

CSS 430 A Sp 20: Operating Systems

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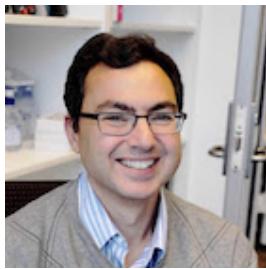
CSS 430 A: Operating Systems

Spring 2020 | Tuesday/Thursday 8:45-10:45AM

[!\[\]\(17413706fd4997a1a4bdf85c6864eee1_img.jpg\) Lecture Materials](#)[!\[\]\(faf942dc3e59ce8eb64b4ac481eca7e0_img.jpg\) Assignments](#)[Zoom Link](#)

(<https://washington.zoom.us/j/270756440?pwd=TVJVek10d0Y2cXdUcWd0bXpvNDI0QT09>)

Instructor Information



Yusuf Pisan, Ph.D.

Email: pisan@uw.edu (<mailto:pisan@uw.edu>)

Office Hours: Tuesday 11-12, Thursday 2-3pm

[Zoom Link](#) (<https://washington.zoom.us/my/pisan?pwd=Sng5eUt6WWF5ZkN6MIBMUWFnMnZldz09>) Meeting ID: 425-492-4951

Meeting Password: pisan

Lectures

Tuesday/Thursday 8:45-10:45

[Zoom Link](#) (<https://washington.zoom.us/j/270756440?pwd=TVJVek10d0Y2cXdUcWd0bXpvNDI0QT09>)

Meeting ID: 270-756-440 Meeting Password: 430

Course Description

This course introduces the logical design of operating systems. Topics covered include processes, threads, CPU scheduling, synchronization, deadlocks, memory management, virtual memory, file systems, I/O systems, protection, and security used in the popular desktop and server operating systems. A focus is made on the Unix operating system. The course utilizes Java in programming examples and as a basis for design.

Textbooks

Operating System Concepts, <https://www.os-book.com/OS10/> (<https://www.os-book.com/OS10/>) 10th edition, Abraham Silberschatz, Peter Galvin, and Greg Gagne, Addison-Wesley, 2013. (available as an e-text)

Optional References

[**Understanding the Linux Kernel,**](http://www.oreilly.com/catalog/linuxkernel/) (<http://www.oreilly.com/catalog/linuxkernel/>) Daniel P. Bovet and Marco Cesati, O'Reilly, 2000

[**The Design of the Unix Operating System,**](https://www.pearson.com/us/higher-education/program/Bach-Design-of-the-UNIX-Operating-System/PGM81513.html) (<https://www.pearson.com/us/higher-education/program/Bach-Design-of-the-UNIX-Operating-System/PGM81513.html>) Maurice J. Bach, Prentice Hall, 1987

[**Advanced Programming in the Unix Environment**](http://www.amazon.com/Advanced-Programming-UNIX-Environment-2nd/dp/0201433079/ref=dp_ob_image_bk) (http://www.amazon.com/Advanced-Programming-UNIX-Environment-2nd/dp/0201433079/ref=dp_ob_image_bk) 2nd Ed, W. Richard Stevens, Addison Wesley, 2005

Grading

A scale of 90s (3.5-4.0), 80s (2.5-3.4), 70s (1.5-2.4), 60s (0.5-1.4) is a rough guide. 2.0 roughly corresponds to 75%. Grades are not curved which means everybody can get a 4.0. Your success is not determined by how well or badly other students in the class are doing.

In-Class Exercise: 10%, Homework: 20%, Projects: 40%, Midterm: 15%, Final: 15%

Policies

[**Student Help for Learning Online**](https://www.uwb.edu/it/student-continuity) (<https://www.uwb.edu/it/student-continuity>) is a resource specifically setup to support students during remote teaching and learning. As resources for student become available, you will find it there.

