

Lecture 1: Introduction

Administrative Matters

Access to the Zoo. Description of the Zoo and its location. How to sign up for a course account on the Zoo. How to sign up for ID validation for after-hours and weekend access to AKW and the Zoo.

Introductory Computer Science Courses. Brief descriptions of Computer Science 110, 112, 150, 155, 180, 201, and 202.

Prerequisites. The course assumes programming ability at least at the level of successful completion of Computer Science 112, a First Course in Programming. An AP computer science course in high school is generally sufficient preparation. The particular computer language used is not important, but the student should have sufficient proficiency in whatever language he or she knows best to write a 100-line program from a reasonable specification in a few hours of work with little or no outside assistance.

Syllabus. Location of the course web page. Brief description of text books, assignments, midterms, no final, lateness penalty, and grading. Policy on working together: the “Gilligan’s Island” rule. A lecture-by-lecture schedule of the course as taught in Fall 2001 is available on line from the web page.

What is Computer Science?

One of the purposes of this course is to answer this question in sufficient detail that you gain a well-grounded general overview of the field. The programming language used in the course is Scheme, a dialect of Lisp. It is a small and powerful language; you will rapidly learn enough of it to write programs to make concrete many of the ideas we will be covering in lecture. Much of your learning will take place in bringing these ideas to life as Scheme programs. You will also learn new programming paradigms, algorithms and techniques.

Computer Science as a discipline is quite new: Purdue started the first academic department of computer science in 1962, and Yale’s department dates from 1970. By contrast, disciplines like mathematics, music, history, medicine, and law are arguably thousands of years old. Computers and ideas from computer science have had a profound impact on every academic discipline, and will continue to do so.

Part of the impact is the speed and memory capacity of computers, and the communication networks made possible by computers. For example, the successful effort to sequence the human genome and make it available for research would have been unthinkable without the computational power of modern computers and networks. Another less obvious impact is in the system of concepts, the world-view, of computing. It now seems to us natural to think of a person’s DNA as data that is being processed by billions upon billions of tiny molecular machines into the proteins that carry out the myriad processes of life. But this world-view would have been deeply alien to people just 100 years ago.