CSS 430 B
Operating Systems
Course type: Face-to-Face

Evaluation Delivery: Online
Evaluation Form: A
Responses: 36/39 (92% very high)

Taught by: Yusuf Pisan
Instructor Evaluated: Yusuf Pisan-T Prof

Overall Summative Rating represents the combined responses of students to the four global summative items and is presented to provide an overall index of the class's quality:

Median	College Decile
3.4	**1**
(0=lowest; 5=highest)	(0=lowest; 9=highest)

Challenge and Engagement Index (CEI) combines student responses to several *IASystem* items relating to how academically challenging students found the course to be and how engaged they were:

CEI: 5.6
(1=lowest; 7=highest)

SUMMATIVE ITEMS

	N	Excellent (5)	Very Good (4)	Good (3)	Fair (2)	Poor (1)	Very Poor (0)	Median	DECILE RANK Inst	DECILE RANK College
The course as a whole was:	36	19%	22%	42%	14%		3%	3.3	1	1
The course content was:	36	17%	31%	33%	14%	3%	3%	3.4	1	1
The instructor's contribution to the course was:	36	19%	31%	25%	22%		3%	3.5	1	1
The instructor's effectiveness in teaching the subject matter was:	36	17%	25%	36%	19%		3%	3.3	1	1

STUDENT ENGAGEMENT

Relative to other college courses you have taken:	N	Much Higher (7)	(6)	(5)	Average (4)	(3)	(2)	Much Lower (1)	Median	DECILE RANK Inst	DECILE RANK College
Do you expect your grade in this course to be:	36	3%	14%	22%	39%	19%	3%		4.2	1	1
The intellectual challenge presented was:	36	8%	64%	17%	11%				5.8	6	6
The amount of effort you put into this course was:	36	22%	44%	22%	11%				5.9	6	6
The amount of effort to succeed in this course was:	36	28%	42%	25%	6%				6.0	6	6
Your involvement in course (doing assignments, attending classes, etc.) was:	36	11%	42%	28%	17%	3%			5.6	3	3

On average, how many hours per week have you spent on this course, including attending classes, doing readings, reviewing notes, writing papers and any other course related work?

Class median: 10.5 Hours per credit: 2.1 (N=35)

Under 2	2-3	4-5	6-7	8-9	10-11	12-13	14-15	16-17	18-19	20-21	22 or more
		6%	9%	20%	31%	14%	9%	11%			

From the total average hours above, how many do you consider were valuable in advancing your education?

Class median: 8.3 Hours per credit: 1.7 (N=35)

Under 2	2-3	4-5	6-7	8-9	10-11	12-13	14-15	16-17	18-19	20-21	22 or more
6%	3%	14%	14%	31%	20%	3%	3%	6%			

What grade do you expect in this course?

Class median: 3.3 (N=35)

A (3.9-4.0)	A- (3.5-3.8)	B+ (3.2-3.4)	B (2.9-3.1)	B- (2.5-2.8)	C+ (2.2-2.4)	C (1.9-2.1)	C- (1.5-1.8)	D+ (1.2-1.4)	D (0.9-1.1)	D- (0.7-0.8)	E (0.0)	Pass	Credit	No Credit
11%	31%	20%	20%	9%	9%									

In regard to your academic program, is this course best described as:

(N=35)

In your major	A core/distribution requirement	An elective	In your minor	A program requirement	Other
71%	26%			3%	

