



CS 570 Operating Systems
Spring 2019 / Schedule # 21043

Course and Office Hours

Class meets: Tuesday and Thursday 4:00-5:15 PM COM 207

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Course Overview

This is a required course for computer science majors that teaches you how to design, implement, and understand essential software services that interface between underlying hardware and application programs.

After successful completion of the course, students will be able to:

- Understand the role of operating systems as resource managers for computer hardware and describe the fundamental structure and design of these systems.
- Implement, apply and/or evaluate algorithms associated with resource management such as coordinated access to shared memory buffers, protection of user and system data, and ensuring system stability.
- Develop more complex programs in C or C++ by applying advanced techniques such as making function calls through variables pointing to functions.
- Work collaboratively using pair programming techniques.
- Comprehend and reflect on the impact of computer software on the health and well-being of society through discussion of system-critical applications and the need for more comprehensive testing (e.g. fly by wire aviation systems, pace-makers).
- Engage in operating systems design projects.

Enrollment Information

Prerequisites: CS 310, CS 370, and demonstrated programming competency in C or C++.

Course Materials

Required:

Tanenbaum, A. S. and Bos, H. (2015). *Modern Operating Systems*. Boston, MA: Pearson

See web site for recommendations on books on C/C++ as well as information on the programming environment.

Course Structure and Conduct

CS 570 is a lecture-based course. Assignments are a combination of problems, essay-like answers, and programs.

Course Assessment and Grading

Materials are evaluated using coarse grading. It is very difficult to justly and systematically determine that one answer is worth N points and another is worth $N \pm \epsilon$. Consequently, points are assigned based upon broad categories that indicate the degree of mastery:

A+: Excellent (E) B : Mostly right (MR) ~40% : Valiant effort (VE)
A : Good (G) C : Right track (RT) F : Not much effort

Percentage contribution of assessments to your final grade:

Exams (40% of grade): There will be two closed book exams. The exams are non-cumulative, but the second will build on material covered in the first. Generally, I tend to emphasize concepts and you should expect short essay questions in addition to any short answer or quantitative questions. If you cannot attend an exam, contact me before the exam. No make-up exams will be permitted without prior approval.

Assignments (60%): Problem sets consist of questions and programming assignments, and are due at the beginning of class. Any assignments turned in after the beginning of class will be counted late. Late assignments will be accepted up to one class period after the due date with a penalty of 10% of the possible number of points. The number of problem sets varies from semester to semester, but there are typically five to six problem sets. Questions may be quantitative or qualitative in nature. For qualitative questions you are expected to give responses in grammatically correct complete sentences. For quantitative problems, you must show your work in order to receive credit.

Note on programs: Whether as part of a lab or problem set, programs must be well structured and commented. Frequently, students make their lives more difficult by simply writing the program without thinking first. The use of good program design will make your life significantly easier. In addition, an emphasis should be made on making your programs readable. Use meaningful variable names and comment as you write the program rather than adding comments at the end. If you encounter difficulties in your projects, I will assist you provided that you have made a good-faith effort to resolve the problems first. Functionality may be evaluated automatically, be sure to follow specified interfaces and naming conventions. Good design and structure are expected; programs are not assessed as excellent or good simply because they work. You are not expected to comment every line nor to comment obvious lines of code (e.g. `counter = counter + 1`), but you must provide enough documentation such that a reasonable programmer can easily follow your code. Failure to do so will result in the program earning a lower number of points. See the course FAQ for guidelines on appropriate program structure.

Schedule

A week by week schedule may be found on the course web site as well as a Google calendar that lists due dates for assignments. Typically, five to six problem sets will be assigned with deadlines varying from one to two weeks from assignment depending upon the complexity. Students are encouraged to use the pair programming paradigm for programming assignments with the exception of the first program which demonstrates proficiency in C or C++. Details on pair programming will be discussed in course.

No early finals will be given, so if you are booking plane tickets do not schedule a date before the final exam (Tues May 14, 3:30 PM – 5:30 PM in our normal room).

Other Course Policies

Accommodations: The learning environment should be accessible to all. SDSU provides reasonable accommodations in the following situations:

Disability: If you are a student with a disability and believe you will need accommodations for this class, it is your responsibility to contact the Student Ability Success Center at (619) 594-6473. To avoid any delay in the receipt of your accommodations, you should contact the center as soon as possible. Accommodations are not retroactive.

Religious and official university activities (e.g., athletics): Within the first two weeks of classes, notify your instructor of planned absences for religious or university activities. If scheduling changes occur, immediately notify the instructor.

Academic Honesty: You are free to discuss ideas and strategies for approaching problems with others, but students must complete work on their own. Using other people's work in any form (i.e. the web, other students) will result in disciplinary action. **Plagiarism is unacceptable and will not be tolerated. You are responsible for understanding plagiarism;** the library has a tutorial (<http://library.sdsu.edu/guides/tutorial.php?id=28>). If you think that copying an answer from the web is okay, take the tutorial. If you think that paraphrasing with citations is okay, take the tutorial... ignorance is not a valid excuse. If you have any questions about plagiarism after taking the tutorial, I will be happy to assist you. Students who have plagiarized or cheated will be reported to the Center for Student Rights and Responsibilities. In addition to the academic penalty (0 on the assignment with no possibility of redemption), the university may decide upon additional sanctions such as expulsion.

Classroom policy: Turn cell-phones off before class and refrain from chatting during class as both disturb the students around you. If you find yourself unable to resist chatting, you will be asked once to be quiet. A second time will result in your being asked to leave for the day. If you need to work on assignments for another class, do it somewhere else.

Conflicts/Issues:

Should you have any concerns about the course, please see me during my office hours or make an appointment and we will try to resolve the problem together. If you are not satisfied with the resolution after having discussed the issue with me, you may contact Dr. Shangping Ren.