ComS 352 Introduction to Operating Systems Fall 2010

Instructor and TA

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Lecture Room and Time
Gilman 1652; MWF 3:10-4:00 pm

Recitation / Help Sessions
Thursdays 12:10-1pm Gilman 1810 (for Section 1)
Fridays 12:10-1pm Gilman 1810 (for Section 2)

Prerequisites
Com S 321, Com S 229, ENGL 250 OR ENGL 105

Textbook
Silberschatz, Galvin, and Gagne, Operating System Concepts, 8th Ed., Wiley

Topics
Chapter 1 & 2: Overview of OS
Chapter 3: Processes
Chapter 4: Threads
Chapter 5: CPU Scheduling
(Midterm Exam 1)
Chapter 6: Process Synchronization
Chapter 7: Deadlocks
Chapter 8: Main Memory Management
(Midterm Exam 2)
Chapter 9: Virtual Memory
Chapter 10: File-System Interface
Chapter 11: File-System Implementation
Chapter 12: Mass-Storage Structure
Chapter 13: I/O Systems
Chapter 14 & 15: Protection & Security
(Final Exam)

Exams
There will be two midterm exams and one final exam. Midterm exams will be one-hour, in-class exams. The tentative exam schedule is Friday, October 1 for Midterm 1, which will cover Chapters 1-5. Midterm 2 will be on Friday, November 12, and will cover chapters 6-8 or 6-9, depending on the class progress. The final exam will be given according to the University Schedule, and the date will be announced later. The final exam will cover the remaining material in depth and general concepts from the parts covered by midterms. All exams will be closed book and closed notes.
Homework
Homework assignments will be announced on every Monday (except the 1st week and the weeks of midterm exams), and will be due on the following Monday mid-night (unless stated otherwise). Homework assignments will be discussed during recitation/help sessions. All homework will be announced electronically on WebCT and must be turned in electronically on WebCT. All homework should be submitted in PDF or plaintext format (Other formats are not acceptable).

Programming Projects
There will be two programming projects. The following policies will be applied to both projects:

- Projects must be turned in electronically by submitting all necessary source code (which may include test code) for correct compilation.
- Source code must include proper documentation to receive full credit.
- All projects require the use of makefiles. The grader must be able to build your executable by simply typing “make” command.
- Source code must compile and run correctly on the machine pyrite, which will be used by the TA for grading.
- Programs that do not compile may receive zero point.
- Project statements will provide specifications; however, implementation-specific details may not be specified. It will be your responsibility to figure out the implementation approaches.
- You are responsible for thoroughly testing and debugging your code. Samples given with the project assignments are for explanation/illustration purpose only; the TA may try to break your code by subjecting it to bizarre test cases.

Grading Policy
Your final grade in this course will be based on homework, programming projects, and exams. These will be weighted as follows:

- 30% Homework (10 out of 11 homework assignments; the one with lowest grade will be dropped)
- 20% Programming projects
- 30% (15%*2) Midterm exams
- 20% Final exam

Grading Scale
90% and higher: A
85% and higher: A-
80% and higher: B+
75% and higher: B
70% and higher: B-
65% and higher: C+
60% and higher: C
55% and higher: C-
50% and higher: D+
45% and higher: D
Lower than 45%: F

Optional Research Project and Contest
You are encouraged to conduct an optional research project and attend a research contest which will be held on the last week of class. The research project is optional; that is, you are not required to do it. But, if you have completed the project and turn it in by the designated deadline, you will earn 3% to 10% bonus credits which will be added to your final grade, depending on the quality of your research project. The research project will be conducted based on a series of simulators that will be introduced in the course (TA recitation sessions). These simulators are java programs that simulate several basic OS functionalities (including process/CPU scheduling, process management, process/thread synchronization, address translation, disk head scheduling, concurrent I/O, etc.). You will need to learn how to use at least one of
these simulators in very detail. By applying the basic knowledge you will learn from this course, you will conduct in-depth research on one OS-related topic that you select. You will do theoretical analysis, design experiments (i.e., simulations), perform the simulations by using one of the simulators, collect/analyze experimental results (data), and write a report of your research results backed up with the experimental data. You may even extend/enhance the simulators for your research purpose. By Monday, November 29 (i.e., the Monday after the Thanksgiving holidays), you should turn in your final research report to be eligible to get extra credits and attend the contest. All submitted reports will be pre-reviewed by the instructor and the TA to select up to five finalists to compete on Wednesday, December 8 (the final contest day), when the champion will be determined. The champion will receive an award. All submitted reports will be graded, and each will earn 3%-10% bonus credits added to the final grade.

**Late policy**
Homework or programming projects will not be accepted after 72 hours later than the submission deadline. 10% of the full credit of the homework/project will be automatically deducted for submission later by 1 second to 1 day; 20% will be deducted for submission later by 1 day plus 1 second to 2 days; and 30% will be deducted for submission later by 2 day plus 1 second to 3 days. Research report submitted later than the designated submission deadline will not be accepted.

**Appealing policy**
Appealing for homework/programming project grades will be first handled by the TA within one week after the homework/project has been returned. For disputes, the student should appeal to the instructor within two weeks after the graded homework/project has been returned. Appealing for exam grades will be handled by the instructor. The student should appeal to the instructor within one week after the graded exam is returned.

**Academic Honesty**
Homework assignments and projects are individual efforts, not group efforts. While discussion of assignments with other students is encouraged, a level of discussion that produces identical work is prohibited. When discussing code with other students, you may

- discuss algorithms, data structures, and implementation strategies
- discuss the specifics of system calls or APIs
- assist in debugging, possibly by suggesting diagnostic print statements
- copy code given out in class

You may not however discuss algorithms to the level of detail that (almost) completely specifies it.

**Accommodation of Disabilities**
If you have a disability and require accommodations, please contact the instructor early in the semester so that your learning needs may be appropriately met. You will need to provide documentation of your disability to the Student Disability Resources (SDR) office, located on the main floor of the Student Services Building, Room 1076, 515-294-7220.