COT 5310 – Fall 2001 – Calendar - v7 - 2001/11/25

This schedule is a tentative outline for Fall 2001, and is subject to change.
Chapters and sections refer to: JH Hopcroft & Ullmann, Introduction to Automata Theory, Languages etc (1st edition)

Part 1 – Chapters 2-6, mostly review. Finite automata, Regular Sets Grammars, Context-Free Languages, Ambiguity.

- **Week 1**
  Tue 28 Aug: Class organization, overview of main points –
  Models based on Set Theory; Solvability, Simulation; Unsolvability, Diagonalization; Comparison, Reduction; Hierarchies of languages.
  Thu 30 Aug: Set theoretical basis –
  Mappings, one-to-one correspondence, Diagonalization, Countability, Uncountability.

- **Week 2**
  Tue 04 Sept: DFA and NFA, equivalence (2.1-2.3)
  Expect Homework assignment H1 on automata.
  Thu 06 Sept: The Pumping Lemma, applications (3.4)

- **Week 3**
  Tue 11 Sept: 2-way FA
  Collect and review homework assignment H1 – !!POSTPONED!!
  Expect homework assignment H2 on CFLs
  Thu 13 Sept: Types of Grammars, CFLs, Ambiguity, Pumping Lemma for CFLs

- **Week 4**
  Tue 18 Sept: Existence of inherently ambiguous Languages
  Collect and review homework assignment H1 – !!NEW DATE!!
  Tue 18 Sept: Existence of inherently ambiguous Languages
  Thu 20 Sept: Collect and review homework assignment H2 on CFLs – !!POSTPONED!!

- **Week 5**
  Tue 25 Sept: Revision
  Thu 27 Sept: Midterm 1 !!POSTPONED!!
  Revision

- **Week 6**
  Tue 02 Oct: Midterm 1 !!NEW DATE!! (Burmester in Switzerland/Germany)
  Collect Homework Assignment H2– !!NEW DATE!!
  Thu 04 Oct: Review Homework assignment H2 on CFLs, and midterm (by TA)
Part 2 – Chapters 7-8. Reduction Arguments, Decidability and Undecidability, RE and non-RE sets

- **Week 7**
  Tue 09 Oct: Turing Machines (7.1-7.8)
  Thu 11 Oct: Closure properties of Recursive and RE sets (8.1-8.2)

- **Week 8**
  Tue 16 Oct: Universal TMs, Undecidability (8.3)
  Expect Homework Assignment H3 on TMs
  Thu 18 Oct: Non-RE sets (8.4)

- **Week 9**
  Tue 23 Oct: Post’s correspondence Problem (8.5)
  Collect assignment and review Homework assignment H3 (those with midterms get till 10/30 to hand it in)
  Expect homework assignment H4 on decidability
  Thu 25 Oct: Undecidability properties of CFLs, Ambiguity (8.6-8.7)

- **Week 10**
  Tue 30 Oct: Recursive Function Theory and Oracle Computations (8.8-8.9)
  Collect and review Homework assignment H4 on decidability –Postponed to Thu 01 Nov.
  Thu 01 Nov: Revision: PDAs nd CFLs (Chapter 5)

- **Week 11**
  Tue 06 Nov: Revision
  Thu 08 Nov: Midterm Exam M2 – Postponed to Thu 15 Nov.

Part 3 – Chapters 9-13. Chomsky Hierarchy, Intractability

- **Week 12**
  Tue 13 Nov: Chomsky Hierarchy (9.1-9.2) (Postponed)
  Thu 15 Nov: Chomsky Hierarchy (9.3-9.4) (Postponed)

- **Week 13**
  Tue 20 Nov: Intractable Problems (13.3-13.4)
  Thu 22 Nov: Thanksgiving Day

- **Week 14**
  Tue 27 Nov: Intractable Problems
  Expect homework assignment H5 on Intractability
  Thu 29 Nov: Intractable Problems

- **Week 15**
  Tue 04 Dec: Intractable Problems
  Review homework assignment H5
  Thu 06 Dec: Chomsky Hierarchy

- **Week 16**
  Tue 11 Dec: Final Exam week
  Monday 10 Dec, 7:30-9:30 am: Final Exam