CS 4414-001 **Operating Systems** - Fall 2013

ENGR (17680)

INSTRUCTORS: **Evans, David (dee2b)**

Respondents: 33 / Enrollment: 65

Summary: CS 4414-001 Operating Systems - Fall 2013 (17680)

Overall Course Rating

CS-4414-001 Mean 4.12
CS-4414-001 Std Dev 0.78
CS-4414-001 Response Count 164

Difference from Category Mean, Expressed in Category Standard Deviations	-2 -1 0 1 2
	0.01

SEAS, 4000-level courses Mean 4.12
SEAS, 4000-level courses Std Dev 0.88
SEAS, 4000-level courses Response Count 8917

Overall Instructor Rating

INSTRUCTOR: Evans, David
Mean 4.44
Std Dev 0.77
Response Count 230

Difference from Category Mean, Expressed in Category Standard Deviations	-2 -1 0 1 2
	0.22

SEAS, 4000-level courses Mean 4.25
SEAS, 4000-level courses Std Dev 0.85
SEAS, 4000-level courses Response Count 13555

~ QUESTIONS AND DETAILS ~

~ ANSWER MATRICES ~

1. What should the name of this course be?

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Question Type: Short Answer

~

contributed by Evans, David (dee2b)

Results for CS-4414-001, Evans, David

Total	Individual Answers
29	*See below for Individual Results*

Operating System Concepts

Operating Systems and the Rust Language

Learning how to actually code! This operating systems class was taught using a fairly new programming language called Rust. Though sometimes it was a headache trying to find documentation or figuring out the string class, I think learning Rust was a valuable asset. It taught us how to search and figure things our for ourselves. Though I would be strongly opposed to teaching an experimental programming language in an introductory programming class, I thought it worked nicely in an upper level course. Experience with Java, C++, and other languages help me figure out what was going on pretty easily.

Resource Management

Introduction to Operating Systems and Rust

System Design

Evan's Special Course for Motivated People

Rustic OS

Operating systems

Redefining Operating Systems with Modern Languages

Operating Systems

Operating Systems

Operating Systems

Operating Systems

Operating Systems

Operating Systems

Operating Systems

Operating Systems

The difficulties of Rust

Don't know.

The Z in Zhtta

As currently taught, "Intro to Systems Programming" seems like a better fit.

The information in this document is private and confidential. Please handle accordingly.

~ QUESTIONS AND DETAILS ~	~ ANSWER MATRICES ~

Learn to deal with RUST

Kernel Machine

Programming Languages and Operating Systems

Operating Systems, if operating systems continue to be the main focus of this class.

'Charms' maybe - or just Operating Systems

David Evans and the Masters of the Universe! (In the event that this name isn't available, Operating Systems seems fine to me)

Operating Systems: Lost and Found in the middle of Rust

2. Was this class too structured or too unstructured?

~

Question Type: Multiple Choice

~

contributed by Evans, David (dee2b)

Results for CS-4414-001, Evans, David

Total	Too Much Structure (Not Enough Freedom) (NA)	Just About Right (NA)	Not Enough Structure (Too Little Freedom) (NA)
33	0 (0.00%)	22 (66.67%)	11 (33.33%)

Results for SEAS, 4000-level courses

Total	Too Much Structure (Not Enough Freedom) (NA)	Just About Right (NA)	Not Enough Structure (Too Little Freedom) (NA)
33	0 (0.00%)	22 (66.67%)	11 (33.33%)

3. Are other Computer Science courses you take too structured or too unstructured?

~

Question Type: Multiple Choice

~

contributed by Evans, David (dee2b)

Results for CS-4414-001, Evans, David

Total	Too Much Structure (Not Enough Freedom) (NA)	Just About Right (NA)	Not Enough Structure (Too Little Freedom) (NA)
33	11 (33.33%)	20 (60.61%)	2 (6.06%)

Results for SEAS, 4000-level courses

Total	Too Much Structure (Not Enough Freedom) (NA)	Just About Right (NA)	Not Enough Structure (Too Little Freedom) (NA)
33	11 (33.33%)	20 (60.61%)	2 (6.06%)

4. If it is necessary to significantly cut material from the course, what material should definitely be kept?

~

Question Type: Short Answer

~

contributed by Evans, David (dee2b)

Results for CS-4414-001, Evans, David

Total	Individual Answers
30	*See below for Individual Results*

Process, Scheduling, Synchronization, Virtual Memory, and File Systems

Scheduling, Task handling

Definitely the initial operating systems intro and the initial Rust structures

I think the project should definitely be kept but most of the material is replacable as long as the idea is kept.

