CSE 410: Operating Systems (Fall 2021)

Course Information
The course will study: Synchronization, via semaphore operations, of processes/threads executing within a shared memory. Mapping Virtual Addresses to Physical Addresses in a paged virtual memory system. Page faulting and page replacement algorithms in a virtual memory system. Deadlock and how to prevent/avoid/detect deadlock. Scheduling algorithms, including disk scheduling algorithms. Inode structures of file systems. Computer Security.

Schedule: Tu Th 10:20am-11:40am, online.

Instructor: Li Xiao, Email: lxiao@cse.msu.edu
Office hours: Tu Th 11:40am-12:40pm, and by appointment, online.

TAs: Hanqing Guo, guohanqi@msu.edu
Office Hours: Tu Th 2pm-3pm, or week of project due: M W F 12pm-2pm, online


WWW: Information about the class will be posted at: https://d2l.msu.edu/

Prerequisites: (CSE232 and CSE260) and CSE 325

Exams: Midterm: Thursday, October 21, 10:20am-11:40am, in person, Wells Hall A134
Final: Thursday, December 16, 10:00am-12:00pm, in person, Wells Hall A134

Grading: These are the grading elements of this course:
In-Class Activities: 10%
Projects: 40%
Midterm: 20%
Final: 30%

Final grades will be based on the following scale:
4.0 \(\geq\) 90%; 3.5 85%; 3.0 80%; 2.5 75%; 2.0 70%; 1.5 65%; 1.0 60%.

Attendance: You are expected to attend all class sessions. Failure to attend a class may be reflected in your in-class activity score.

Late Assignments and Makeup Exam:
In general, no late work will be accepted and no makeup exam will be allowed except under very special circumstances. If you have to submit a project or homework late or have to have a makeup exam, you must send your request to the TA and the instructor with documented proof for approval in advance unless it is impossible.

Academic Honesty:
Article 2.3.3 of the Academic Freedom Report states that "the student shares with the faculty the responsibility for maintaining the integrity of scholarship, grades, and professional standards." In addition, the College of Engineering and Computer Science Department adheres to the policies on academic honesty as specified in General Student Regulations 1.0, Protection of Scholarship and Grades, and in the all-University Policy on Integrity of Scholarship and Grades, which are included in Spartan Life: Student Handbook and Resource Guide. Students who commit an act of academic dishonesty may receive a 0.0 on the assignment or in the course.
In this class: You may discuss assignments in general terms with your classmates or the course staff, but the assignment must be entirely your own work. This is particularly true in this course. You are not permitted to receive solutions from others, or to read or copy part or all of another person’s solution to a problem. Do not use code you have been given or have found on the Internet. The Chegg and Similar Sites policy is available at: https://www.cse.msu.edu/chegg

Course Requirements
- Internet connection (DSL, LAN, or cable connection desirable).
- Access to Desire2Learn (D2L), Zoom, Piazza, Mimir, Crowdmark, login with your MSU NetID.
- Ability to scan and upload documents (e.g. CamScanner or Adobe Scanner app).
- Use of webcam or phone cameras.

Course Delivery Structure
This course will be delivered in Hybrid modality. The lectures will be synchronous online via zoom and exams will be in person in the assigned classroom. You will need your MSU NetID to login to the course from the D2L homepage (http://d2l.msu.edu). Students may forward their D2L email to an external email address (https://help.d2l.msu.edu/node/4410).
- In D2L, you will access online lessons, course materials, your grades, and additional resources.
- Zoom will be used for synchronous lecture delivery and student participation.
- Piazza will be used for class discussion.
- Mimir will be used for project submission and grading.
- Crowdmark will be used to upload your worksheets grading.

Class Recordings
Each class session of this course will be recorded for class purposes only. The recordings will be available to students registered for this class. This is intended to supplement the classroom experience. Students are expected to follow appropriate University policies and maintain the security of passwords used to access recorded lectures. Recordings may not be modified, reproduced, shared with those not in the class, or uploaded to other online environments, or distributed for any other purpose. Doing so may result in disciplinary action. If the instructor or another University office plan other uses for the recordings beyond this class, students identifiable in the recordings will be notified to request consent prior to such use.

Course Content
- Overview of computing systems (Stallings, chapters 1 and 2)
- Processes, threads, scheduling (Stallings, chapters 3, 4, 9)
- Concurrent processes (Stallings, chapters 5 and 6)
- Memory management (Stallings, chapters 7 and 8)
- I/O and file management (Stallings, chapters 11 and 12)
- computer security (Stallings, chapter 15)
Students will receive the most benefit from the lectures if they have read the appropriate materials before attending class.

Note that the instructor reserves the right to modify the course policy, the course calendar, course materials, and assignments.

Resource Center for Persons with Disabilities (RCPD): https://www.rcpd.msu.edu/, (517) 884-7273