

CSCI 475: Operating Systems

Professor	Adam A. Smith aasmith@pugetsound.edu	http://cs.pugetsound.edu/~aasmith Office hours by appointment
Meetings	MWF 3:00-3:50 online. The final will be on Monday, May 10th at 4:00.	
Course Description	<p>Welcome to Operating Systems!</p> <p>The operating system of a computer is the computer’s “government”. It is the system that interfaces with the hardware, allocates resources, and manages security. It doesn’t directly do any “useful work” itself, and yet it is vital if any work is going to get done. It is the OS that decides which application programs are important and need the system’s full resources, which ones do not matter, and which ones need to be shutdown. Also like government, a good operating system is invisible. It is only when it goes rogue that it becomes noticeable.</p> <p>We will be studying the building blocks of operating systems: how they interact with both the hardware beneath them, and the applications programs above them. We will learn about file systems and how files are organized by the OS. We will learn different techniques for allocating resources such as memory and processors. And we will see how to avoid “deadlocks”: allocation stalemates in which nothing can get done.</p> <p>One of the most important things we will be studying this semester is parallel processing. Almost every desktop computer sold today is a multiple-core system, able to run many programs at once. Users expect a system to multitask. At the same time, hardware manufacturers are running into serious physical limitations that are slowing the evolution of individual processors. Many people believe that the way to solve this problem is to encourage the development of massively-parallel programs that run on many processors at once. This class will give you experience in that.</p>	
Topics Covered/ Learning Outcomes	You will be able to understand, implement, and use the following tools:	
	<ul style="list-style-type: none">• The C programming language• Synchronizing computer processes• Threads & parallel computation• CPU scheduling• Virtual memory• CPU scheduling• Deadlock avoidance• File storage	
Web Page	The class web page will be located at http://cs.pugetsound.edu/~aasmith/cs475/ . Readings, assignments, links, and other valuable info will be posted there.	
Text	We will be using “ <i>Operating System Concepts</i> ”, by Silberschatz, Galvin, and Gagne—known informally as “The Dinosaur Book”. We will use the tenth edition, though previous editions will <i>probably</i> be okay.	
Prerequisites	You should have already taken a class in computer architecture, such as CSCI 281.	
Course Policies	There will be several assignments over the course of the class—usually one every other week. You are free to talk to others in the class about them, but I expect what you finally turn in to be <i>100% your own work</i> . Assignments will be penalized when multiple students turn in the same code. They will also be penalized by 20% for each working day (or fraction thereof) they are late, down to 40%. However, you will have five	

“extension days” during the semester to extend a deadline by one working day. They will be used automatically, unless you specify otherwise.

There will also be a self-directed course project expanding on one of the areas we have covered. Proposals will be due in March, and the project itself will be due at the end of the semester. You may work in teams, but I will expect larger projects.

You all should be aware of the Honor Code at the college. Please do not cheat—it will not go well for you. *Any suspected cheating will be immediately reported.*

Exams are closed book, and will be cumulative. You are allowed a calculator (or your phone, so long as it is in “airplane mode”) and one two-sided, letter-sized page of notes. They will be graded on a curve, with the highest score considered to be 100%.

Grading

Final grades will be determined as follows:

Homeworks	Project	Midterm	Final
30%	20%	25%	25%

Class participation and effort may help bump you up, if your final grade is borderline.

Attendance

I will not be keeping attendance (except on the first day). However, odds are that your attendance will correlate highly with your final grade.

Required Boilerplate UPS Info

Student Accessibility and Accommodation: If you have a physical, psychological, medical or learning disability that may impact your coursework, please contact Peggy Perno, Director of Student Accessibility and Accommodation, 105 Howarth, 253.879.3399. She will determine with you what accommodations are necessary and appropriate. All information and documentation is confidential.

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Bereavement: Students are normally eligible for, and faculty members are expected to grant, three consecutive weekdays of excused absences, without penalty, for the death of a family member, including parent, grandparent, sibling, or persons living in the same household. Should the student feel that additional days are necessary, the student must request additional bereavement leave from the Dean of Students or the Dean’s designee. In the event of the death of another family member or friend not explicitly included within this policy, a bereaved student may petition for grief absence through the Dean of Students office for approval. To request bereavement leave, a student must notify the Dean of Students office by email, phone, or in person about the death of the family member. When bereavement leave is approved, the Dean of Students office will notify the student and the Office of Academic Advising. In turn, Academic Advising will notify the students instructors and advisor of the dates of the excused absences for bereavement leave. When the student returns from leave, the student must submit to the Dean of Student’s office an obituary notice, a funeral or memorial program, or other documentation regarding the death of a family member. While this policy excuses a student from class attendance, the student remains responsible for missed academic work. Therefore, the student is to seek the advice of each instructor to consider the options and to establish a plan to compensate for coursework missed during bereavement leave. For more information, please contact the Dean of Students office.

Miscellany

If there are any special holy days that you will be taking off, please let me know as soon as you can so that we can work around them.

Please consider getting a flu shot—*especially* this year. Influenza kills, and disease can spread rapidly. (And you really don’t want to miss a week of class. Trust me.)

Finally...if there’s anything else I can do to help you, please let me know. I’m willing to go out of my way to make this a valuable class for you, but I can’t do that unless you talk to me.