College of Computer Science
Northeastern University
COM 1721: Freshman Honors Seminar

Fall 2002
Handout 1
24 September 2002

A Random Walk Through Computing

Class Meeting Times/Location. 149 CN, Tuesdays 5:20–6:25 PM.

Instructor. Rajmohan Rajaraman; Email: (`rraj@ccs.neu.edu`); Phone: 617–373–2075; Office: 113 Cullinane Hall.

Office Hours. W 12:00–1:00.

Course Home Page. `http://www.ccs.neu.edu/home/rraj/Courses/172x/F02/`.

Prerequisites. Enrollment in the honors program or permission of the instructor.

Course Description. The goal of this year-long course is to give the best first year students an opportunity to explore a variety of topics in computer science. This academic year, we will consider a potpourri of important concepts in computing including abstraction, modularity, presentation, randomization, recursion, refinement, representation, and self-reference. Selected topics that we will cover during this random walk include self-reproducing programs, privacy in communication, relational databases, basic processor design, multimedia data representations (MPEG), structural properties of the World Wide Web, program verification, artificial intelligence, bioinformatics, and quantum computing.

Tentative Course Schedule.

Week #	Topic
1	Administrivia & introduction: Dictionary search
2	Importance of representation: Listing anagrams
3	The Web as a graph
4-5	More representation examples
6	Recursion & induction: Fibonacci numbers
7	A top-down approach: golden ratio
8	A bottom-up approach: memoization
9	Self-reproducing programs
10	Undecidability of the Halting Problem
11	Infinity & beyond

Readings. There is no required textbook for this course. Handouts and web links will be provided as reading assignments. All web readings will be available through the course webpage.

Homeworks, Quizzes, and Grading. In this quarter, we will have 4 or 5 in-class quizzes (10 minutes) and reading and written homework assignments. There will be no exams or projects. The grade for this quarter will be based on quizzes (total 50%), homeworks and class participation (together 50%).