CMPT 300: Introduction to Operating Systems

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Agenda for Today

- Course overview
- Topic list
- Administrative details
  - Marking scheme
  - Course components
- How to get help and do well in the course
Not for the faint of heart!

- This is a difficult course with challenging material
- You will be forced to think of the low-level issues in computer systems
- Having taken CMPT 295 before this class will be helpful!
What is an Operating System?

Software that controls the execution of programs and that provides services such as resource allocation, scheduling, input/output control, and data management

The OS acts as an intermediary between a user of the computer and the computer hardware

OS goals:
- Execute user programs and make solving user problems easier
- Make the computer system convenient to use
- Use the computer hardware in an efficient manner
1. **Hardware** – provides basic computing resources (CPU, memory, I/O devices).

2. **Operating system** – controls and coordinates the use of the hardware among the various application programs for the various users.

3. **Application programs** – define the ways in which the system resources are used to solve the computing problems of the users (compilers, database systems, video games, business programs).

4. **Users** - people, machines, other computers.
Abstract View of System Components

- user 1
- user 2
- user 3
- ... user n

- compiler
- assembler
- text editor
- ... database system

- system and application programs

- operating system

- computer hardware
Topics Covered in this Course

- History, Evolution, and Philosophies
- Tasking and Processes
- Critical sections and mutual exclusion
- Synchronization and IPC
- Process and Kernel Design
- Physical and Virtual Memory Organization
- I/O processing and File systems
- Deadlock (time permitting)
Assignments: 35%

- ~4 assignments due roughly every three weeks
- Will involve C programming
- We will compare your submissions to each other, and to submissions for similar assignments in previous semesters
- Late assignments are penalized 5% per day (including weekends)
- Assignments will not be accepted if more than 7 days late
- Exception: illness with documentation
Common Information for all Tests

- Quizzes and exams will be given using an online tool (e.g. CourSys or Canvas)
- Tests are **open book** and **open internet**
- All students **must work alone**
- All work submitted **must be your own**
- Photo/video may be used for proctoring and/or verifying student identity
- We may meet with individual students to verify work submitted for assignments and/or tests
Tests in the Course

- **Quizzes: 25%**
  - Roughly 5 quizzes worth ~5% each
  - Scheduled roughly every two weeks during lecture time

- **Midterm Exam: 20%**
  - Tentatively scheduled for week 8 of the term during lecture

- **Final Exam: 20%**
  - Will not be cumulative

You must attain an overall passing grade on the weighted average of tests in the course in order to obtain a clear pass (C- or better)
Academic Conduct

- You must abide by the SFU Academic Integrity Policy
- Assignments must be done alone (or with your group)
  - No sharing of work with others, or looking at others work
- You may discuss the general approach you use to solve a problem
  - No written/recorded notes should be taken away
- You may get help on implementation issues (e.g. debugging code)
- All submitted work for quizzes/exams must be your own
  - You may use your notes and online sources, but must work on your own
The Contract – My Responsibilities

- I will treat you with respect
- I will come to class prepared
- I will endeavor to make the class interesting
- We will be fair in my grading practices
- We will grade assignments/tests as promptly as possible
- We will either answer questions that are posed, or suggest someone who can answer the questions
- We will help you deal with personal and study problems whenever possible
The Contract – Your Responsibilities

- You will treat professors, TAs, and speakers with respect
- You will come to the classes prepared
- You will turn in your assignments on time
- You will listen to the professors, TAs, and speakers when they are lecturing
- You will maintain a respectful online environment during classes and on the discussion forum
- You will ask questions when something is not clear
- You will follow the policy on academic integrity