Attendance: Attend all classes. If you are going to miss a class, I'd appreciate a courtesy email with an explanation, but it is not required. You are responsible for all the material covered in class, as well as any announcements including change of due dates or assignment specifications. You can miss one "In-Class Exercise" exercise without penalty. If you miss a class, I expect you to make-up for it on your own by asking your friends, reviewing the textbook, lecture materials, etc.

Electronics: Research shows that using pen and paper to take notes is much more effective than using a computer. Even though our classes will be online, you should close your email, your browser tabs and focus on the class. Take notes using pen and paper; it will help you learn better.

Project Submission: You can submit one and only one project 24 hours late without any penalty. All other projects as well as all home works must be submitted on time. I will make allowances for exceptional circumstances such as sickness, bereavement and official university business. I will not make exceptions for work, other classes, personal obligations, etc.

Effort: Expect to spend 10-15 hours per week outside class. If an assignment is worth 10%, expect to spend 10-20 hours on the assignment. If you are spending too much time or too little time, let me know we'll adjust the course content. Learning happens best when you are challenged and get to stretch your limits.

Exam Procedures: Online, open-book

Academic Integrity: Do the right thing, see [\(http://guides.lib.uw.edu/bothell/ai\)](http://guides.lib.uw.edu/bothell/ai) for details on what is "right" if in doubt. Talking about code is OK, looking at each others code is not OK. Looking at references to understand how a functions gets used is OK; looking up assignment solutions is not OK.

Communication: Join the course channel on discord [\(https://discord.gg/5mEm92e\)](https://discord.gg/5mEm92e). Discord is an extension of the classroom, so use a meaningful nickname and act professionally. If your question can be answered by a classmate, post it to discord rather than using email or waiting for office hours. Office hours are for complex issues or topics you are struggling with.

Use your UW email rather than "Canvas Messaging" to communicate directly with me. "Canvas Submission Comments" should only be used to draw the grader's attention to a specific part of your submission.

Problems: If you are having difficulties, come and talk to me. If I don't know about it, I cannot help you. Small problems can be fixed easily early in the quarter, but might become impossible to fix later on.

Access and Accommodations: Your experience in this class is important to me. If you have already established accommodations with Disability Resources for Students (DRS), please communicate your approved accommodations to me at your earliest convenience so we can discuss your needs in this course. See [\(http://www.uwb.edu/studentaffairs/drs\)](http://www.uwb.edu/studentaffairs/drs) if you need to establish accommodations.

Religious Accommodations: Washington state law requires that UW develop a policy for accommodation of student absences or significant hardship due to reasons of faith or conscience, or for organized religious activities. The UW's policy, including more information about how to request an accommodation, is available at Religious Accommodations Policy (<https://registrar.washington.edu/staffandfaculty/religious-accommodations-policy/>) (<https://registrar.washington.edu/staffandfaculty/religious-accommodations-policy/>). Accommodations must be requested within the first two weeks of this course using the Religious Accommodations Request form (<https://registrar.washington.edu/students/religious-accommodations-request/>) (<https://registrar.washington.edu/students/religious-accommodations-request/>).

Common Course Policies for the School of STEM: See <https://www.uwb.edu/stem/about/stem-policies> (<https://www.uwb.edu/stem/about/stem-policies>) for additional information on Academic Integrity, Access and Accommodations, Classroom Emergency Preparedness, For Our Veterans, Grade

of Incomplete, Inclement Weather, Parenting Resources, Respect for Diversity, Student Support Services, Wondering How to Address Faculty? etc. (P.S. I prefer to be addressed as 'Professor Pisan')

Zoom Recordings: This course is scheduled to run synchronously at your scheduled class time via Zoom. These Zoom class sessions will be recorded. The recording will capture the presenter's audio, video and computer screen. Student audio and video will be recorded if they share their computer audio and video during the recorded session. The recordings will only be accessible to students enrolled in the course to review materials. These recordings will not be shared with or accessible to the public. The University and Zoom have FERPA-compliant agreements in place to protect the security and privacy of UW Zoom accounts. Students who do not wish to be recorded should: 1) Change their Zoom screen name to hide any personal identifying information such as their name or UW Net ID, and 2) Not share their computer audio or video during their Zoom sessions.

