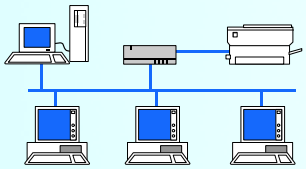


Intermediate Programming
600.120
Introduction

Department of Computer Science
Johns Hopkins University

The Course This Semester

- Learned from last semester
  - MWF 3-4:15pm or MWF 4:30-5:45
- Still somewhat overwhelmed
  - Many people want to take the course
  - Can only have 30 students in a class
    - Interactivity
    - Number of computers
  - Decided to run the course twice this semester
    - Same as last semester
    - 9 spots are still available
    - CS majors, seniors, juniors, sophomores, freshmen
- We need your help
  - Help us divide the course to two equal classes

Course Overview

Week 1

http://www.dsn.jhu.edu/courses/cs120/

cs120-help@dsn.jhu.edu

Course Information

- Lecture:
  - 01 Monday, Wednesday 3pm – 4:15pm Shaffer 1.
  - 02 Monday, Wednesday 4:30pm – 5:45pm Shaffer 1.
- Tutorial:
  - 01 Friday 3:00pm – 3:50pm Shaffer 1.
  - 02 Friday 4:30pm – 5:20pm Shaffer 1.
- Instructor: Yair Amir.
  - Office hours: NEB-218b/213 Wednesday 6pm – 7pm
- TA : ???.
  - Office hours: ???
- Special help:
  - Amy Babay, Xin-Yuan Wang, Ben Glickman, ??
  - Daniel Obenshain & Tom Tantillo - NEB 213
- E-mail contact to all of us: cs120-help@dsn.jhu.edu
- Course mailing list: www.dsn.jhu.edu/mailman/listinfo/cs120-2012

Course Books

- The C Programming Language, second edition, Kernighan & Ritchie, Prentice Hall. ISBN 0-13-110362-8

- C++ How to Program, Deitel & Deitel, Prentice Hall. Editions: 5th, 6th – available online for Hopkins students.

  Later editions also good.

  (this book will only be needed just before the middle of March).

Grading Policy

- 4 credit course.

- Mid-term – 20%
- Projects – 4*12% = 48%
- Final Project– 20%
- Attendance – 12%

- Ethics code: standard CS code www.cs.jhu.edu
- Zero tolerance for ethics problems.
  - We invest a lot and expect a lot in return.

Programming language: C and C++.
Testing environment: the undergrad lab ugrad1-20.
Need to get an account!

Shaffer 1

Tentative Plan

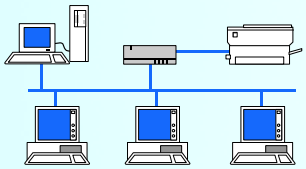
- Introduction, C - getting started. Week of Jan 30
- C - program structure, scope / pointers, structures. Week of Feb 6
  - **Project 1.**
- C - memory management, basic development environment. Week of Feb 13
  - **Project 2.**
- C – memory management / I/O / standard library. Week of Feb 20
- C - probabilistic data structure. Week of Feb 27
  - **Project 3.**
- C - Project design. Week of Mar 5
  - **Mid Term – Mar 9? Mar 12?**

Shaffer 1

Tentative Plan

- C++ - Getting started. Mar 14, Mar 16.
- C++ - Classes – constructors / destructors Week of Mar 26.
  - **Project 4**
- C++ - Overloading. Week of Apr 2.
- C++ - Inheritance, polymorphism. Week of Apr 9.
- C++ - Templates. Week of Apr 16.
  - **Final Project.**
- C++ - Project design. Week of Apr 23.
- A bit on research. Apr 30.
- Course summary. May 2.

One on One
One on Two
One on Four



- Presenting and discussing design - scheduled.
- Solving problems - mostly unscheduled:
  - When stuck on implementation – try for 15 minutes.
  - Contact us immediately after that – come to NEB-213 or e-mail cs120-help@dsn.jhu.edu.
  - NEVER WASTE MORE THAN 15 minutes on a technical problem.
- Run ideas / designs by us – mostly unscheduled
  - Make a habit to consult with us at least once for every project, preferably long before submission deadline.

A little about me

- Joined Hopkins 16 years ago.
- Director of the Distributed Systems and Networks lab
  - www.dsn.jhu.edu.
- Mostly taught high level undergraduate and graduate courses:
  - Distributed systems, advanced distributed systems and networks, operating systems.
- Fall 05, Spring 06, Fall 07, built a “new” Intermediate Programming course.
  - Liked it! Asked to teach it again Fall 11, Spring 12
- Enjoy inventing algorithms and software tools that ensure the scalability, availability and security of the Internet infrastructure and distributed systems:
  - www.spread.org, www.spines.org, www.smesh.org

Personal Point of View: Where High Tech is Going

- The world has changed:
  - Infrastructure is cheap => low entry price.
  - A networked world => most software can be done anywhere.
  - Result: Global competition.
- Two paths to win:
  - To be the cheapest among equals.
    - This is not likely to happen here.
  - To provide value nobody else has.
    - Combination of leading-edge knowledge and strong skills.
- Anything in between will be squeezed.
- Exponential curve of quality/reward:
  - Exponential curve is great on the right side
  - … and deadly otherwise.

Getting to the Right side of the Curve

- A combination of Leading-edge Knowledge and strong skills.
- We have excellent infrastructure for building leading -edge knowledge.
  - Leading research groups.
- But skills were lacking:
  - In the past, many students got to 300-400 level courses lacking strong programming foundation.
  - This limited their ability to extract the full benefit of these top -notch courses.
- So, we wanted to develop these skills early.
- Higher expectations early => better tools to get to the right side of the curve later.
- This is why I want to teach this course!