Welcome to CMPT 295
*Introduction to Computer Systems*

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Lecture 1 – Overview
Today’s Menu

- What is CMPT 295 all about?
- Course resources
- Important points!
- Activity
What is CMPT 295 all about?

The goal of this course is to give us, software developers, a look “under the hood” of a computer

- How code and data are represented in memory and how this can impact the execution of our program
- How a compiler optimizes (or not) our C program and how such optimizations can impact the performance of our program
  - How we can optimize our C programs
- How memory is organized and how it can impact the performance of our program
  - How we can modify our C programs to take advantage of this organization
What shall we get out of this course?

- This understanding will allow us to become more efficient software developers
  - Writing programs that are more reliable and efficient
    - Able to find and eliminate bugs efficiently
    - Able to understand and tune program performance
What should we already know before we start this course?

- Write correct C programs
  - C constructs (variables, data types, pointers, if/else, switch/case, for/while/do while, function calls)
- Know how a stack works
- Perform binary/decimal/hexadecimal conversions and basic arithmetic in binary
- Perform Boolean algebra using and, or, not, xor
Course Resources

- Course web site
- Textbook
- Platform and languages: Linux, C and x86-64 in CSIL
Important points!

Please …

▫ Print partial lecture notes and complete them during the class
▫ Use computer only to take notes
  ◫ No email/Internet/games/etc… - why not?
▫ Do not use your phone during lectures and do not take pictures of slides – why not?
▫ Arrive on time to the lectures – why?

… Awesome! Thank you!
Academic Dishonesty

What is cheating?

- Sharing code/assignment solution: by copying, retyping, looking at, or supplying a file
- Describing: verbal description of code/assignment solution from one person to another
- Tutoring: helping your friend or you being helped by someone else to design/write a program or your assignment solution
- Searching the web for solutions
- Copying code/assignment solution from a previous course or online solution
  - You are only allowed to use code supplied by the instructor
Academic Dishonesty

- What is NOT cheating?
  - Explaining how to use systems or tools
  - Helping others with high-level design issues

- See the Course Outline for details (link in the menu on the left of course web site)
  - Ignorance is not an excuse
Academic Dishonesty - Consequences

- Penalty for cheating:
  - Get 0 for assignment/examination
  - Permanent letter in your record

- Don’t do it!
  - Start assignment early
  - Ask TA’s and instructor for help when you get stuck

- Academic Integrity:
  - Your work, your success
Activity

- Form teams of 3 to 4
- Listen to the “problem”
- In teams, discuss possible solutions
- At the end, let’s share our possible solutions with the whole class
Question?

- Waiting List?
Summary

- What is CMPT 295 all about?
- Course resources
- Important points!
- Activity
Next Lecture

- Data Representation
  - Representing information as bits

- To get ready for our next lecture:
  - *Optional*: Read Chapter 1 of textbook
  - *Not so optional*: Read Section 1 of Chapter 2