NORTHWESTERN POLYTECHNIC

DEPARTMENT OF SCIENCE

COURSE OUTLINE – CS3790 (FALL 2022)

OPERATING SYSTEMS – 3 (3-0-2) UT

Northwestern Polytechnic acknowledges that our campuses are located on Treaty 8 territory, the ancestral and present-day home to many diverse First Nations, Metis, and Inuit people. We are grateful to work, live and learn on the traditional territory of Duncan's First Nation, Horse Lake First Nation and Sturgeon Lake Cree Nation, who are the original caretakers of this land.

We acknowledge the history of this land and we are thankful for the opportunity to walk together in friendship, where we will encourage and promote positive change for present and future generations.

INSTRUCTOR: Franco Carlacci **PHONE:780 539 2091**
OFFICE: C422 **E-MAIL: fcarlacci@nwpolytech.ca**

OFFICE HOURS: TBA

PREREQUISITE(S)/COREQUISITE: cs1150

REQUIRED TEXT/RESOURCE MATERIALS:

There is no required text. However, I will be referring the following text :

Operating System Concepts tenth edition by A. Silberschatz, P. Gavin, and G. Gagne.

Also, material for this course will be made available on myClass.

CALENDAR DESCRIPTION:

You will be introduced to concepts and features commonly found in operating systems. Class discussion will concentrate on traditional operating system topics (processes, memory management, file systems, input/output) as well as distributed operating system topics

(communication, synchronization, and distributed file systems). UNIX will be studied as an example of traditional and distributed operating systems.

LEARNING OUTCOMES:

- students will be able define the different subsystems that make up a modern operating system
- Students will be able to summarize the different algorithms used in the construction of the different subsystems that make up modern operating system
- Students will be able to explain how the different subsystems work.

COURSE OBJECTIVES:

- Have a basic understanding of operating system organization
- Understand several new aspects of programming such as:
    - Process scheduling
    - Process synchronization
    - Multi-process computation
    - Deadlock avoidance
    - File system organization
    - Security

COURSE SCHEDULE/TENTATIVE TIMELINE:

Computer System Overview

Operating System Overview

Process Description and control

Threads

Mutual Exclusion and Synchronization

Deadlock and Starvation

Memory Management

Virtual Memory

Uni and multiprocessor scheduling

I/O management and Disk Scheduling

File Management

OS Security

EVALUATIONS:

Assignments (take home and labs)	: 40%
Quizzes	: 10%
Midterm	: 20%
Final	: 30%

STUDENT RESPONSIBILITIES:

1. The Student must pass the theory/concepts portion of the course in order to qualify for a passing grade for the term. In other words, a student must obtain 30 out of a possible 60 points (from final exams/midterm) before adding the assignment marks to compute the final grade. If you cannot achieve the required 50% on the theory/concept portion then regardless of your assignment grades, you cannot pass the course.
2. Student are responsible for adhering to all requirements laid out in the assignments.
3. Students must attend all lectures/labs. A student missing more than 20% of classes/labs may be barred from writing the final exam.
4. Students must submit ALL assignments (even late ones) if they want the assignment portion to count towards their final grade.
5. Assignments MUST be submitted on their due date. Late assignments will NOT be accepted and will receive a grade of 0.

GRADING CRITERIA:

Alpha Grade	4-point Equivalent	Percentage Guidelines		Alpha Grade	4-point Equivalent	Percentage Guidelines
A+	4.0	90-100		C+	2.3	67-69
A	4.0	85-89		C	2.0	63-66
A-	3.7	80-84		C-	1.7	60-62
B+	3.3	77-79		D+	1.3	55-59
B	3.0	73-76		D	1.0	50-54
B-	2.7	70-72		F	0.0	00-49

STATEMENT ON PLAGIARISM AND CHEATING:

Cheating and plagiarism will not be tolerated and there will be penalties. For a more precise definition of plagiarism and its consequences, refer to the Student Conduct section of the College Calendar at https://www.nwpolytech.ca/programs/calendar/ or the College Policy on Student Misconduct: Plagiarism and Cheating at https://www.nwpolytech.ca/about/administration/policies/index.html

**Note: all Academic and Administrative policies are available on the same page.

TRANSFERABILITY

University of Alberta *
University of Calgary
University of Lethbridge

Athabasca University
King's University College
Augustana Faculty, University of Alberta *
An asterisk (*) beside any transfer institution indicates important transfer information. Consult the Alberta Transfer Guide.

***Warning: Although we strive to make the transferability information in this document up-to-date and accurate, the student has the final responsibility for ensuring the transferability of this course to Alberta Colleges and Universities. Please consult the Alberta Transfer Guide for more information. You may check to ensure the transferability of this course at Alberta Transfer Guide main page http://www.transferalberta.ca or, if you do not want to navigate through few links, at http://alis.alberta.ca/ps/tsp/ta/tbi/onlinesearch.html?SearchMode=S&step=2**

**** Grade of D or D+ may not be acceptable for transfer to other post-secondary institutions. Students are cautioned that it is their responsibility to contact the receiving institutions to ensure transferability.**