO CREDIT
Exams

Quantity

• 2 Exams
• Each Exam = 33% of Final Grade
• More than Half (and Probably ALL) the Questions are Exercises from the Text and from the Homework

Format

• Timed Take Home
• Closed Book and Closed Notes
  -- One Page of Formulas, Handed in with Exam
• Must Work Alone (Honor System)
Grading

Exams
• 2 Exams -- Each Exam is 33% of Final Grade

Homework
• Weekly Assignment = 33% of Final Grade ≈ 3% per Week

Attendance -- Mandatory
-- Minus One Point on Your FINAL GRADE for Each UNEXCUSED Absence
-- Will NOT Post Class Notes for Any Class Where Attendance < 90%
Late Policy

Slip Days

• Each Student gets 4 Slip Days during the Semester.

• If you are ill or have another reasonable excuse, you do NOT need to take a Slip Day.

• Slip Days may be used Only for Weekly Exercises, NOT for Exams.

• Once your 4 Slip Days are used up, any work you hand in late will receive ZERO Credit.
How to Study

1. Read the Text BEFORE Each Lecture

2. Solve Problems, Solve Problems, Solve Problems

3. Do Unassigned Exercises in the Text Every Week
   -- Do NOT Wait Till Exam Week -- Too Many Problems
   -- Do NOT Attempt All the Exercises -- Too Many

3. Spend Time ≈ 10 Hours/Week
   -- 2.5 Hours ≈ Lecture
   -- 2.5 Hours ≈ Reading the Text
   -- 5 Hours ≈ Exercises
How to Get Help

Lectures and Text

• Professor Goldman -- Office Hours

Homework

• Yun Yu -- Office Hours

• Angela Zhu -- Office Hours
Definition of a C Student
Definition of a C Student

A Student who Does Only the Assigned Work