STANDARD FORMATIVE ITEMS

	N	Excellent (5)	Very Good (4)	Good (3)	Fair (2)	Poor (1)	Very Poor (0)	Median	DECILE RANK Inst	DECILE RANK College
Course organization was:	36	31%	17%	33%	14%	6%		3.4	1	2
Clarity of instructor's voice was:	36	17%	31%	33%	17%		3%	3.4	1	1
Explanations by instructor were:	36	17%	33%	28%	14%	6%	3%	3.5	1	2
Instructor's ability to present alternative explanations when needed was:	36	22%	22%	28%	22%	3%	3%	3.3	1	1
Instructor's use of examples and illustrations was:	36	22%	22%	25%	25%	6%		3.3	0	1
Quality of questions or problems raised by the instructor was:	36	28%	19%	31%	17%	3%	3%	3.4	1	1
Student confidence in instructor's knowledge was:	36	36%	33%	22%	6%	3%		4.1	2	2
Instructor's enthusiasm was:	36	39%	28%	25%	6%	3%		4.1	2	2
Encouragement given students to express themselves was:	35	34%	23%	17%	17%	6%	3%	3.8	1	2
Answers to student questions were:	36	33%	25%	17%	22%		3%	3.8	2	2
Availability of extra help when needed was:	36	28%	31%	31%	11%			3.8	1	2
Use of class time was:	36	17%	31%	17%	28%	6%	3%	3.3	1	1
Instructor's interest in whether students learned was:	36	33%	25%	28%	11%		3%	3.8	1	2
Amount you learned in the course was:	35	20%	40%	29%	6%	3%	3%	3.8	2	2
Relevance and usefulness of course content were:	36	25%	28%	25%	19%		3%	3.6	1	1
Evaluative and grading techniques (tests, papers, projects, etc.) were:	36	22%	25%	31%	19%		3%	3.4	1	1
Reasonableness of assigned work was:	36	25%	33%	28%	14%			3.8	2	2
Clarity of student responsibilities and requirements was:	34	21%	41%	26%	6%	6%		3.8	1	2

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STANDARD OPEN-ENDED QUESTIONS

Was this class intellectually stimulating? Did it stretch your thinking? Why or why not?

1. Yes; this class definitely explores topics in operating systems in-depth and makes you really think about all of the problems systems designers needed to solve when they were originally developing the first systems. I believe the course as a whole should always be taught to students in computer science

2. This class was intellectually stimulating. I felt like it refamiliarized me with the concerns of operating systems that I learned in hardware and multithreading courses which included virtualization and concurrency concepts, as well as new concepts like persistence and more thorough understanding of concurrent data structures and an introduction to the pthreads library used to achieve parallelization in C.

3. Yes, this class was intellectually stimulating. It also stretched my thinking because the class pushed me to develop a deeper understanding of operating systems and system-level programming, which made it intellectually engaging and valuable.

4. Yes. The homework assignments and exercises were intellectually stimulating and challenging. Although, I could see how for some students you may be able to complete some of the programming assignments without understanding what you are actually doing. It is good that the exams test if you understood what we were doing on the homework assignments.

5. Yes, I found it difficult. It was difficult because its a totally new space I dont have much prior knowledge on.

6. Yes the class was stimulating from the topics that we focused on and the assignments we then had to do. The simulations especially stretched my thinking seeing active representations of what I was learning.

7. yes, the class covered some intellectually stimulating topics

10. Yes, it was intellectually stimulating for learning that required a stretch to deep knowledge of the operating system. Because there are many different implementations of code with different languages and challenges in different exercises and even chapters from the textbook.

11. It was definitely a challenging class that does bring up and test knowledge from the degree program. In that way, it was very interesting.

12. The class was intellectually stimulating and it did stretch my thinking. There was a lot I generally learned about the OS, and all explanations were well done.

13. Yes, the topics were very low level and required you to think about all potential problems that could arise from presented solutions.

14. It stretched my thinking by making me realize how many problems needed to be solved in all operating systems

15. Yes this class was very hard and it helped me understand computers and performance optimization much better.

16. Yes, the class was intellectually stimulating and it stretched my thinking. I learned many new concepts and had to apply them to complete projects

17. Yes, it was. I liked the way the class was set up where we can do our chapter readings and then go over those same topics in class helping give us time to come up with questions or solidify our understanding during lectures.

18. it was a very fun and challenging course, the instructor made it enjoyable to learn and did a great job of keeping us engaged.

