

15-122: Principles of Imperative Computation

Penny Anderson, Tom Cortina, Frank Pfenning

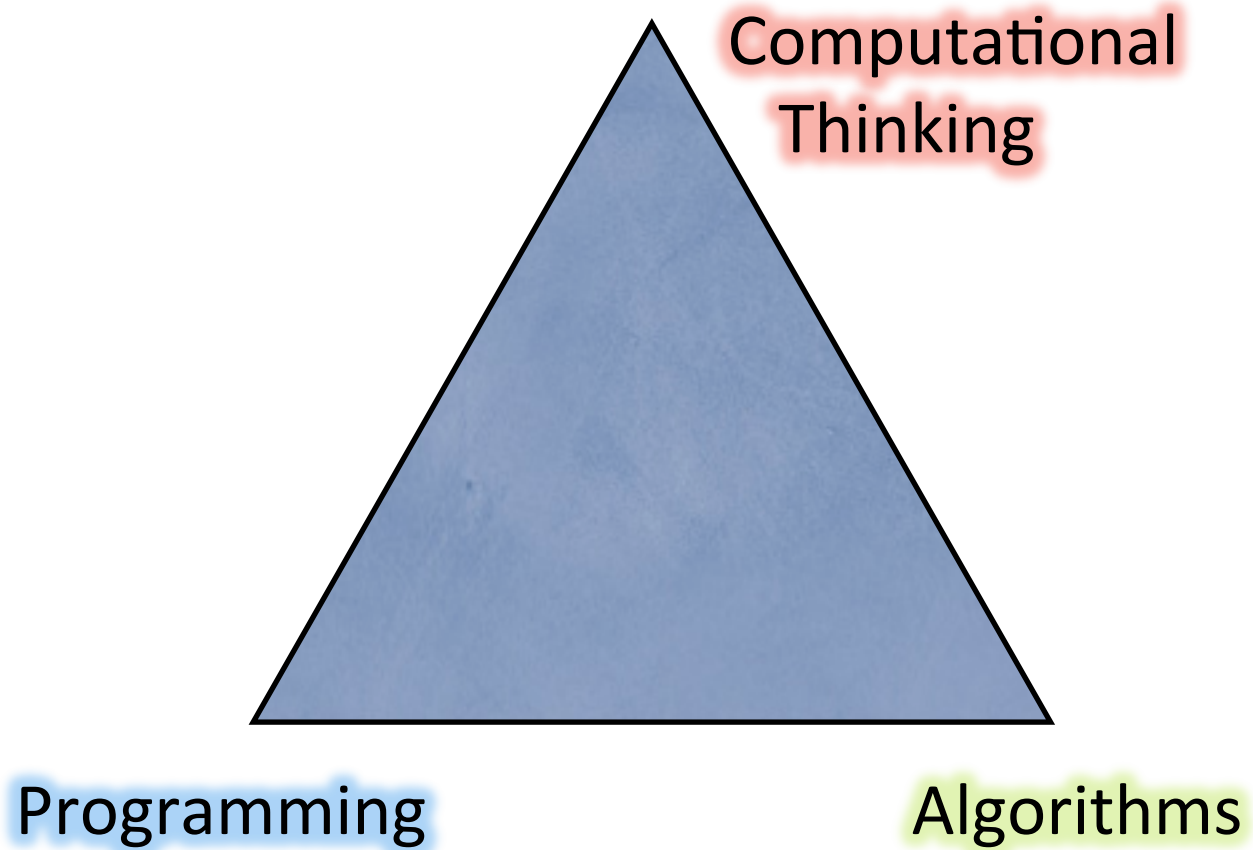
<http://www.cs.cmu.edu/~fp/courses/15122-f15>

<http://c0.typesafety.net/>

Overview

- Goals of this course
- Interactions
 - Lectures, labs, recitations, office hours
- Assessment
 - Quizzes, homework (written, prog.), exams
- A mysterious function!