All material discussed should be kept.

Scheduling, race conditions,

Processes, Memory Management, Concurrency discussion...

The lectures about processes

Process scheduling, history of computing/Android, predictions about future

Understanding operating systems concepts in practice

I would strongly fight to not cut material. I think material should be added, not cut, with one or two exceptions.

The information in this document is private and confidential. Please handle accordingly.

~ QUESTIONS AND DETAILS ~	~ ANSWER MATRICES ~
	There is so much material that gets covered I find this question difficult to answer. I think there are some core parts though: - Concurrency - Scheduling - Super- / Hyper-visor - Processes - Interrupts - Storage - Shells (Wow, that's like, the whole syllabus you say... yeah... But these are the kind of things that appeared in some interviews this past season.) Pipelining, processes, security Scheduling, storage I think one class about the history of operating systems and one class discussing the future of computing and how it is applicable to us is very helpful to have in addition to technical lectures covering the course material. Please keep the OS concepts about scheduling, processes, forking, etc. Nowhere else have I learned about locks and ways to manage concurrent processing--also, forms of optimization and discussion of interrupts, etc. The core "OS" topics need to be hit somewhere-features of the supervisor,origins, etc. n/a The web server Lectures on how the kernel works Threads/Processes Material on processes and process scheduling Scheduling The way homework were submitted were one of my favorite parts of the course. I have taken a lot of cs courses at uva, but no other professor has used this method. I think it was a great way of getting feedback and made the projects a more valuable experience. In most other courses you work for hours on a project; but after submitted, it usually takes an eternity to be given back any feed back and by then you have probably forgotten about it or the class has progressed so far since then that it is no longer relivant. Evans required code to be submitted through github and then demo in office hours. GitHub/form submission were great because the code was already there and was convenient (I don't know why more cs classes don't do submissions this way!) I like the fact we used a new language, it gave us challenges that aren't present in other courses. Final project structure was on point. I liked the freedom, the four criteria, the demo process, and the enthusiasm about quality. The intermediate homework assignments were useful but Rust made them take a long time. I liked all the lecture topics, especially the high-level ones in the beginning which clarified a lot that I'd ben exposed to in earlier classes. Concurrency, storage. The parts that concentrate on low-level implementation that affects higher-level decision making: scheduling, processes, forking, etc. Process and memory management. Open final project. Creating a shell creating a web server
5. What content that was covered this year should be dropped (or reduced) from future versions of this course? ~ Question Type: Short Answer ~ *contributed by Evans, David (dee2b)*	Results for CS-4414-001, Evans, David Total: 22 Individual Answers: *See below for Individual Results*
	I liked that we learned a new language but perhaps we could learn more of it on our own and drop some lectures on it like the map reduce. I found it helpful nevertheless but if anything needed to be cut for something else then I think giving us more time to learn on our own wouldn't hurt the purpose of that lecture. too much security materials (can be covered in much more detail in other dedicated classes) It seems we had a few classes at the end that could have been dropped/replaced. Looking through the rust source for process spawning Most of the impossible things should be dropped. It was highly demotivating to work on something for 10 hours to find that I could not do it. n/a

The information in this document is private and confidential. Please handle accordingly.

~ QUESTIONS AND DETAILS ~	~ ANSWER MATRICES ~

RUST

Rust

Rust

Rust

Rust syntax, historical context (which was honestly one of my favorite parts, but didn't contribute to my understanding of operating systems)

Nothing immediately comes to mind, but perhaps rust?

Reduce the amount of Rust, want to make sure the class is about OS

Some of the security information, while interesting and relevant to the work of Professor Evans, didn't seem relevant to the class, and could be replaced with more in-depth low level information.

Perhaps Rust?

Benchmarks if absolutely required

Encryption didn't seem to make a ton of sense in the context it was presented. Much of the material (in fact, almost any material in CS) could be tied to the OS, but I think there needs to be a little more discussion about why things are relevant to OS--aka, SIM cards?

Another difficult quesiton. Uh... - Benchmarking? Hopefully some other students step in. I thought all of the material covered was reasonable to cover. Some of it I definitely struggled with on a conceptual level more than others but there wasn't anything in the class that /shouldn't/ have been. I could understand why everything that was taught was.