19. Yes, there was lots of content not covered by previous courses that was presented in this one.

20. Yes it was, the concepts were very difficult and you really had to use critical thinking to have an understanding.

21. Yes, the topic itself was hard

22. Yes, it had a lot of interesting topics to divest in, challenging besides.

23. Yes, the class was intellectually stimulating. The material was complex, but most of all, there was so much to cover within a ten-week time frame, so breadth of material contributed the most to the difficulty.

25. Yes because it taught me more about operating systems

26. Yes and yes, the topic required learning and analyzing solutions to unique problems on a deep level

27. Yes, there we in class activities, lab, homeworks which helped a lot. The topic was new and challenging but the instruction were clear and helpful in completing assignments.

29. It was intellectually simulating, I got to learn and modify code inside of a mock operating system, and gradually learned how the operating system called each other and brought user input.

30. The class was definitely intellectually challenging with the new concepts, coding, and projects that we had to do. There were many new concepts that worked together in different ways, so it was challenging to get used to it.

What aspects of this class contributed most to your learning?

1. The textbook was the biggest factor in my learning. Operating Systems: Three Easy Pieces abstracts just enough for students to understand while still staying relevant to the topics it needs to present.

2. Aspects of this class that contributed the most to my learning were when the instructor demonstrated how to work rhrough a part of the project or an exam-style problem, working on the projects on my own, and working through in-class simulations as a group.

3. The aspects of the class that contributed most to my learning were the hands-on programming assignments and simulations. Implementing concepts such as threads, mutexes, condition variables, and different locking strategies helped me understand how theoretical ideas work in real systems.

4. I heard that the course curriculum has changed from previous quarters. It was helpful to be working with a minimal OS. This better helped me understand concepts such as system calls and scheduling. I also liked the checkpoints in the slides to test my understanding. The textbook was excellent as well.

5. The homeworks that go over the ICAs and put them all together, applying concepts we learned. The icas were nice, but I wish we went over them as a class afterwards because I often found myself confused on the ICAs

6. The quizzes, textbook, and assignments helped most with my learning as they focused on furthering and cementing my understanding

7. None of it

8. The homework. For example, the CPU/VM homework gave me the most insight on how processes worked.

9. Studying outside of class, I am a slow learner and need external explanations.

10. Mostly with the exercises to analyze the code (implementation) based on what I learned from the lecture and the textbook.

11. The lecture slides were very detailed and the professor is very active with the extra help he provides and how connected he aims to stay with students outside of class.

12. I would say lectures contributed most to my learning.

13. The textbook

14. The assignments did the most to push my learning

15. The homeworks and projects. Especially the CPU and VM homeworks.

16. Projects

17. I thought it was helpful that the chapter readings and projects/homework were written by the same authors. It made it really easy to play around with the concepts and tweak the code/inputs to see how it affects the program.

18. The textbook was one of the best resources I have used, it was easy to follow and provided many helpful examples.

19. Reading through the textbook contributed the most to my learning.

20. In class activities and the written homeworks.

21. Lectures

22. I think, the homeworks, the textbook was good

23. Homework assignments. Even more than the projects, the homework assignments provided the most grounded understanding of the material. It was unfortunate that there were so few of them throughout the quarter, relative to the number of projects and other assignment types.

25. In class assignments

26. The in-class exercises, assigned homework, and some lectures/slideshows

27. Homework problems. They were discussed in class as a group and then assigned for individual completion at home.

29. Most of my learning came from the class textbook.

30. I think the in-class activities and practice exams contributed most to my learning.

What aspects of this class detracted from your learning?

1. You can tell that the lectures are AI-generated because of the amount of syntax errors they contain and the oddity of placement of text, bullet points, and dividers within each slide. I enjoyed lectures the least because they literally only used content available in the textbook - so why wouldn't I just read the textbook instead?

