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

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

Evaluation Delivery: Online
Evaluation Form: A
Responses: 29/32 (91% very high)

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
3.7	**2**
(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: 5.4
(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:	29	21%	31%	34%	7%	3%	3%	3.6	2	2
The course content was:	29	21%	31%	34%	7%	3%	3%	3.6	1	2
The instructor's contribution to the course was:	29	31%	31%	17%	14%	7%		3.9	2	2
The instructor's effectiveness in teaching the subject matter was:	29	31%	28%	17%	17%	7%		3.8	2	3

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:	29	14%	14%	17%	21%	24%	7%	3%	4.2	1	2
The intellectual challenge presented was:	29	24%	31%	31%	10%	3%			5.7	5	5
The amount of effort you put into this course was:	29	21%	45%	24%	7%		3%		5.8	6	5
The amount of effort to succeed in this course was:	29	24%	41%	31%		3%			5.9	6	5
Your involvement in course (doing assignments, attending classes, etc.) was:	29	14%	41%	38%	7%				5.6	3	4

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=28)

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
		7%	18%	11%	29%	14%	11%	4%	4%		4%

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

Class median: 7.0 Hours per credit: 1.4 (N=28)

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
7%	4%	29%	14%	14%	11%	14%	4%		4%		

What grade do you expect in this course?

Class median: 3.0 (N=28)

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
14%	21%	11%	18%	4%	14%	14%	4%							

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

(N=28)

In your major	A core/distribution requirement	An elective	In your minor	A program requirement	Other
64%	29%			7%	

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:	29	24%	41%	24%	7%	3%		3.9	2	3
Clarity of instructor's voice was:	29	24%	31%	24%	14%	7%		3.7	1	1
Explanations by instructor were:	29	31%	17%	31%	10%	7%	3%	3.4	1	2
Instructor's ability to present alternative explanations when needed was:	29	28%	31%	21%	10%	7%	3%	3.8	2	2
Instructor's use of examples and illustrations was:	29	21%	31%	31%	7%	7%	3%	3.6	1	1
Quality of questions or problems raised by the instructor was:	29	31%	34%	24%	3%		7%	4.0	2	3
Student confidence in instructor's knowledge was:	29	31%	45%	10%	10%		3%	4.1	2	2
Instructor's enthusiasm was:	29	38%	31%	17%	10%		3%	4.1	2	2
Encouragement given students to express themselves was:	29	38%	31%	17%	14%			4.1	2	3
Answers to student questions were:	29	38%	34%	17%	10%			4.2	3	3
Availability of extra help when needed was:	29	45%	31%	17%	3%	3%		4.3	3	4
Use of class time was:	28	25%	36%	18%	14%		7%	3.8	2	2
Instructor's interest in whether students learned was:	29	38%	28%	21%	7%	7%		4.1	2	3
Amount you learned in the course was:	29	28%	34%	24%	7%	7%		3.9	2	3
Relevance and usefulness of course content were:	29	31%	41%	24%		3%		4.0	2	3
Evaluative and grading techniques (tests, papers, projects, etc.) were:	29	31%	24%	31%	10%	3%		3.7	1	2
Reasonableness of assigned work was:	29	24%	34%	24%	10%	3%	3%	3.8	2	2
Clarity of student responsibilities and requirements was:	29	34%	38%	17%	10%			4.1	3	3

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STANDARD OPEN-ENDED QUESTIONS

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

1. This class explored how operating systems developed over time to solve user issues. The course was effective in exploring the pros and cons of certain decisions or solutions and why the designers of operating systems made the choices that they did. This class effectively taught this so that these decisions could be reasoned through rather than memorized.

2. Yes, conceptually + content wise the informaiton was really useful on how computers work under the hood

3. Yes, details of the OS forced us to think about code and systems in a different way, often from hardware components or other low level structures.

4. Yes. The class made me think about how operating systems actually work internally, especially with processes, threads, and memory. It pushed me to understand concepts more deeply rather than just memorizing them.

5. No, I felt like I barely understood the projects and the in-class exercises. The slides made sense to me though.

6. Yes this class was intellectually stimulating and stretched my thinking. This class was intellectually stimulating because I had real practice with OS and running simulators that showed exactly how everything works.

7. It is stretching my thinking and deepening my understanding of Operating Systems.

8. Yes because it included developing topics learned in class onto a real operating system (xv6) but less complicated than a real one.

