

CS106B

Programming Abstractions

<http://cs106b.stanford.edu>

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 confident about background? CS106A
 - Solid first course experience and ready to go on? CS106B
 - Super-enthusied 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+...