2. I felt that some of the mistakes/artifacts from the lecture slides were detrimental to my learning, and when the professor corrected them in class I wasn't always that I had the correct understanding. If the professor could continue to be aware of these mistakes and refine the lecture slides I think it will improve the class a lot. When we transitioned from the lecture to the in class exercises, in most cases there was a gap between what we learned in the lecture and what we needed to learn in order to do the simulation correctly. It was difficult to work together as a group because we were all figuring out how to understand the code or learn the commands commands to run the simulation individually, so more guidance from the professor on how to work through this as a class/in groups would be helpful, especially for the few exercises where the entire class was unsure how to proceed.

3. No, I don't think any aspects of this class detracted from my learning.

4. It was common to find a few mistakes in the AI generated slides. Hopefully these slides will be polished for the next group of students taking this course.

5. Nothing I can think of

6. None

7. Instructors voice and ability to explain topics clearly

8. I hated how everything was AI generated. The slides felt awkward to get through, the assignment instructions had misspellings in commands, some instructions would straight up be missing (like in the NULL Pointers assignment). The AI generated practice questions seemed irrelevant in the midterm and since it was a giant Google Drive with multiple folders for each topic, it was too much to get through and incredibly overwhelming. Lectures felt very rushed and there was very little room for questions since we'd go through ~2-3 chapters per day. It felt like I was teaching myself more than I was being taught, which felt disappointing because I feel like Pisan is one of the most well-respected professors in the CS department. He's a great professor, but not in the way that benefits my learning in this course.

10. None

11. I think the in class activities really depended on what group you were in. Moving the groups around for every in class activity was difficult because you had to get used to the different way your classmates approached the activity. In some cases, I was in groups with people who preferred to move way faster, already had a group dynamic outside of me established, or liked to divide the work instead of work together. Maybe staying consistent with groups would have allowed us to bond with teammates and get used to each other's learning speeds and ways. Often even with trying to engage with my group members, they could be quite withdrawn.

12. Nothing really detracted from my learning.

13. Did not enjoy being forced to participate in lecture and the code/formula on the slides were not formatted very well.

14. Some of the lectures were too short which made the in-class exercises more confusing

15. The AI generated slides had a bunch of unrendered LaTeX syntax which was so hard to read.

16. -

17. I wasn't a fan of the randomly assigned in-class exercise groups as occasionally i would be paired with a group that seemed uninterested in working over questions together as they would rather have each person tackle different sections of the problems.

18. none.

19. Not having enough guidance on what test cases should look like for projects. A short description of what should be done or some example test cases would've been beneficial.

20. Professor expected us to immediately grasp concepts which made it difficult to stay on track during lectures.

22. n/a at this time

23. The way in-class assignments were conducted. We never reviewed ICAs after doing them, with the class, and since they were graded on whether you were present to do them, it felt as if they contributed very little to understanding the material.

24. AI generated slides - Not a ton of useful examples or analogies

25. Derailing the class talking about AI

26. Sometimes the lecture slides were out of date or improperly formatted

27. N/A

29. The lectures felt a little redundant as they were reiterations of what we learned from the required reading for the quizzes.

30. The long lectures were kind of pointless at times if we can read what the slides say.

What suggestions do you have for improving the class?

1. 1. Review lecture slides before presenting them. AI can be useful for templating these slides, but I believe that a human should still review them to ensure that the format of the slides and their content is suitable for a student. 2. Instead of relying on a single textbook to teach material, multiple different types of content can be used as well - articles, videos, research papers, etc. I feel like variety of material in courses nowadays is common; students should be directed towards different ways to learn to supplement their learning.

2. I thought there was a lot of good information in the projects, textbook, and simulations which connected the textbook to our in class work. I think that if the professor continues to work to unify the lecture materials with the information in the textbook and homework assignments by refining the lecture slides, and continuing to become familiar with the simulations and how students are working through those, the course will continue to improve and be an excellent experience for students who take the course with this professor.

