Intermediate Programming
601.220
Section 03
Introduction
Department of Computer Science
Johns Hopkins University

Course Overview
Week 1

http://www.dsn.jhu.edu/courses/cs220/

Find us on Slack
But also on cs220-help@dsn.jhu.edu
Course Goals

• Start from basic programming knowledge, equivalent to AP CS or Hopkins’ Gateway to Computing, and end such that programming at any level is never a barrier — at least in the sequential (non-parallel, non-distributed) programming model

• Get to be proficient in C and C++; get comfortable with a Unix-like development environment

• Our section (Section 3) is focused on the CS Freshmen experience, and the plan until earlier this month was to run it in person. We are still committed to provide as close an experience as possible to in-person instruction

• We are committed to support all students in the section and to create an inclusive and flexible learning environment that enables each student to reach the course’ goals

Course Information

• Lecture & Tutorial:
  – Section 03 Monday, Wednesday, Friday 3pm – 4:15pm: Zoom 943 4413 2730 (pass: 60122003)

• Instructor and TA: Yair Amir and Brian Wheatman
  – Office hours Yair: Monday 5pm – 6pm – Zoom 410 516 4803
  – Office hours Brian: Thursday 9pm – 10pm – Zoom 726 736 6897

• Course Assistants (during projects):
  – Jerry Chen: Tuesday 6pm – 7pm – Zoom 857 210 3667
  – Sadie Garber: Friday 1pm – 2pm – Zoom 529 863 019
  – Sara Weill: Wednesday 9am – 10am – Zoom 324 232 9813

• E-mail contact to all of us: cs220-help@dsn.jhu.edu or, better yet, find us immediately on Slack
Course Books

  ISBN 0-13-110362-8

C++ How to Program, Deitel & Deitel, Prentice Hall.
Editions: 5th, 6th … 10th – available online through the Hopkins library. https://catalyst.library.jhu.edu/login
https://catalyst.library.jhu.edu/catalog/bib_8618042
(this book will only be needed just before the middle of October).

Grading Policy

- 4 credit course.
- 4 Projects – 12%, 12%, 14%, 12% = 50%
- Mid-term – 15%
- Final Project– 25%
- Attendance – 10%
- This semester – default is S/U unless you ask for a letter grade

- 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++.
Need to get an account on the ugrad machines!
Tentative Plan

- **Introduction, C** - getting started. Aug 31
- **C** - program structure, scope, pointers, structures, memory management. Sep 2 – Sep 11
  - Project 1 (Sep 11)
- **C** – basic development environment, example Sep 14 – Sep 18
  - Project 2 (Sep 21)
- **C** – I/O / standard library. Sep 21 – Sep 23
- **C** - probabilistic data structure. Sep 25 – Sep 28
  - Project 3 (Sep 28)
- **C** - Project design. Sep 30 – Oct 5
  - Dry Run – Oct 7, Mid Term – Oct 12

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Tentative Plan

- **C++** - getting started. Oct 14 – Oct 16
- **C++** - Classes – constructors / destructors Oct 19 – Oct 21
  - Project 4 (Oct 26)
- **C++** - Overloading. Oct 28 – Oct 30
- **C++** - Inheritance, polymorphism. Week of Nov 2
- **C++** - Templates. Week of Nov 9
  - Final Project (Nov 13)
- **C++** - Project design. Nov 16, Nov 20, Dec 7
- **Intro to STL.** Nov 18, Dec 2.
- **Course summary.** Dec 9.
- **Final project presentations – all will be done by Dec 22**
One on One
One on Two
One on Three

- Presenting and discussing design - scheduled.
- Solving problems - mostly unscheduled:
  - When stuck on implementation – try for 15 minutes
  - Contact us immediately after that – Slack us and one of us will answer or get in touch for a zoom session. You can also e-mail us using cs220-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

Intermediate Programming Course in the Age of Covid-19

- Course developed as a very interactive course
  - Low ratio of students per instructor (30 students and 5 instructors)
  - Special computer class
  - Dynamically inverted class for high-touch instruction
- Normal challenges with the freshman CS class
  - New to Hopkins and to a university environment
    - Reluctant to ask questions and to participate
  - Varied backgrounds
- Added challenges in the age of Covid
  - Electronic interaction instead of in-person
    - Cannot just “come to the DSN lab in Malone Hall anytime you have a problem”
  - Varied time zones
  - Potential impact of Covid-related circumstances

Yair Amir  Fall 20 / Week 1
Intermediate Programming Course in the Age of Covid-19

- Solutions and adaptations
  - Extra help and flexibility as needed
    - Several instructors and special help live during and outside of class
    - We will adapt as needed while still pursuing the class goals
    - Flexibility will need to go both ways
  - Customized use of Zoom and Slack for real-time interaction
    - Slack #classtime channel used for questions and comment during class
    - Slack other channels used outside of class to facilitate communication, interaction, and ask for near-immediate meetings with an instructor
      - Perhaps like “Come to the DSN lab in Malone Hall any time”
  - Customized studio to facilitate on-the-fly use of inverted class
    - Use of many breakout rooms for 1-1, 1-2, and 1-3 interactions

- WE NEED YOUR HELP
  - Please participate on Zoom with your camera on and be active
  - Please be attentive to messages on Slack
  - Please make a point to actively participate during class and on Slack
  - We can record the main class (not the breakout rooms) for temporary use only by people of this class but we need your consent

Team Work

Jerry
Sadie
Brian
Sara
Yair & Electric Ethan
Sahiti
Daniel

Yair Amir