Registration Details

CRN 65316
CS 581      Theory of Computation (3 cr)
Tuesday     16:00-18:30
Willow Creek Campus, room 313

Offered at Willow Creek Center
241 SW Edgeway Drive
Beaverton, OR 97006.

Near SW 185th and Baseline Road.
50 yards from the MAX Blue Line Willow Creek Station
Contact Details:

• Tim Sheard:
  – Office: Fourth Ave Building (FAB) 120-04
  – Telephone: (503) 725-2410
  – Email: sheard@cs.pdx.edu
Teaching assistant:

- Yu Yang
- Email yyang@pdx.edu
- Office hours: TBA

• Further arrangements to be made as the class progresses.
Exams

• Midterm:
  – April 30, 2013

• Final:
  – Tuesday June 11, 2013
  – Final Exam period 15:30 -> 17:20
    • (3:30 PM -> 5:20 PM)

• The University scheduled final exam period is not the same as normal class hours!
Methods of assessment:

<table>
<thead>
<tr>
<th>Assessment Type</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class worksheets</td>
<td>15%</td>
</tr>
<tr>
<td>Start in class, turn in by Thursday midnight</td>
<td></td>
</tr>
<tr>
<td>Homework (8 weekly homeworks)</td>
<td>40%</td>
</tr>
<tr>
<td>Midterm (April 30, 2013)</td>
<td>15%</td>
</tr>
<tr>
<td>Final exam (June 11, 2013)</td>
<td>30%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>100%</td>
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Policies:

• By default, all deadlines are firm.

• We will be as flexible as possible in accommodating special circumstances; but advance notice will make this a lot easier.
Academic Integrity

• We follow the standard PSU guidelines for academic integrity. Students are expected to be honest in their academic dealings. Dishonesty is dealt with severely.

• Examinations. Notes and such, only as the instructor allows.

• Homework.
  – Discussion is good;
  – Items turned in should be your own individual work. You are encouraged to talk to other people about the homework problems, but you must write up your answers independently. If you're stuck with a problem, please ask for help.
Course Text:

*Introduction to the Theory of Computation*

(2nd edition)

*Michael Sipser*


Home page of the text book:

*http://www-math.mit.edu/~sipser/book.html*
It looks like this!
Topics covered

- **Mathematical Preliminaries**
- **Finite State Automata**
- **Non-deterministic Finite State Automata**
- Regular Expressions
- Equivalence of RE DFA NFA
- Regular Language Pumping Lemma
- Context Free Grammars (CFG)
- Push Down Automata (PDA)
- CF pumping Lemma
- Turing Machines
- Church-Turing Thesis
- Decideability
- The Halting Problem
- Diagonalization
- Reducability
- Mapping Reducability
- The recursion Theorem
- Decideability
- Information Theory
- Complexity
- P and NP
- NP Completeness