3. No, I don't any suggestions because this class is good as it is.

4. After the midterm, the pace of the class changed. I felt like we needed more time to review concurrency and persistence. I wish the class after the midterm was not cancelled and we spent more time on the lectures and made the in-class exercises shorter.

5. I don't like the super long ai generated study guide / sample exams because I feel like most students including myself barely have time to study our material (slides, icas, assignments, etc) before the exam. So we don't have time to go look at those, I also don't know how helpful they are, I think sample exams that really help us understand what will be on the final is nice. Even if its a small portion of sample problems.

6. Conducting more different in-class exercises that aren't just group work as there is awkwardness with new people and tendencies to just get the work done without actually learning

7. New instructor

8. Don't give us AI slop as all of our course content. I know the university is pushing AI endeavors, but especially for a class as abstract and conceptual as this one, I really think taking the time to make your own content (or at least proofreading homeworks to make sure the instructions are complete) would make this class a lot easier to get through. I'm also going to be in your Intro to Artificial Intelligence class and I saw the email saying it's going to be all created by Gemini again. I have major concerns about that and my quality of learning. It's easy to brush it off because many students will inevitably use AI, but I'm sure there's many students like myself who value genuine knowledge from the professor and want to take the time to really learn concepts.

9. utilize the white board more, higher quality of slide decks and study materials for exams

10. I don't think so

11. - I think maybe having diverse personalities in a group would be helpful, where at least 2 members were a bit extroverted and wanted to engage in conversation - which is hard to do but may help. Maybe in class activities could occur once a week and we could spend class time with the professor more. Sometimes the transition from what we learned in the slides to going straight to the activity was very stark and at times hard to follow. - Because this is such a conceptual class, I think incorporating more visual aid would have been helpful. - I think getting answer keys for the midterms would have been helpful to see exactly what the answers should've been if we missed out on points. - In some classes in the major, we have been able to take exams that are open note (only physical no internet) - which I think also helps. Because then it doesn't make the exam so much about memory. Having a cheat sheet is helpful but condensing those notes is quite tedious.

12. I don't really have any suggestions for improving this course! I think it was really well taught. Before I didn't think CSS430 would be something very useful for me, but I found myself wrong after this class; learning about CPUs (along with how they work with different processes and when each takes turns and how having more CPUs really affects a device) and threads were really interesting and gave me a better outlook on how I could optimize my programming more. I think the new book we used in class was really good and I would suggest using it for future classes/students taking this course. The only thing I would change in this class is probably provide a few extra credit opportunities (beyond the ones on the test of course) in like assignments or something similar. Other then that, I really enjoyed the course!!

13. Clean up the AI generated slides beforehand so the formulas aren't full of markdown syntax

14. Spend more time on the lectures to explain concepts better

15. 1. Format the slides 2. I think a lot of the class has no idea what to prepare for on the final exam, unlike the midterm which followed the format of CPU and VM homeworks.

16. The class covers a lot of heavy chapters at a very fast pace, so slowing down a bit would help. Also, spending less time on in-class exercises and more time on lectures could make the class more helpful

17. I would've liked being able to pick which group i was on for in class exercises as i have a few friends in the class and i think we would have worked well together but the random groups made it so i never got that chance to work with them.

18. none.

19. The course was good, but some coding examples within slides would be helpful for understanding certain new topics.

20. Be more understanding if the class has difficultly understanding topics that were only recently covered in the same lecture.

22. n/a at this time

23. Reviewing ICAs as a class, more homework assignments in exchange for a reduction in the number of projects—especially projects that felt somewhat unnecessary towards the first few weeks of the course.

24. Balancing the projects and their due dates. All the projects had roughly the same amount of time to complete them but their scopes were often drastically different. I think adjusting the time given for projects to account for their differences in scope would really help

25. Less AI. A lot less.

26. Add/adjust more concise and easy-to-read code examples in lecture slides

27. N/A

28. Class is really boring, and there's so much content stuffed into this course that if you stop paying attention for a little bit you miss out on so much information. Especially since Pro Pisan loves to ask questions on stuff he mentioned for 30 seconds during a single lecture in his tests. Also, participation is such a pain. This is college not a preschool, who cares if we're here or not.

