Principles of Programming Languages
Prof. Evan Chang
Meeting 1: Welcome, CSCI 3155, Fall 2009

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

Introductions: Your guide this semester
• Office hours: TR 11:00am-12:00pm and by appointment in ECOT 621

Introductions: Your TA this semester
Chenyu Zheng
• Office hours: M 4:15pm-5:15pm in ECCR 1854, R 7:30pm-8:30pm in ECCS 128, and by appointment

Introductions: About you?
• What do you want to get out of this class?
  Garrett - Gnu Tech
  Chen - Sony
  Andrew - Work w/ Pls
  Nick - Aerospace
  hand - Foundations
  PLC
Introductions: About you?

- What do you want to get out of this class?

Announcements

- Recitation
  - "Structured office hours" with Chenyu
  - No recitation section today. Recitation section starts next week Sep 1.
  - Enjoy one more hour of summer!

- Website
  http://www.cs.colorado.edu/~bec/courses/csci3155-f09/
  - syllabus, announcements, readings, slides, assignments, etc.

Today

- Requirements and grading
- Some historical context
- Goals for this course
- Course administration

- Convince you that PL is useful

Meta-Level Information

- Discussion, not lecture

- 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!

Requirements

Prerequisites

- CSCI 2270 (CS2: Data Structures)
- CSCI 2400 (Computer Systems)

- Programming experience
  - ideally with more than one language

- If you have not satisfied the prerequisites or have any concerns, please see me.
Assignments

- Reading and Participation (10%)
- Weekly Homework (25%)
- 2 Midterm Exams (40%)
- Final Exam (25%)

Reading and Participation

- Reading before each meeting
  - Spark class discussion, post/bring questions
  - Skills help focus your reading
- Textbook:
    - On reserve in the Engineering Library
    - Problems getting the textbook?
- In-Class and Online Participation!

Moodle and Online Discussion

- Online discussion forum
  - Post ≥1 substantive comment, question, or answer each week
  - On moodle.cs.colorado.edu
  - Post questions or comments for a class meeting before the next meeting
- Take a moment to reflect upon the day’s reading or class discussion

Homework and Exam

- Homework/Problem Sets
  - You have one week to do each one (some may last two weeks), due Thursdays 11:55pm
  - Collaboration and groups are encouraged (but you must acknowledge!)
  - Lowest grade dropped
- Midterm Exams: Oct 1 and Nov 5
- Final Exam: Dec 14
  - Mark your calendars. No make-ups (except special circumstances)

Skills

- Help you focus your reading
- ~80% of the points on exams and assignments will come from the skills

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 Prog. Languages

So Why Study PL?

What PLs do you know?

What PLs do you know?

- Adam Johnson
- Riken assembly, C, C++, Perl, Python, Java
- Dan: MATLAB, IDL, C, C++, HTML
- Gabe: C, C++, Java, Python
- Eliot: Bash, Shell, ...

- C++, Java, Python
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TIOBE Language Popularity 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?

- Experience
- Execute speed
- Existing code
- Saving work
- Flexibility
- Interoperability
- Syntax

Jobs!

Have you ever had to pick a language?

- IDX - large array "work"s
- Python - scripting no "work" just run
Improve background for choosing an appropriate language

How many of you know C++?

Everyone! (19)

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

• virtual methods
• templates
• try-catch (errors/exceptions)
• try-finally
• polymorphism
• dynamic_cast

Better use of languages you already know

Have you heard of MapReduce?

Have you heard of MapReduce?

Functional
Programming
(LISP)
Controversial Editorial …

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

Increased capacity to express ideas

Other Reasons?

Better understanding of the significance of implementation

- Lots of ways a program can work
  1) Get it done faster
     - some methodologies work better for certain tasks
  2) How long use resources — hardware, efficiency — how fast your app runs

Course Administration
Policies

- **Read the course syllabus**
  

- Coming next time means you have read and agreed to them.

Highlights

- No late assignments but one “freebie” (unless emergency)
- No make-up exams (unless emergency or special accommodation)
- Special accommodation requests (disability, religious observances) within first four weeks
- Regrades requests within one week
- Send us e-mail immediately if you will be absent because of an H1N1 outbreak

Most Important Goal

**Have Lots of Fun!**

For Next Time

- **Read the course syllabus**
  

- Join the course moodle and introduce yourself