CSE 421/521 - OPERATING SYSTEMS
FALL'18 SYLLABUS

Prof. Tevfik Kosar
338J Davis Hall, 645-2323
tkosar@buffalo.edu
Office hours: Wed 11:00am-1:00pm

COURSE DESCRIPTION:

CSE 421/521 is an introductory course on the design and implementation of operating systems. It will focus on different OS design techniques, process management, processor scheduling, concurrent programming, deadlocks and synchronization, memory management, file management and I/O systems, disk scheduling, protection and security, and distributed systems. The course will include hands-on programming projects on different OS components. *(Prerequisites of this course: CSE 250, or an equivalent course, or permission of the instructor.)*

COURSE LOGISTICS:

Website : http://www.cse.buffalo.edu/faculty/tkosar/cse421-521_fall2018/
Lecture time & location : Tue & Thu, 11:00am – 12:20pm (NSC 201)
Recitation sessions : Fri 8:00am-8:50am, Fri 12:00pm-12:50pm
Teaching assistants : Shivang Aggarwal (shivanga@buffalo.edu)
   Imran Asif (asifimra@buffalo.edu)
   Neveena Elango (naveenae@buffalo.edu)
   Chaowen Guan (chaoweng@buffalo.edu)
Exam schedule : Midterm 1: October 9th @11:00am–12:20pm (NSC 201)
   Midterm 2: December 6th @11:00am–12:20pm (NSC 201)

TEXTBOOK: (REQUIRED)

❖ Operating Systems Concepts (9th Edition),
   by A. Silbershatz, P.B. Galvin, and G. Gayne. Wiley Publishers, 2012.
   ISBN: 978-1-118-06333-0

RECOMMENDED SUPPLEMENTARY TEXT: (OPTIONAL)

❖ The C Programming Language. By Kernighan and Ritchie. Prentice Hall, Second Edition, 1988, ISBN 0-13-110362-8.

❖ Advanced Programming in the UNIX Environment, by Richard Stevens. Addison Wesley Press, 1993, ISBN 0-201-56317-7.

GRADING:

The end-of-semester grades for this course will be composed of:

❖ Pop Quizzes: 5%
❖ Homework: 5%
❖ Project-1: 20%
❖ Project-2: 20%
❖ Midterm-1: 25%
❖ Midterm-2: 25%

* There will be separate curves for graduate and undergraduate students.
* There will be no formal attendance taken in the class. But, you are expected to attend the classes and actively contribute via asking and/or answering questions.

POP QUIZZES:

There may be pop quizzes at the beginning of some classes. The questions in the quizzes will come mostly from the material discussed in the previous lecture(s) or homework assignment(s). The quizzes will be very short (5-10 min) with one or two questions aiming to test whether you have understood the most recently discussed material in the curse. There will be 5 pop quizzes throughout the semester. One with the lowest grade will be discarded, and the rest four will count towards your final degree.

HOMEWORK:

There will be four homework assignments throughout the semester. The format of the homework questions will be similar to the exercises at the end of each chapter in the Silberschatz book. The homework assignments aim to ensure that you read the textbook and study regularly for the material covered in the class.

PROJECTS:

There will be two hands-on programming projects throughout the course. These projects will aim to implement some core Operating System components for better understanding of the concepts. These will be "team" projects and they will require strong programming background in C and UNIX programming experience.

PIAZZA DISCUSSION FORUM:

We will be using Piazza for class discussion. The system is highly catered to getting you help fast and efficiently from classmates, the TA, and myself. Rather than emailing questions to the teaching staff, I encourage you to post your questions on Piazza. Find our class page at: https://piazza.com/buffalo/fall2018/cse421521

COURSE SCHEDULE (TENTATIVE):

This schedule is tentative and subject to change. Please check Piazza for lecture slides, and other course related documents.

Date	Lect.	Title	Notes
Aug 28	1	Introduction	
Aug 30	2	Operating System Structures	
Sep 4	3	Processes	
Sep 6	4	Threads	*Project-1 out*
Sep 11	5	Project-1 Discussion	
Sep 13	6	CPU Scheduling – I	
Sep 18	7	CPU Scheduling – II	
Sep 20	8	Process Synchronization – I	
Sep 25	9	Process Synchronization – II	
Sep 27	10	Deadlocks – I	
Oct 2	11	Deadlocks – II	
Oct 4	12	Midterm-I Review	
Oct 9		MIDTERM-I EXAM *(Room: NSC 201)*	
Oct 11	13	Midterm-I Discussion	
Oct 16	14	Main Memory - I	
Oct 18	15	Main Memory – II	*Project-1 due*
Oct 23	16	Project-2 Discussion	*Project-2 out*
Oct 25	17	Virtual Memory – I	
Oct 30	18	Virtual Memory – II	
Nov 1	19	File Systems – I	
Nov 6	20	File Systems – II	
Nov 8	21	Mass Storage & I/O – I	
Nov 13	22	Mass Storage & I/O – II	
Nov 15	23	Distributed Systems – I	
Nov 20	24	Distributed Systems – II	
Nov 22			Fall Recess
Nov 27	25	Distributed Systems – III	
Nov 29	26	Protection & Security	
Dec 4	27	Midterm-II Review	
Dec 6		MIDTERM-II EXAM *(Room: NSC 201)*	
Dec 9			*Project-2 due*

ACADEMIC INTEGRITY POLICY:

UB's definition of Academic Integrity in part is, "Students are responsible for the honest completion and representation of their work". It is required as part of this course that you read and understand the departmental academic integrity policy located at the following

URL: http://www.cse.buffalo.edu/undergrad/current_students/policy_academic.php

There is a very fine line separating conversation pertaining to concepts and academic dishonesty. You are allowed to converse about general concepts, but in no way are you allowed to share code or have one person do the work for others. If you are caught violating the academic integrity policy, you will minimally receive a ZERO in the course.

* PS: We are using professional software which can easily detect any cheating attempts in programming projects. The results generated by this software is considered as official evidence for cheating from another student, or from internet or any other resource.