Introduction to
Introduction to Programming II

Dr. Joshua Nahum
CSE 232
MSU

https://www.reddit.com/r/ProgrammerHumor/comments/arb0vu/c_python/

Course Website

https://www.cse.msu.edu/~cse232/

Course Description

- Continuation of object-oriented design and implementation in C++. Building programs from modules. Data abstraction and classes to implement abstract data types. Static and dynamic memory allocation. Data structure implementation and algorithm efficiency. Lists, tables, stacks, and queues. Templates and generic programming.

About Me

- Dr. Joshua Nahum (call me Dr. Nahum or Dr. Josh)
- Came to MSU in 2013
- Research: Experimental Evolutionary Biology in Digital Systems
- Email: (not needed, use Piazza)
- Office: 3504 EB (But I won't be there this semester)

Course Expectations

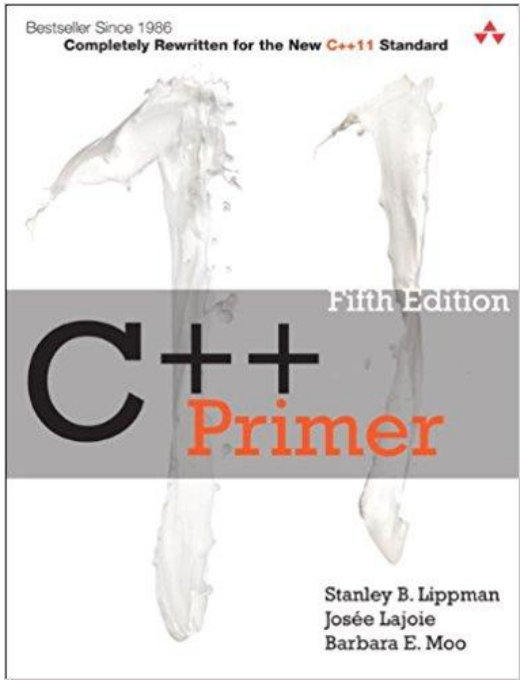
- Previous programming experience is *expected*
  - Will go much faster than 231 because you know the basics
  - You will learn
  - C++ / STL
  - Working in a Linux environment
  - Terminal / Command Line
  - Debugging

Time and Location

- Lecture
  - Right here on your computer
- Lab
  - Tues - Fri
  - On Zoom as well (See Piazza for link)

Textbook

- C++ Primer, 5th ed
  - by Lippman, Lajoie, and Moo
  - Optional book
  - Useful reference
  - It is how I learned C++
- Highly recommended if you prefer to learn by reading



Course Resources

- Course Website: https://www.cse.msu.edu/~cse232/
  - Course materials here!
- Piazza: https://piazza.com/
  - Ask questions here!
- Mimir: Link on course's D2L page (https://d2l.msu.edu/)
  - Submit assignments here!

Grades

- Grade Breakdown
  - 2 Exams (30% total)
  - 3 Projects (25% total)
  - 17 Homeworks (45% total)
- Passing grade requires 50% of exam points

Grade	Percent
4.0	90%
3.5	85%
3.0	80%
2.5	75%
2.0	70%
1.5	65%
1.0	60%

Homework

- Homework is due each Monday and Thursday
- There will be at least 17 homework assignments
  - Only the top 15 assignments will be tallied for your grade
  - Meaning that your lowest two scores are dropped
  - HW #0 (the one due Monday) is not worth any points

Labs

- Taught by Teaching Assistants
- Collaborative exercises (pair programming)
- Helps to prepare you for the projects
- Attendance is **required**
  - Can miss **two** labs for **any reason**
- You must do the work **during the lab**

Projects

- 3 Projects
  - Worth 75, 75, and 100 points
- Will be written in C++
- Submitted electronically via Mimir
  - You may submit many times
  - Only the most recent submission is graded
- Your code must compile *on Mimir*
  - Otherwise you may receive a 0
  - No, “but it works on my machine”

No Extra Credit

There are no extra credit points in this course. No bonus points, no extra assignments, no credit for attendance.

All the points you can earn have already been explained.

Auto-Grading

- We will use the website Mimir (class.mimir.io) for automatic grading
  - Follow the link in the Content section of this course's D2L page.
- Mimir provides tests for your code
- Your assignment's grade will be based on the Mimir tests that you pass

Plagiarism

- You are expected to do your own work on all assignments
- Don’t copy code from *anywhere*
- Submissions are compared against other submissions
  - Do not share your project with others
  - If they copy from you, **you will also be penalized**
- Penalties
  - Depending on the severity of the infraction, course failure may result.

Plagiarism!!!

- Please, please, please, read the syllabus concerning academic dishonesty.
- I usually fail between 3-10% of the class for egregious violations of the academic honesty policy.
  - Many the failed students only shared their solutions with others.
- I know about all the common ways to solicit information online: Chegg, CourseHero, StackOverflow, Reddit, among others.
  - Note, posting course content (e.g. posting homework questions) is a violation of MSU's intellectual property. MSU's legal team takes this very seriously.

On-Campus Computing

- All students taking CSE courses get an account on EGR computers which they can access remotely or in the EGR labs
- The EGR computing labs are open 24x7 and your account is active on all the machines in all the labs
- Lab00 gets you set up for this

Working from home

- x2go: provides a full desktop as a window in your laptop
  - Needs a decent network connection
  - You connect to your CSE directory
- Mimir
- Work on your own on your machine
  - Can get Visual Studio from the Microsoft Developer Network Academic Alliance (MSDN AA)
  - www.cse.msu.edu/Facility/Services/MSDN.php
  - Can also use other IDEs
  - Beware of differences between Mimir's environment and others

C++17

- In 2011, the latest major standard for C++ came out, named C++11.
  - Extended by C++14 and C++17
- You will learn the latest standard
  - Easier to work with
  - Makes C++ “better”
  - Amaze you friends, professors, and future employers (they may not know it)

The STL

- The Standard Template Library (STL) is your best friend.
  - Does things so you don’t have to
  - We will *focus* on using the STL
  - Use it when you can!