9. The course material was quite intellectually stimulating, but the professor's application of how we engaged in the material was underwhelming.

10. Yes. There were a lot of new topics and it was interesting learning about them.

11. I think the class insightful and gives students in CSSE a much deeper understanding of the interworkings of Operating Systems and the core principles they function on. It may have helped that I have taken CSS 422 prior to taking CSS 430 so there were lots of concepts taught in the course that overlap. However there were new concepts introduced that were interesting.

13. Yes, the information in this class was very interesting to think about and learn, and helped but a lot of things I already know about computers in a new context with the understanding given by this class.

14. The concepts of operating systems were fun to learn however I would not say the class was “stimulating” for reasons described below.

16. Fairly interesting class, but it feels somewhat irreverent to the rest of the major, but this is no reflection on the Professor.

18. Yes since it used knowledge accumulated throughout every core CSSE class

20. Yes it was full of new material and I had to really focus to make sure I understood the connections.

21. Yes

22. yes

What aspects of this class contributed most to your learning?

1. The availability of help and clarity of instructions made me comfortable when approaching the material of the class. If I was ever stuck on a concept or problem, it did not take much effort to get clarification so that I could move forward. The reading quizzes and homework problems helped reinforce my understanding before exams. The trace-style homework problems leading up to the midterm were a highlight of my quarter, and I wished that we had more leading up to the final.

2. Reading online materials

3. The lectures contributed the most they were very concise and excellent.

4. The programming assignments and labs helped the most. Working directly with the code and seeing how the system behaves made the concepts much clearer.

5. The slides helped the most, but when I reviewed them on my own.

6. The lectures were very useful and how the professor gave us homework to do with the simulators. I also really like how the exams were similar to the homework so we knew what to study for the exam.

8. I think that the in-class exercises given after each lecture allowed us to observe and apply what we had learned.

9. The Python programs used to simulate processes were quite helpful to understand the intricacies of how each process functioned.

10. The slides that the instructor went over and the in class exercise.

11. I liked the structure of the all the lectures and found them to be productive towards learning and understanding the material taught in class. I also thought it was helpful that Professor Pisan recorded all his lectures in case students wanted to rewatch them, even though I personally did not.

13. The actual textbook readings were very helpful, especially because I didn't really understand it that well in class otherwise. The in class exercises were also very helpful in improving my learning.

14. Hands-on assignments involving the xv6 operating system were fun challenges.

15. in class exercises, projects, quizzes, and homeworks helped in my learning

16. The professor's attitude and attempts to get participation in class was great. Very reasonable professor about work grading and deadlines.

18. The lectures made everything easier to follow/understand

19. lecture, slide

20. The Quizzes.

21. usage of OSTEP instead of whatever the old curriculum was

22. some of the homework like the handwritten ones

What aspects of this class detracted from your learning?

1. I felt that the structure of the in-class activities occasionally left students confused. Many of them require a more in-depth understanding of the concepts that could only be explored through the readings, and so assigning them in-class after the lecture but before many of us had the time to complete the readings felt more confusing than an opportunity for learning.

2. The professor, kind of hard to understand him and he expects we know all the content so its kind of hard to move on with his pace.

3. I think the in person group exercises were not very good, they were clearly not designed for multiple people so every group I was in basically chose to ignore talking together to discuss the answers. I think it would have been much better if the assignments were different from the ones in the book adapted more to groups or if the assignments were individual.

4. Sometimes the topics moved quickly, and it could be hard to fully understand one concept before moving to the next.

5. I thought the speed of the lectures was too fast for me really comprehend the topics. The in-class exercises were not explained too well.

6. Nothing in the class detracted from my learning.

8. None.

9. - AI-generated slides led to frequent interruptions and confused the professor. - Complex subjects were taught in a rush, leading to little memorization. - Work load would spike (i.e. 6 chapter quizzes, 1 homework assignment, 1 project, 1 exam in 1 week), leading to immense stress. - Instructions were often short, leaving out critical details and leading to long debugging sessions due to misinterpretation.

10. I don't know.

11. None that I can think of. I wouldn't say that the canvas quizzes for each chapter detracted from the class at all but I also wouldn't say that they were all that helpful.

12. We went through lectures and in-class activities too fast.

13. The in class lectures were rather short for each chapter, which is reasonable with so many to cover, but I feel like it leaves you with a meh understanding of them in general.