None

It was hard to fully understand how a process works in Rust.

The guest lectures were sometimes interesting but were rarely connected enough to the course

Final project should involve some low-level OS stuff

6. Future offerings of this course should use Rust.

~

Question Type: Likert

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contributed by Evans, David (dee2b)

Results for CS-4414-001, Evans, David

Total	Mean	Std Dev	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)
33	3.18	1.24	6 (18.18%)	7 (21.21%)	10 (30.30%)	7 (21.21%)	3 (9.09%)

Results for SEAS, 4000-level courses

Total	Mean	Std Dev	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)
33	3.18	1.24	6 (18.18%)	7 (21.21%)	10 (30.30%)	7 (21.21%)	3 (9.09%)

7. Early in the semester, I provided printed notes at the beginning of most classes, but I stopped doing this as the likelihood of the department printer working most mornings dropped below 50%. Did you miss getting the printed notes?

~

Question Type: Multiple Choice

~

contributed by Evans, David (dee2b)

Results for CS-4414-001, Evans, David

Total	No, I didn't find the notes useful (NA)	A little, but it was okay to use them after class (NA)	Yes, having printed notes made class more useful (NA)	Very much, the printed notes were essential (NA)
33	15 (45.45%)	11 (33.33%)	7 (21.21%)	0 (0.00%)

Results for SEAS, 4000-level courses

Total	No, I didn't find the notes useful (NA)	A little, but it was okay to use them after class (NA)	Yes, having printed notes made class more useful (NA)	Very much, the printed notes were essential (NA)
33	15 (45.45%)	11 (33.33%)	7 (21.21%)	0 (0.00%)

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~ QUESTIONS AND DETAILS ~	~ ANSWER MATRICES ~

8. Next semester's offering of this course is oversubscribed, and the available room only has enough space to hold about 1/3 of the students on the current waiting list.

How should we decide which students to allow into the class or any other suggestions for solving this?

~

Question Type: Short Answer

~

contributed by Evans, David (dee2b)

Results for CS-4414-001, Evans, David

Total	Individual Answers
29	*See below for Individual Results*

1)Fourth years who are required to take the course get priority. 2) Third years with the most prereqs fulfilled

Take in those who need the class to graduate. For the rest, give them a small warmup to Rust like we had at the beginning of the year.

Would it be possible to get a bigger class room?

I would leave the list as it is for the time being, admitting students who email with a compelling reason for admission, and letting those less interested drop from the list of their own accord. If the list remains as the Spring semester draws nearer, I would start by admitting the 4th year BSCS students, as they must have the course to graduate, and then see if any spots are left.

Select based in the following sequence: 1) requirement 2) enrollment 3) if on waitlist, interest (how much they want to take this).

Prioritize: Need for graduation, then motivation, then skills

It should go by year first and then to determine who gets in from there they should submit a written reason for why they would like to get into the class.

Whomever needs the course to graduate should get preference.

Ask them why they want to take the class. Give priority to upperclassmen.

Make a survey that expresses the goals of the class and rank the students based on how well their answers/desires for the class match the goals of the class.

Ask for project proposals now, and pick those that promise to be interesting.

Grade level

I think you should only allow those who absolutely need the class to graduate. Anyone taking it as an elective should be lower priority.

Fourth year precedence, since it is a requirement. Otherwise, standard waitlist is fair.

I think preference should be given to 4th years. Beyond that you could look at the how many CS electives students have taken.

4th years get preference first. Other years will have the opportunity to take it later especially if it's offered both semesters.

No clue.

Seniority followed by activity on github/stack overflow perhaps.

n/a

1. Whether they need it to graduate 2. Whether they can take it another semester 3. If it will be important to them for the next year or summer (transcripts for school, jobs, etc.)

Since the course is required for the CS degree, fourth years who need it to graduate (BS CS), then people who have at least one or two other CS electives already completed. Jumping in to this course without exposure to webservers or at least having a broader view than 2150 made the course very difficult.

I know many people like to drop their classes late and the class ends up with free spots although not everyone who wanted to got in. I think those who really want to get in should be able to and those who are don't really care about learning and only want to get things over with should reconsider taking the class. I think telling the class that if there are people who don't care about learning new things to drop the class may work but I am not sure how to solve the problem of people dropping the class late.