29. It already seems like a pretty solid class. Instead of spending time recapping the required reading, we could do constant q&a and checks for understanding

30. I would have more practice exam problems, more time to review them in class, group projects, and just more interactive activities that can help students understand concepts they didn't completely get.

IASystem Course Summary Reports summarize student ratings of a particular course or combination of courses. They provide a rich perspective on student views by reporting responses in three ways: as frequency distributions, average ratings, and either comparative or adjusted ratings. Remember in interpreting results that it is important to keep in mind the number of students who evaluated the course relative to the total course enrollment as shown on the upper right-hand corner of the report.

Frequency distributions. The percentage of students who selected each response choice is displayed for each item. Percentages are based on the number of students who answered the respective item rather than the number of students who evaluated the course because individual item response is optional.

Median ratings. *IASystem* reports average ratings in the form of item medians. Although means are a more familiar type of average than medians, they are less accurate in summarizing student ratings. This is because ratings distributions tend to be strongly skewed. That is, most of the ratings are at the high end of the scale and trail off to the low end.

The median indicates the point on the rating scale at which half of the students selected higher ratings, and half selected lower. Medians are computed to one decimal place by interpolation.[1] In general, higher medians reflect more favorable ratings. To interpret median ratings, compare the value of each median to the respective response scale: *Very Poor, Poor, Fair, Good, Very Good, Excellent (0-5); Never/None/Much Lower, About Half/Average, Always/Great/Much Higher (1-7); Slight, Moderate, Considerable, Extensive (1-4).*

Comparative ratings. *IASystem* provides a normative comparison for each item by reporting the decile rank of the item median. Decile ranks compare the median rating of a particular item to ratings of the same item over the previous two academic years in all classes at the institution and within the college, school, or division. Decile ranks are shown only for items with sufficient normative data.

Decile ranks range from 0 (lowest) to 9 (highest). For all items, higher medians yield higher decile ranks. The 0 decile rank indicates an item median in the lowest 10% of all scores. A decile rank of 1 indicates a median above the bottom 10% and below the top 80%. A decile rank of 9 indicates a median in the top 10% of all scores. Because average ratings tend to be high, a rating of "good" or "average" may have a low decile rank.

Adjusted ratings. Research has shown that student ratings may be somewhat influenced by factors such as class size, expected grade, and reason for enrollment. To correct for this, *IASystem* reports **adjusted medians** for summative items (items #1-4 and their combined global rating) based on regression analyses of ratings over the previous two academic years in all classes at the respective institution. If large classes at the institution tend to be rated lower than small classes, for example, the adjusted medians for large classes will be slightly higher than their unadjusted medians.

When adjusted ratings are displayed for summative items, **relative rank** is displayed for the more specific (formative) items. Rankings serve as a guide in directing instructional improvement efforts. The top ranked items (1, 2, 3, etc.) represent areas that are going well from a student perspective; whereas the bottom ranked items (18, 17, 16, etc.) represent areas in which the instructor may want to make changes. Relative ranks are computed by first standardizing each item (subtracting the overall institutional average from the item rating for the particular course, then dividing by the standard deviation of the ratings across all courses) and then ranking those standardized scores.

Challenge and Engagement Index (CEI). Several *IASystem* items ask students how academically challenging they found the course to be. *IASystem* calculates the average of these items and reports them as a single index. *The Challenge and Engagement Index (CEI)* correlates only modestly with the global rating (median of items 1-4).

Optional Items. Student responses to instructor-supplied items are summarized at the end of the evaluation report. Median responses should be interpreted in light of the specific item text and response scale used (response values 1-6 on paper evaluation forms).

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[1] For the specific method, see, for example, Guilford, J.P. (1965). Fundamental statistics in psychology and education. New York: McGraw-Hill Book Company, pp. 49-53.