Department of Mathematics and Computer Science
Adelphi University
Fall 2018

0145-553-001 **Operating Systems**

Dr. R. M. Siegfried
407 Science
(516)877-4482
http://home.adelphi.edu/~siegfried/cs271
siegfrie@adelphi.edu (***not for homework submission***)

Office Hours M 10:50-11:50AM; W 10-11AM; F 1-2PM

Course Description and Purpose

Students will learn organization and programming of executive control systems. Students explore multiprogramming, multiprocessing, and time-sharing systems. Students will also explore the virtualization of systems and mathematical models of computer systems, asynchronous operation and interprocess communication, and network operating systems.

Learning Goals

Students will:

- have meaningful discussions about the organization of executive control systems.
- explain, discuss and apply techniques for asynchronous operation and inter-process communication.
- define, explain and apply concepts in multiprogramming, multiprocessing, and time-sharing systems.
- define, explain and have meaningful discussion about access and protection control.
- explain, discuss and apply mathematical models of computer systems.
- define, explain and apply file system organization and management techniques.
- explain and apply virtualization of systems.
- explain and discuss network operating systems.

Prerequisite Graduate status

Text **Operating Systems: Internals and Design Principles,** 9th ed., by William Stallings, Pearson Education, 2018.

Topics

Computer System Overview
Operating System Overview
Process Description and Control
Concurrency: Mutual Exclusion and Synchronization
Concurrency Deadlock and Starvation
Memory Management
Virtual Memory
Uniprocessor Scheduling
Multiprocessor, Multicore and Real-Time Scheduling

I/O Management and Disk Scheduling
File Management
Virtual Machines

Assignments

Some assignments this semester may require students to program C, C++ or Java. This will require access to the University Linux system, Panther, and this will require students to install PuTTY, a secure terminal emulator on their personal computers if they wish to complete assignments off campus. Altenateively, they may choose to program on their own computers and/or using different development software.

Students are expected to turn in assignments in hardcopy or you may submit it through Moodle. ***NO ASSIGNMENTS WILL BE ACCEPTED BY E-MAIL.***

Grading

Each programming assignment will be graded with a base grade of 90%, with points added to reflected areas in which the assignment exceeded specified requirements and/or points deducted to show areas where the assignment is deficient.

Late penalties may be assessed of 5 points per class after the due date.
The final average will be weighted (based on the following ratio:

Assignments	20%
Midterm Exam	40%
Final Exam	40%

The final average will translate to a letter grade according to the following table:

Final Average	Course Grade
A	90 – 100
A-	87.5 – 89.9
B+	83.3 – 87.4
B	80.0 – 83.2
B-	77.5 – 79.9
C+	73.3 – 77.4
C	70.0 – 73.2
C-	67.5 – 69.9
D+	63.3 – 67.4

D	60.0 – 63.2
F	0.0 – 59.9

Attendance

The following is the Adelphi University General Attendance Policy:

Only students who are registered for courses, and whose name appears on the Official Class Roster may attend courses at the University. Adelphi students make a commitment to be active participants in their educational program; class attendance is an integral part of this commitment. Attendance requirements for each course will be announced by the faculty member at the beginning of each term. Students are expected to be present promptly at the beginning of each class period, unless prevented by illness or by other compelling cause. In the event of such absence, students may request that faculty members be notified by the Office of Academic Services and Retention. Students are responsible for completing course work missed through absences. Students should wait a reasonable length of time for an instructor in the event that the instructor is delayed.

Additionally, you are also responsible for whatever work is covered in class whether or not you are there. Absence from the final exam will be excused only for a good and well-documented reason. The decision to allow a make-up exam will be made in accordance with the policies of Adelphi University.

NB:

The class will NOT meet on Monday, September 10. We will make up this class by meeting on Tuesday December 4.

Additionally, the class will NOT meet on Monday, September 24 and Monday, October 1; if it is cmutually acceptable, we may meet on another day or time, or make up the classes through online video lecture.

If the University is closed for more than two days due to an emergency, go the home page for this course site each day for instructions and assignments. Student instructions materials can be found on Moodle and at https://home.adelphi.edu/~siegfried/cs553

Tentative Schedule (***Subject to Change***)

Date	**Topic**	**Assignment due**
August 27	Computer System Overview	
September 10	***No class – to be made up December 4***	
September 17	Operating Systems Overview	Assn #1 – on Computer

		System Overview
September 24	Process Description and Control	Assn #2 – on Operating Systems Overview
October 1	Threads	Assn #5 – on Processes
October 15	Concurrency: Mutual Exclusion and Synchronization	Assn #6 – on Threads
October 22	Midterm Exam	
October 29	Concurrency: Deadlock and Starvation	Assn #7 – on Synchronization
November 5	Memory Management	Assn #8 – on Deadock
November 12	Virtual Memory	Assn #9 – on Memory Management
November 19	Uniprocessor Scheduling	Assn #10 – on Virtual Memory
November 26	Multiprocessor, Multicore and Real-Time Scheduling	Assn #11 – on Uniprocessor Scheduling
December 3	I/O Management and Disk Scheduling	Assn #12 – on Multiprocessor Scheduling
December 4	File Management	Assn #13 – on I/O Management
December 10	Virtual Machines	Assn #14 on File Management
TBA	Final Exam	

Students With Disabilities

If you have a disability that may significantly impact your ability to carry out assigned coursework, please contact the Student Access Office (SAO) at 516-877-3806 or send an email to sao@adelphi.edu. The staff will review your concerns and determine, with you, appropriate and necessary accommodations. Please allow for a reasonable time frame for requesting ASL Interpreters or Transcription Services.

Honor Code

Students enrolled in this course are expected to abide by the Adelphi University Honor Code. The purpose of the Honor Code is to protect the academic integrity of the University by encouraging consistent ethical behavior in assigned coursework by students. Following is excerpted from the Student Honor Code:

The code of academic honesty prohibits behavior, which can broadly be described as lying, cheating, or stealing. Violations of the code of academic honesty will include, but are not limited to, the following:

1. Fabricating data or citations
2. Collaborating in areas prohibited by the professor
3. Unauthorized multiple submission of work
4. Sabotage of others' work, including library vandalism or manipulation
5. Plagiarism: presenting any work as one's own that is not one's own
6. The creation of unfair advantage
7. The facilitation of dishonesty

8. Tampering with or falsifying records
9. Cheating on examinations through the use of written materials or giving or receiving help in any form during the exam, including talking, signals, electronic devices, etc.

Student Course Evaluations

During the last two weeks of the class, you will receive notification, via mail and eCampus, that the course evaluation is available for your input electronically. Availability will end at the start of the final examination period. Your feedback is valuable and I encourage you to respond. Please be assured that your responses are anonymous and the results will not be available to the instructor until after the end of the semester and therefore after course grades have been submitted.

Tear off this and return with information required below:

STUDENT ACKNOWLEDGEMENT:

I HAVE RECEIVED AND READ THE SYLLABUS FOR [INSERT COURSE NUMBER AND SECTION].

SIGNED: _____

PRINT NAME:

_____

DATE: _____

Warning – This page must be signed and returned to the instructor to receive a complete grade in this course.