I think fourth-years should get priority, then third-years, then second years, if they are even on the waitlist.

The information in this document is private and confidential. Please handle accordingly.

~ QUESTIONS AND DETAILS ~	~ ANSWER MATRICES ~

Allow students to enroll as participants through Piazza and recorded lectures.

Some students (CS / CpE) NEED this class as it is a requirement. Give them precedence. Beyond that... Why not have a short coding contest through InterviewStreet, Codility, or similar? Issue a short test or something; could be fun!

Older students who need the class.

Give priority to students who need this class for graduation. Alternatively, removing the requirement for CS majors to take CS 4414 would ensure that the students signed up for the class are ones who truly want to take the course.

Students who are required to take the classes should be accepted first. Then accept students who want to take the class optionally. 1. Accept 4th year CS (E-school) and CpE students 2. Accept 3rd year CS (E-school) and CpE students 3. Then, if you have seats available, accept 4th year CS Arts and Science students. 4. Then 3rd year CS Arts and Science, etc. 5. If you STILL have seats, then accept students with minor in CS.

Either the first 1/3 on the wait list or the first 1/3 of people who show initiative and interest by talking to the professor or coming to the first week of class.

9. The course addressed technically rigorous subject matter consistent with the course objectives.

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Question Type: Likert

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contributed by Dean of the School of Engineering and Applied Science

Results for CS-4414-001

Total	Mean	Std Dev	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)	Not Applicable (NA)
32	4.22	0.49	8 (25.00%)	23 (71.88%)	1 (3.12%)	0 (0.00%)	0 (0.00%)	0 (0.00%)

Results for SEAS, 4000-level courses

Total	Mean	Std Dev	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)	Not Applicable (NA)
1783	4.28	0.76	736 (41.28%)	851 (47.73%)	123 (6.90%)	37 (2.08%)	16 (0.90%)	20 (1.12%)

10. The instructor used methods other than/in addition to traditional lectures (for example, active learning, in-class problems, collaborative learning, in-class discussion) effectively in this course.

~

Question Type: Likert

~

contributed by Dean of the School of Engineering and Applied Science

Results for CS-4414-001, Evans, David

Total	Mean	Std Dev	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)	Not Applicable (NA)
33	4.36	0.70	16 (48.48%)	13 (39.39%)	4 (12.12%)	0 (0.00%)	0 (0.00%)	0 (0.00%)

Results for SEAS, 4000-level courses

Total	Mean	Std Dev	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)	Not Applicable (NA)
1941	4.18	0.88	754 (38.85%)	741 (38.18%)	221 (11.39%)	74 (3.81%)	22 (1.13%)	129 (6.65%)

11. There was a reasonable level of effort expected for the credit hours received.

~

Question Type: Likert

~

contributed by Dean of the School of Engineering and Applied Science

Results for CS-4414-001

Total	Mean	Std Dev	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)	Not Applicable (NA)
33	4.12	0.86	11 (33.33%)	18 (54.55%)	1 (3.03%)	3 (9.09%)	0 (0.00%)	0 (0.00%)

Results for SEAS, 4000-level courses

Total	Mean	Std Dev	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)	Not Applicable (NA)
1789	4.22	0.82	710 (39.69%)	859 (48.02%)	127 (7.10%)	60 (3.35%)	23 (1.29%)	10 (0.56%)

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~ QUESTIONS AND DETAILS ~	~ ANSWER MATRICES ~

12. The homework assignments helped me learn the subject matter.

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Question Type: Likert

~

contributed by Dean of the School of Engineering and Applied Science

Results for CS-4414-001

Total	Mean	Std Dev	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)	Not Applicable (NA)
33	4.36	0.65	15 (45.45%)	15 (45.45%)	3 (9.09%)	0 (0.00%)	0 (0.00%)	0 (0.00%)

Results for SEAS, 4000-level courses

Total	Mean	Std Dev	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)	Not Applicable (NA)
1780	4.16	0.87	633 (35.56%)	682 (38.31%)	194 (10.90%)	64 (3.60%)	19 (1.07%)	188 (10.56%)

13. The textbook increased my understanding of the material.

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Question Type: Likert

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contributed by Dean of the School of Engineering and Applied Science

Results for CS-4414-001

Total	Mean	Std Dev	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)	Not Applicable (NA)
33	3.89	0.93	3 (9.09%)	2 (6.06%)	4 (12.12%)	0 (0.00%)	0 (0.00%)	24 (72.73%)