Lecture Materials

Topics

Course Summary:

Date	Details	
Tue Mar 31, 2020	 Week One - L1 In-Class Exercise (https://canvas.uw.edu/courses/1387441/assignments/5389122)	due by 10:45am
Wed Apr 1, 2020	 Using Extension (https://canvas.uw.edu/courses/1387441/assignments/5298566)	due by 11:59pm
Thu Apr 2, 2020	 Week One - L2 In-Class Exercise (https://canvas.uw.edu/courses/1387441/assignments/5347833)	due by 10:45am
Tue Apr 7, 2020	 Week Two - L1 In-Class Exercise (https://canvas.uw.edu/courses/1387441/assignments/5347830)	due by 10:45am
	 50-Step Unix (https://canvas.uw.edu/courses/1387441/assignments/5298545)	due by 11:59pm
	 HW01 (https://canvas.uw.edu/courses/1387441/assignments/5387097)	due by 11:59pm
	 Post on Discord (https://canvas.uw.edu/courses/1387441/assignments/5298561)	due by 11:59pm
Sun Apr 12, 2020	 Send Email (https://canvas.uw.edu/courses/1387441/assignments/5298564)	due by 11:59pm
	 HW02 (https://canvas.uw.edu/courses/1387441/assignments/5387098)	due by 11:59pm

Date	Details	
Tue Apr 14, 2020	 Week Three - L1 In-Class Exercise (https://canvas.uw.edu/courses/1387441/assignments/5436768)	due by 11am
Thu Apr 16, 2020	 Week Three - L2 In-Class Exercise (https://canvas.uw.edu/courses/1387441/assignments/5441345)	due by 11am
	 P1 : Unix Shell (https://canvas.uw.edu/courses/1387441/assignments/5387101)	due by 11:59pm
Tue Apr 21, 2020	 HW03 (https://canvas.uw.edu/courses/1387441/assignments/5440917)	due by 11:59pm
Thu Apr 23, 2020	 Week Four- L2 In-Class Exercise (https://canvas.uw.edu/courses/1387441/assignments/5453371)	due by 11am
Sun Apr 26, 2020	 P2 : Multi-Threaded Sudoku Validator (https://canvas.uw.edu/courses/1387441/assignments/5387103)	due by 11:59pm
Tue Apr 28, 2020	 HW04 (https://canvas.uw.edu/courses/1387441/assignments/5449146)	due by 11:59pm
	 HW05 - No Submission (https://canvas.uw.edu/courses/1387441/assignments/5463993)	due by 11:59pm
	 Midterm (https://canvas.uw.edu/courses/1387441/assignments/5298559)	due by 11am
Tue May 5, 2020	 Midterm (https://canvas.uw.edu/courses/1387441/assignments/5298559) (1 student)	due by 12pm
	 Midterm (https://canvas.uw.edu/courses/1387441/assignments/5298559) (1 student)	due by 2:15pm
	 CSS 430 A Sp 20: Operating Systems (https://canvas.uw.edu/calendar?event_id=1516422&include_contexts=course_1387441)	8:30am to 10:45am
Thu May 7, 2020	 Main Memory-1 (https://canvas.uw.edu/calendar?event_id=1430483&include_contexts=course_1387441)	8:45am to 10:45am
	 Week Six L2 In-Class Exercise Poll (https://canvas.uw.edu/courses/1387441/assignments/5474334)	due by 11am
Mon May 11, 2020	 HW06 (https://canvas.uw.edu/courses/1387441/assignments/5473917)	due by 11:59pm

