Principles of Programming Languages
Prof. Evan Chang
Meeting 1: Welcome, CSCI 3155, Spring 2012

Distraction-Free Classroom
• Let’s turn off our cell phones and wi-fi

Introductions: Your guide this semester
• Office hours: TR 10:45am-11:45am and by appointment in ECOT 621

Introductions: More guides
Huck Bennett
Sam Blackshear
Aleks Chakarov
Yi-Fan Tsai

Introductions: About you?
• What do you want to get out of this class?


Meta-Level Information
• Discussion, not lecture
  – Only meeting I will use slides

  • Please interrupt at any time!
  • It’s completely ok to say:
    – I don’t understand. Please say it another way.
    – Slow down!
    – Wait, I want to read that!
Getting to Know You: “I, ..., wonder ...”

Hi my name is

What do you want to get out of this class?

Tome Terek: Today applicable prog
Andrew: Play multi languages
Sean: Quickly new lang
Brad: Wants to pick lang for task
Kim: Deeper understanding of terrible JavaScript is

What do you think this course is about?

Tyler: ins and outs of PLs
“behind the scenes” — lang impl
“in front” — what developers see

Alex: study of common patterns

Getting Your Money’s Worth

Why Study PL?

“Isn’t PL ancient history?”

• PL is an old field within Computer Science
• 1920’s: “computer” = “person”
• 1936: Church’s Lambda Calculus (= PL)
• 1937: Shannon’s digital circuit design
• 1940’s: first digital computers
• 1950’s: FORTRAN (= PL)
• 1958: LISP (= PL)
• 1960’s: Unix
• 1972: C Programming Language
• 1981: TCP/IP
• 1985: Microsoft Windows

Don’t we have enough prog. languages?
A Dismal View of PL

So Why Study PL?

“I like Ruby. Isn’t that enough?”

What PLs do you know?

What PLs do you know?

TIOBE Language Popularity Index

http://www.tiobe.com/tiobe_index/
Increase ability to learn new languages

- You will need to learn many languages during your careers.
- You will learn concepts that make it easier for you to learn new languages in this class.

Have you ever had to pick a language?

Have you ever had to pick a language?
Have you heard of MapReduce?

Alex: something about logic clustering.

Sean: Hadoop — “open source mapreduce”
Do computation on clusters.

Guugu Yimithirr People

http://www.cooktownandcapeyork.com/do/hopevale/hopevale_region

Have you heard of MapReduce?

... inspired by the functional programming paradigm

Controversial Editorial ...

• Linked on the schedule
• Optional, but entertaining
  - note: some mild profanity
• “Take this course to get a first-rate CS education”

Get new ways of viewing computation and approaching algorithmic problems

How many of you know C++?

26

27

28

29

30
How many of you know about ... in C++?

- virtual methods
- templates
- try-catch
- try-finally
- polymorphism
- dynamic_cast

Better use of languages you already know

Other Reasons?

Tyler: Create your own P2
think will do so approx.

Better understanding of the significance of implementation

Other Reasons?

Get new ways of viewing programs

- What is a program? How it executes, right?

Two programs, "behind the same" same, but different. Inputs => outputs (for all inputs)
How?

Requirements

Prerequisites

Assignments

Reading, Participation, Extra Credit

Step-By-Step Foreign Language Study
+ Practice + Mathematical Tools

Scala

• Never heard of it?

Twitter

LinkedIn

Requirements

Prerequisites

Assignments

Reading, Participation, Extra Credit
Online Discussion: Piazza

• “Begin Active”
  - Post ≥1 substantive comment, question, or answer each week
• Take a moment to reflect upon the day’s reading or class discussion
• Replaces E-Mail
  - Course announcements
  - Questions for course staff

Homeworks, Quizzes, and Exams

• Homeworks
  - Most are two weeks, due Mondays 11:55pm
  - In pairs but everyone submits and individually responsible
  - Collaboration are encouraged (but you must acknowledge!)
• Quizzes (announced in advance)
• Midterm Exam: March 22
• Final Exam: May 5
  - Mark your calendars. No make-ups (except special circumstances)

Course Administration

Policies

• Read the course syllabus
  http://www.cs.colorado.edu/~bec/courses/csci3155-f09/
• Coming next time means you have read and agreed to them.

Highlights

• No late assignments but 3 late day “account”
• No make-up exams (unless emergency or special accommodation)
• Special accommodation requests (disability, religious observances) within first four weeks
• Regrades requests within one week

Most Important Goal

Have Lots of Fun!
For Next Time

• Read the course syllabus
  http://www.cs.colorado.edu/~bec/courses/csci3155-s12/

• Join the course moodle, Piazza, upload a profile picture, and introduce yourself

• Set up a Scala development environment
  - Scala IDE screencasts