Results for SEAS, 4000-level courses

Total	Mean	Std Dev	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)	Not Applicable (NA)
1783	3.67	1.07	237 (13.29%)	309 (17.33%)	276 (15.48%)	79 (4.43%)	38 (2.13%)	844 (47.34%)

14. The course material was well organized and developed.

~

Question Type: Likert

~

contributed by Dean of the School of Engineering and Applied Science

Results for CS-4414-001, Evans, David

Total	Mean	Std Dev	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)	Not Applicable (NA)
33	3.76	1.12	8 (24.24%)	16 (48.48%)	4 (12.12%)	3 (9.09%)	2 (6.06%)	0 (0.00%)

Results for SEAS, 4000-level courses

Total	Mean	Std Dev	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)	Not Applicable (NA)
1935	4.05	0.97	673 (34.78%)	776 (40.10%)	237 (12.25%)	108 (5.58%)	44 (2.27%)	97 (5.01%)

15. The instructor was knowledgeable about the subject matter.

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Question Type: Likert

~

contributed by Dean of the School of Engineering and Applied Science

Results for CS-4414-001, Evans, David

Total	Mean	Std Dev	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)	Not Applicable (NA)
33	4.70	0.47	23 (69.70%)	10 (30.30%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)

Results for SEAS, 4000-level courses

Total	Mean	Std Dev	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)	Not Applicable (NA)
1937	4.52	0.71	1146 (59.16%)	613 (31.65%)	81 (4.18%)	24 (1.24%)	15 (0.77%)	58 (2.99%)

16. The instructor was well prepared for class.

~

Question Type: Likert

~

contributed by Dean of the School of Engineering and Applied Science

Results for CS-4414-001, Evans, David

Total	Mean	Std Dev	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)	Not Applicable (NA)
33	4.58	0.83	23 (69.70%)	8 (24.24%)	1 (3.03%)	0 (0.00%)	1 (3.03%)	0 (0.00%)

Results for SEAS, 4000-level courses

Total	Mean	Std Dev	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)	Not Applicable (NA)
1938	4.30	0.84	875 (45.15%)	738 (38.08%)	150 (7.74%)	43 (2.22%)	28 (1.44%)	104 (5.37%)

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~ QUESTIONS AND DETAILS ~	~ ANSWER MATRICES ~

17. I received adequate preparation from the prior courses in the curriculum to be successful in this course.

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Question Type: Likert

~

contributed by Dean of the School of Engineering and Applied Science

Results for CS-4414-001

Total	Mean	Std Dev	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)	Not Applicable (NA)
33	3.84	0.92	8 (24.24%)	14 (42.42%)	7 (21.21%)	3 (9.09%)	0 (0.00%)	1 (3.03%)

Results for SEAS, 4000-level courses

Total	Mean	Std Dev	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)	Not Applicable (NA)
1782	4.05	0.87	551 (30.92%)	830 (46.58%)	241 (13.52%)	73 (4.10%)	26 (1.46%)	61 (3.42%)

18. The grading policy was fair.

~

Question Type: Likert

~

contributed by Dean of the School of Engineering and Applied Science

Results for CS-4414-001, Evans, David

Total	Mean	Std Dev	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)	Not Applicable (NA)
33	4.31	0.64	12 (36.36%)	19 (57.58%)	0 (0.00%)	1 (3.03%)	0 (0.00%)	1 (3.03%)

Results for SEAS, 4000-level courses

Total	Mean	Std Dev	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)	Not Applicable (NA)
1940	4.13	0.88	691 (35.62%)	780 (40.21%)	257 (13.25%)	63 (3.25%)	26 (1.34%)	123 (6.34%)

19. The instructor responded adequately to in-class questions.

~

Question Type: Likert

~

contributed by Dean of the School of Engineering and Applied Science

Results for CS-4414-001, Evans, David

Total	Mean	Std Dev	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)	Not Applicable (NA)
32	4.74	0.44	23 (71.88%)	8 (25.00%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	1 (3.12%)

Results for SEAS, 4000-level courses

Total	Mean	Std Dev	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)	Not Applicable (NA)
1933	4.35	0.78	901 (46.61%)	746 (38.59%)	127 (6.57%)	40 (2.07%)	18 (0.93%)	101 (5.23%)

