CSE 410
Operating Systems
Summer Semester 2015

Class Room: 1234 Engineering Building
Class Time: MWF 10:20am-12:10pm

OBJECTIVES
The course will study: History and evolution of operating systems. Process and processor management. Primary and auxiliary storage management. 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; structures of file systems; computer security; distributed applications.

INSTRUCTOR
Rana Forsati
Email: forsati@cse.msu.edu

TEACHING ASSISTANT
Chen Qiu
Email: qiuchen1@msu.edu

COURSE WEBSITE
Information related to the course is available on the Internet
http://www.cse.msu.edu/~cse410/index.html

COURSE PIAZZA
https://piazza.com/msu/summer2015/cse410/home

COURSE TEXTBOOK

GRADING:
Each student's final grade will be assigned based on the the following scale:
4.0 >= 90%
3.5 >= 85%
3.0 >= 80%
2.5 >= 75%
2.0 >= 70%
1.5 >= 65%
1.0 >= 60%
Grade thresholds may be reduced if necessary at the end of the session. In other words, you may receive a better grade than the above scale indicates.

**Final average weighting:**
- Mid-term exam 25%
- Final exam 25% **Last day of class**
- Projects/Homeworks 40%
- Quiz/Exercise 10%

**ATTENDANCE**
Regular class attendance is essential for success in this course, but will not be recorded for grading purposes.

**COURSE TOPICS**
The following topics will be covered this semester:

- a) Overview of computing systems (Stallings, chapters 1 and 2)
- b) Processes, threads, scheduling (Stallings, chapters 3, 4, 9)
- c) Memory management (Stallings, chapters 7 and 8)
- d) Concurrent processes (Stallings, chapters 5 and 6)
- e) I/O and file management (Stallings, chapters 11 and 12 if time permits)

Exams will be based on the above chapters of the textbook, material covered in class, projects, homework, and any supplementary materials that are be provided to you.

**TENTATIVE COURSE SCHEDULE** (all chapters are from Stallings 8th Edition)
Projects typically will be assigned one week before their due date. Chapter coverage is ordered so as to support the programming projects.

**Week 1 (May 18, 20, 22)**
- Cover chapters 1,2,3
- Exercise #1 will be posted on Piazza

**Week 2 (May 27, 29) (Monday, May 25 is a holiday)**
- Cover chapters 3 and 4
- Exercise #2 will be posted on Piazza
- Homework 1 due May 27

**Week 3 (June 1, 3, 5)**
- Cover chapters 4 and 9
- Exercise #3 will be posted on Piazza
- Homework 2 due June 3

**Week 4 (June 8, 10, 12)**
- Midterm Exam (Monday, June 8th)
Cover chapters 7 and 8  
Exercise #4 will be posted on Piazza  
Homework 3 due June 10

**Week 5 (June 15, 17, 19)**  
Cover chapters 5 and 6  
Exercise #5 will be posted on Piazza  
Homework 4 due June 17

**Week 6 (June 22, 24, 26)**  
Cover chapters 11 and 12  
Homework 5 due date

**Week 7 (June 29, July 1)**  
Overview and exam practice  
Homework 6 due June 29  
**Final Exam (Wednesday, July 1st)**

**PROJECTS**

A series of programming projects will be assigned during the semester. These projects will include the design and implementation of assignment solutions using C++ programs.

To be eligible for full credit, a solution to a computer project must conform to the specifications stated on the handout for that assignment. Solutions that conform to some, but not all, of the specifications will be eligible for partial credit.

All programming assignments will have a due date specified. After the due date, late assignment points will be reduced by 20% per day (rounded up to the nearest number of days). Saturdays and Sundays are not included. Thus, after one week late, an assignment will be worth 0 points. Some assignments may not permit late submissions. This will be mentioned when the work is assigned.

To be eligible for any credit, a solution to a computer project must be your own work. You are encouraged to discuss the assignment specifications with your instructor, your Teaching Assistant, and other students from the class. However, anything that you submit for grading must be your own work. Under no circumstances should you share a project solution with another student who is not working with you on a team approved by the course instructor. Each project solution may be electronically compared to all other solutions to identify similar solutions. Students who submit solutions which are essentially identical may receive a penalty grade, such as a score of zero for that assignment or a grade of zero in the course.

**NOTES**

The instructor reserves the right to modify course policies, the course calendar, and assignment specifications. Any extenuating circumstances which impact your participation in the course should be discussed with your lecture instructor as soon as those circumstances are known (such as absences due to illness).

All students are expected to be responsible users of the computer system provided for this course. Account usage guidelines published by the Department of Computer Science and Engineering are posted under:
Make-ups for examinations may be arranged if your absence is caused by documented illness or personal emergency. A written explanation (including supporting documentation) must be submitted to your lecture instructor; if the explanation is acceptable, an alternative to the examination will be arranged. When possible, make-up arrangements must be completed in advance.

If you are unable to complete a computer project or other assignment by the specified due date due to illness or personal emergency, contact your instructor. If your explanation is acceptable, the assignment due date will be extended (or we will make other appropriate arrangements).

To be eligible for credit, each assignment solution must fulfill the published requirements, and must be your own work. The Department of Computer Science and Engineering expects all students to adhere to MSU's policy on Integrity of Scholarship and Grades, which includes the statement, ".... all academic work will be done by the student to whom it is assigned, without unauthorized aid of any kind" (Academic Programs, General Procedures and Regulations).

The complete text of the University policy is posted under:

http://www.msu.edu/unit/ombud/RegsOrdsPolicies.html#Integrity

Students who violate this policy may receive a failing grade in the course.

If you have a disability, please contact the Resource Center for People with Disabilities to discuss academic accommodations (353-9642).