Goals



Programming Skills

- Transforming algorithmic ideas to code
- Writing tests
- Imperative programming in C and C0
- Basic Unix survival

Algorithmic Ideas

- Asymptotic complexity
 - time/space/amortized
 - worst case/average case
 - important classes: $O(1)$, $O(\log n)$, $O(n \log n)$, $O(n^k)$, $O(2^n)$
- Important ideas like order and randomness
- Lots of fundamental data structures
 - (Psst... this is often what tech interviews test on!)

Computational Thinking

- “Thinking like a computer scientist” is important for lots of people, not just computer scientists!
- A computer science approach to thinking about the *correctness* of programs

The Big Picture

- Pre- or co-requisites
 - either 15-151 (Math Foundations for CS)
 - or 21-127 (Concepts of Mathematics)
- Counterpart
 - 15-150 (Principles of Functional Programming)
- Pre-requisite for
 - 15-213 (Introduction to Computer Systems)
 - 15-210 (Parallel and Sequential Data Structures and Algorithms)
 - 15-214 (Principles of Software System Construction)

Overview

- Goals of this course
- Interactions
 - Lectures, recitations, office hours
- Assessment
 - Quizzes, homework, exams
- A mysterious function!

Lectures

- Tuesday and Thursday
- Please be here, please be active
 - Ask and answer questions, pay attention
 - Lecture notes published after lecture
- Laptops for note-taking only
 - No surfing, email, games...
 - Work on your homework elsewhere
 - If you can see board from the back row, be there
 - Too distracting for other students

Labs and Recitations

- (Hello, TAs!)
- Labs Monday, recitations Friday
- Reinforce lecture material
- Problem solving (and working in groups!)
- How-to programming and tool support
- *Attend the lab/recitation you're registered for*

Laptop Setup Office Hours

- Day and time TBA
- Set up using the C0 tools with Andrew Linux
- Format: drop-in for half an hour
- Or do it yourself:
<http://c0.typesafety.net/tutorial/C0-at-CMU.html>

Online communication

- Autolab for homework and grades
- Piazza for announcements, questions, and communication with course staff. Get help, help each other!
- Cluster Linux machines and SSH to shared machines for assignments

Other Resources

- Course home page
 - <http://www.cs.cmu.edu/~fp/courses/15122-f15>
 - Schedule, lecture notes, calendar, contact info...
 - Office hours start soon, check Piazza
- C0 home page
 - <http://c0.typesafety.net/>
 - Tutorial, reference, examples, binaries

Overview

- Goals of this course
- Interactions
 - Lectures, recitations, office hours
- **Assessment**
 - **Quizzes, homework, exams**
- A mysterious function!

Assessment

- 50% - Exams (2 midterms and a final)
- 45% - Weekly Homework
 - Programming usually due Thursday 10pm through Autolab
 - 4 late days total, max 1 day per assignment
 - Download assignments and code from Autolab
 - Style grading
 - Written usually due Monday by 5:30pm in person
 - No late days, turn in Tuesday in lecture for a significant penalty
 - *Don't hand in work for other people*
- 5% - Quizzes and Lab participation
 - Labs Monday, Quizzes Fridays (still under discussion)
 - Basically: make a good effort to get full credit

<http://www.cs.cmu.edu/~fp/courses/15122-f15/schedule.html>

Academic integrity

- Quizzes, exams, homework *must be your own*
- *You* must hand in your work
- OK: discussion of course material, practice problems, study sessions, going over handed-back homework in groups
- Not OK: copying or discussing answers, looking at or copying code (even parts)
- Not OK: talking through the assignment as you code with a classmate

- We use MOSS to catch code duplication
- If you make a mistake, come to us, don't let us come to you

Overview

- Goals of this course
- Interactions
 - Lectures, recitations, office hours
- Assessment
 - Quizzes, homework, exams
- **A mysterious function!**

A Mysterious Function Approaches!