14. It looked like a majority of the class curriculum was generated in part / in full by Artificial Intelligence. The only course material that I'm confident was NOT generated by AI was assignments directly involving our textbook. Professor skipped over lecture content and made simple corrections to slideshows that shouldn't have appeared if it was created by a human. Lecture content itself showed extremely messy code that was difficult to follow, seemingly using no coding quality or styling guidelines. Some lecture content was not at all covered by textbook assignments, and vice versa. Some lecture content was completely glossed over with no time to get into details nor specifics. Attempts at classroom engagement seemed forced which made me even less willing to participate. Daily group assignments felt designed to make people attend classes regardless of the quality of the class; I would've certainly skipped more lectures if attendance did not play an indirect part of my grade.

16. Textbook was very dry. C is hard to learn / frankly a questionable time investment due to it being rather obscure and not popularly used in career compared to java / python even c++.

18. Some of the homework just felt excessive/repetitive such as calculating addresses

19. Textbook is useless, hard to read, doesn't know what it want to say

20. The lecture notes could have been better organized.

21. Nothing

22. Just couldn't really get it also I think i had the wrong environment set up for half the class but that's on me mostly

What suggestions do you have for improving the class?

1. Making some of the later homework trace-style problems would really help me feel confident going into the final. Many of them are problems that would be discussed in-class, and so maybe removing the in-class assignments and making them into homework trace-style problems would make me best. Other than trace-style problems, we primarily had guided coding sections through xv6, which is a volatile program that I had many unforseen errors with many times. I don't feel like I learned as much of the core concepts with these.

2. More applicable work, its usually lecture -> practicals but practical section is far more complex than the actual lecture.

3. Just the one with the in person group exercises, otherwise it was excellent.

4. More step-by-step examples during lectures and additional practice problems would help reinforce the concepts.

5. I think the lectures need to be more clear to increase engagement.

6. This class was really good for me so I do not have any direct suggestions for improvement.

8. None.

9. - Distribute The Workload: Having chapter quizzes, a homework assignment, a project, and an exam in the same week is by no means reasonable. - Fix The Schedule: The schedule provided in the syllabus is entirely incorrect. - Prepare Students For The Shell Project: The complexity of the project and its proximity to the start of the quarter made it extremely troubling. Moving it to later in the course or simplifying it would be preferred. - Write Your Own Material: I mean this with no disrespect. I also believe that AI can be used to facilitate material creation, but that is only when it is used as an assistant and with care, and I believe neither of those were the case for this course. Lectures were frequently interrupted to fix poor formatting, and questions were often skipped.

10. I don't know.

11. I liked the homework assignments but I'm not sure if they were challenging enough. Most of the coding assignments already provide a good chunk of steps on what needs to be done to the initial code to get it to a mostly completed state, with small adjustments here and there. I don't think all the steps should be removed, cause I believe that would make the assignments more difficult than necessary, but adjustments might help to make it more challenging in my opinion.

12. It would be more helpful if we picked a few of the most important problems from the chapter questions / simulations and focused on understanding them. Perhaps we could be assigned one or two before class and then discuss them in class as the in-class activity. That might help students learn more about the key insights of the simulations. Also many of the lectures felt rushed. Perhaps more examples could be included in the slides.

13. Maybe just improving the slides and/or how they are presented?

14. STAY AWAY FROM AI. Putting in the effort in a human-made curriculum immediately improves the quality of the class. I am much more invested in a class and curriculum that was designed by humans and would invest much more of my time and energy into such a class.

15. more time for big projects

16. In class exercises of simulator homework felt difficult to do within the time well and groups didn't really discuss it but preferred splitting the work equally. Simulator homework also felt disconnected from the assignments and other homework. Requiring C instead of Java or C++ made there class more difficult than it needed to be since most of us didn't know C.

17. Please give better study guides that are clear of what will be on the exam. And lots of extra credit assignments too please.

18. Make some of the homework assignments shorter or make some of the in class assignments homework to be done out of class.

19. only need to slide, don't need the textbook

20. Better lecture notes and practice tests for the exams.

21. More exams. The current 2 exams have WAY too much content. I would much rather have 3 or 4 exams that covered less content. Something like exam 1: Memory Virtualization, exam 2: CPU Virtualization, exam 3: Concurrency, exam 4: Persistence. The exam grading is much too strict, one small mistake is a 10 point subtraction. I would like more grace on late days, but I dont feel strongly on that.

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).

[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.