STANFORD UNIVERSITY

DEPARTMENT OF COMPUTER SCIENCE

CS 99E – Great Ideas in Computer Science

Instructor: RAJEEV MOTWANI AND PRABHAKAR RAGHAVAN
Schedule: Friday 1:15-3:15 pm, Gates 498.

Course URL: http://theory.stanford.edu/people/rajeev/cs99e.html

Course Outline In this course, we explore questions exploring both the power and the limitations of computers, and concrete strategies for solving problems using computers.

- What can a computer do?
- What can a computer do efficiently?
- Why are programs hard to test?
- How can we make computers appear clairvoyant?
- How do you keep secrets in computers?
- Why should computers flip coins?
- When is it a good idea to be greedy?
- Should tables be sorted?

The answers to these questions involve great ideas whose impact range from the philosophical foundations of computation to concrete applications in everyday life. While many of these ideas are mathematical at their heart, we will expose these ideas at a purely intuitive level, without recourse to grungy mathematics.

Prerequisites: Mathematical maturity (e.g., AP math) and exposure to computer programming is desirable.

Registration: This is a freshman seminar with limited enrolment. All students must go through the Stanford Introductory Seminars Office to sign up for this course.