Computer Science 254
Spring 2000

Instructor: Professor R. Alperin, Duncan Hall 239, Telephone: 924-5066, Office hours: 2:45-4:00 M, 11:00-12:15 W, 6:45-8:00 MW or by appointment, http://www.mathcs.sjsu.edu/faculty/alperin

Text: *Introduction to the Theory of Computation* by Michael Sipser, PWS Publishing

Course: Theory of Computation

The prerequisite is CS 154 with a grade of B or better.

The main goal of this class is to introduce students to the theoretical foundations of computer science, specifically the Chomsky hierarchy of formal languages, Turing machines, the Church-Turing thesis, and the various complexity classes. We shall discuss the relations between P and NP. A project report describing (`with proofs`) an NP-complete problem will be assigned.

Your final grade is based on a point total on tests (50%), homework (25%) and your written/oral project report (25%). Students must prepare a notebook of homework assignments which will be collected regularly.

Content:

•Chapter 1: Regular Languages (review) (1)
•Chapter 2: Context-Free Languages (review) (1)
•Chapter 3: Church-Turing Thesis (review) (2)
•Chapter 4: Decidability (review) (2)
•Chapter 5: Reducibility (review) (3)
•Chapter 6: Advanced Topics in Computability Theory (4)
MIDTERM
•Chapter 7: Time Complexity (7)
•Chapter 8: Space Complexity (6)
•Chapter 9: Intractability (4)
•Chapter 10: Advanced Topics in Complexity Theory (ATP)
COMPREHENSIVE FINAL