CS106B
Programming Abstractions

Lecture #1

Goals for today

- What is CS106B all about?
- Overview of course admin & logistics
- My (unbiased) opinion of why this class rocks
- Check out a little C++

The CS106 courses

- Intro programming sequence is CS106A & B
  - CS106X is "honors" version of B
- A covers *Programming Methodology*
  - Logic, control flow, problem-solving, decomposition, debugging
  - We use Java, but language choice not critical
- B covers *Programming Abstractions*
  - Recursion, algorithms (sort/search/hash), dynamic data structures (lists, trees, heaps), data abstraction (stacks, queues, maps)
  - We use C++, but this not a C++ course
- Placement
  - New to programming or not confidant about background? CS106A
  - Solid first course experience and ready to go on? CS106B
    - Super-enthused and want to go hard-core? CS106X

The CS106 philosophy

- We welcome all students
  - All majors and backgrounds, try it out and see if it's right for you!
- Provide solid, practical foundation in programming
  - Use modern high-level language(s)
  - Learn by doing (challenging, full-fledged programs assigned)
- Truth AND beauty
  - Working is not all; well-designed and well-engineering code matters!
- Undergraduate section leaders as mentors
  - 30+ hours per week of staff available in Lair
  - Interactive grading conferences with your SL
- Student skills for success
  - Curiosity, determination, hard-work
  - Knowing when to ask for help

What makes 106B great

- Programming is just generally awesome
  - Learn relatively small set of fundamentals, but infinitely combinable to solve all sorts of problems
  - Build impressive things that you can be proud of
  - Nothing more satisfying than finding and fixing that last bug
- Second course material is amazing
  - Learn cool techniques that vastly extend the range of problems you are able to solve
  - Focus on elegance and efficiency
  - Fascinating theoretical and algorithmic underpinnings
- Section leaders are fabulous
  - Make the learning fun and personal

Logistics

- (Read handout #2 for more details)
- Lectures MWF 2:15pm
  - Available online, but attending in person is better :-)
- Section once a week
  - Signup for section online
- Optional lab on C++ language/libraries
- Workload
  - Programming assignments ~weekly (15-20 hours)
  - Midterm and final exam (in-class, open-book/note)
- Course reader available in bookstore
- Compilers
  - XCode for Mac OS, VS for Windows, available on cluster computers and can download to your computer

Introducing C++

- Advantages of early multi-lingualism
- How much C++ do you need to know to start?
- How much C++ will you learn?
- Tell me the word on the street about C+...