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, instrinsically '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)