Lecture 1. Introduction

• What is ‘computer science?’
  1. The science of manipulating ‘information’
  2. Designing and building systems that do (1);
     e.g., computers, software, networks, …

• What does COS 126 cover?
  Science (the elegant ideas):
    algorithms and algorithm design (recursion, efficiency, data structures)
    theory of computation (what is computable, intrinsically ‘hard’ problems)
  Engineering (the nuts and bolts):
    programming (the C programming language, machine language)
    basic computer architecture (instruction sets)
    software systems (operating systems, virtual memory, compilers)

• A better name for ‘Computer Science’ might be ‘Computing’
  “Any field that calls itself a science probably isn’t one.” — anonymous?
What You’ll Learn

• Just enough to make you dangerous…

• Science:
  how to design algorithms to solve specific problems
  how to choose efficient data structures and algorithms
  how and when to use recursion
  how to recognize hard problems

• Engineering:
  how to write small applications in the C programming language
  how to use C pointers to build dynamic data structures
  how to build a program from smaller subprograms
  how to write assembly language programs
  how programs in high-level languages are translated into machine language
  how to use the UNIX operating system and its tools
  how to browse the World Wide Web

• COS 126 is about computer science, not about getting a job, but 126 will help…
Survival Tips

• Attend lectures and classes
• Go to a ‘Getting Started’ session
• Do the reading; cruise the books on reserve (at the Engineering Library, EQuad)
• Do the exercises; understand the solutions
• Visit the COS 126 Help! Web page when you have questions
• Browse the COS 126 Web often; visit ‘What’s New’ perhaps daily
• Do the programming assignments
• Digest programming assignments as soon as they appear on the COS 126 Web
• Start on programming assignments early
• Think before you write code; compose first, then write code
• Use the lab undergraduate teaching assistants
• Ask for help — as soon as you need it!
Course Information

• Nearly all COS 126 material is available only on the World Wide Web
  
  detailed course information (grading, policies, etc.)
  lecture slides (buy the paper copy, too)
  course schedule
  programming assignments
  exercises
  helpful information
  frequently asked questions
  etc.

  Exceptions: first handout (how to browse the Web)
  exams (two evening midterms, final)
  perhaps a few ‘crib’ sheets

• You will submit all assignments electronically; timestamps will tell us when

• You are responsible for getting the necessary material and meeting deadlines

• Save trees — don’t print Web pages unnecessarily
Surfing the Web

• use *netscape* (or another Web browser) to access course materials
  
  % *netscape* http://www.cs.princeton.edu/courses/cs126/ & ↵

  slanted font indicates what you type; ↵ denotes the ‘enter’ or ‘new-line’ key

• The course URL — universal resource locator — is

  http://www.cs.princeton.edu/courses/cs126/

  You can browse the course Web from *anywhere*, if you have computer and Internet access (e.g. America Online)