Date	Details
Tue May 12, 2020	CSS 430 A Sp 20: Operating Systems  (https://canvas.uw.edu/calendar?event_id=1516423&include_contexts=course_1387441) 8:30am to 10:45am
	 Main Memory-2 (https://canvas.uw.edu/calendar?event_id=1430484&include_contexts=course_1387441) 8:45am to 10:45am
	 Week Seven L1 In-Class Exercise Polls (https://canvas.uw.edu/courses/1387441/assignments/5481038) due by 11am
Thu May 14, 2020	CSS 430 A Sp 20: Operating Systems  (https://canvas.uw.edu/calendar?event_id=1516424&include_contexts=course_1387441) 8:30am to 10:45am
	 Virtual Memory-1 (https://canvas.uw.edu/calendar?event_id=1430496&include_contexts=course_1387441) 8:45am to 10:45am
	 Week Seven L2 In-Class Exercise Polls (https://canvas.uw.edu/courses/1387441/assignments/5484238) due by 11am
Tue May 19, 2020	 P3: Scheduling Algorithms (https://canvas.uw.edu/courses/1387441/assignments/5387128) due by 11:59pm
	CSS 430 A Sp 20: Operating Systems  (https://canvas.uw.edu/calendar?event_id=1516425&include_contexts=course_1387441) 8:30am to 10:45am
	 Virtual Memory-2 (https://canvas.uw.edu/calendar?event_id=1430497&include_contexts=course_1387441) 8:45am to 10:45am
Thu May 21, 2020	 Week Eight L1 In-Class Exercise Polls (https://canvas.uw.edu/courses/1387441/assignments/5491172) due by 11am
	CSS 430 A Sp 20: Operating Systems  (https://canvas.uw.edu/calendar?event_id=1516426&include_contexts=course_1387441) 8:30am to 10:45am
	 File System Interface (https://canvas.uw.edu/calendar?event_id=1430499&include_contexts=course_1387441) 8:45am to 10:45am
Sun May 24, 2020	 HW07 (https://canvas.uw.edu/courses/1387441/assignments/5481056) due by 11:59pm

Date	Details
Tue May 26, 2020	CSS 430 A Sp 20: Operating Systems  (https://canvas.uw.edu/calendar?event_id=1516427&include_contexts=course_1387441) 8:30am to 10:45am
	File System Implementation  (https://canvas.uw.edu/calendar?event_id=1430500&include_contexts=course_1387441) 8:45am to 10:45am
	 P4: Contiguous Memory Allocation https://canvas.uw.edu/courses/1387441/assignments/5387134 due by 11:59pm
Thu May 28, 2020	CSS 430 A Sp 20: Operating Systems  (https://canvas.uw.edu/calendar?event_id=1516428&include_contexts=course_1387441) 8:30am to 10:45am
	 TBD (https://canvas.uw.edu/calendar?event_id=1430502&include_contexts=course_1387441) 8:45am to 10:45am
	CSS 430 A Sp 20: Operating Systems  (https://canvas.uw.edu/calendar?event_id=1516429&include_contexts=course_1387441) 8:30am to 10:45am
Tue Jun 2, 2020	 TBD (https://canvas.uw.edu/calendar?event_id=1430503&include_contexts=course_1387441) 8:45am to 10:45am
	 Week Ten L1 Breakout https://canvas.uw.edu/courses/1387441/assignments/5509324 due by 11am
	CSS 430 A Sp 20: Operating Systems  (https://canvas.uw.edu/calendar?event_id=1516430&include_contexts=course_1387441) 8:30am to 10:45am
Thu Jun 4, 2020	 Final Prep (https://canvas.uw.edu/calendar?event_id=1430501&include_contexts=course_1387441) 8:45am to 10:45am
	 HW08 https://canvas.uw.edu/courses/1387441/assignments/5503401 due by 11:59pm
	 P5: BFS - A Unix-like File System https://canvas.uw.edu/courses/1387441/assignments/5387135 due by 11:59pm
Thu Jun 11, 2020	 Final https://canvas.uw.edu/courses/1387441/assignments/5298551 due by 8:45am
	 Optional Final Exam https://canvas.uw.edu/courses/1387441/assignments/5521454 due by 11:15am