20. The instructor effectively used technology in support of the learning goals for this course.

~

Question Type: Likert

~

contributed by Dean of the School of Engineering and Applied Science

Results for CS-4414-001, Evans, David

Total	Mean	Std Dev	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)	Not Applicable (NA)
33	4.62	0.49	20 (60.61%)	12 (36.36%)	0 (0.00%)	0 (0.00%)	0 (0.00%)	1 (3.03%)

Results for SEAS, 4000-level courses

Total	Mean	Std Dev	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)	Not Applicable (NA)
1931	4.22	0.80	726 (37.60%)	806 (41.74%)	200 (10.36%)	38 (1.97%)	17 (0.88%)	144 (7.46%)

21. The average number of hours per week I spent outside of class preparing for this course was:

~

Question Type: Multiple Choice

~

contributed by Office of the Provost

Results for CS-4414-001

Total	Less than 1 (NA)	1 - 3 (NA)	4 - 6 (NA)	7 - 9 (NA)	10 or more (NA)
33	1 (3.03%)	7 (21.21%)	14 (42.42%)	6 (18.18%)	5 (15.15%)

Results for SEAS, 4000-level courses

Total	Less than 1 (NA)	1 - 3 (NA)	4 - 6 (NA)	7 - 9 (NA)	10 or more (NA)
1791	118 (6.59%)	592 (33.05%)	726 (40.54%)	254 (14.18%)	101 (5.64%)

The information in this document is private and confidential. Please handle accordingly.

~ QUESTIONS AND DETAILS ~	~ ANSWER MATRICES ~

22. I learned a great deal in this course.

~
Question Type: Likert
~
contributed by Office of the Provost

Results for CS-4414-001

Total	Mean	Std Dev	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)
33	4.24	0.87	16 (48.48%)	10 (30.30%)	6 (18.18%)	1 (3.03%)	0 (0.00%)

Results for SEAS, 4000-level courses

Total	Mean	Std Dev	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)
1780	4.15	0.91	714 (40.11%)	760 (42.70%)	195 (10.96%)	81 (4.55%)	30 (1.69%)

23. Overall, this was a worthwhile course.

~
Question Type: Likert
~
contributed by Office of the Provost

Results for CS-4414-001

Total	Mean	Std Dev	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)
33	4.27	0.84	16 (48.48%)	11 (33.33%)	5 (15.15%)	1 (3.03%)	0 (0.00%)

Results for SEAS, 4000-level courses

Total	Mean	Std Dev	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)
1784	4.18	0.96	785 (44.00%)	707 (39.63%)	171 (9.59%)	67 (3.76%)	54 (3.03%)

24. The course's goals and requirements were defined and adhered to by the instructor.

~
Question Type: Likert
~
contributed by Office of the Provost

Results for CS-4414-001, Evans, David

Total	Mean	Std Dev	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)
33	4.15	0.67	10 (30.30%)	18 (54.55%)	5 (15.15%)	0 (0.00%)	0 (0.00%)

Results for SEAS, 4000-level courses

Total	Mean	Std Dev	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)
1933	4.23	0.82	774 (40.04%)	924 (47.80%)	167 (8.64%)	34 (1.76%)	34 (1.76%)

25. The instructor was approachable and made himself/herself available to students outside the classroom.

~
Question Type: Likert
~
contributed by Office of the Provost

Results for CS-4414-001, Evans, David

Total	Mean	Std Dev	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)
32	4.47	0.88	20 (62.50%)	9 (28.12%)	2 (6.25%)	0 (0.00%)	1 (3.12%)

Results for SEAS, 4000-level courses

Total	Mean	Std Dev	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)
1934	4.30	0.84	942 (48.71%)	728 (37.64%)	194 (10.03%)	43 (2.22%)	27 (1.40%)

26. Overall, the instructor was an effective teacher.

~
Question Type: Likert
~
contributed by Office of the Provost

Results for CS-4414-001, Evans, David

Total	Mean	Std Dev	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)
33	4.27	0.76	14 (42.42%)	15 (45.45%)	3 (9.09%)	1 (3.03%)	0 (0.00%)

Results for SEAS, 4000-level courses

Total	Mean	Std Dev	Strongly Agree (5)	Agree (4)	Neutral (3)	Disagree (2)	Strongly Disagree (1)
1944	4.22	0.88	853 (43.88%)	786 (40.43%)	221 (11.37%)	45 (2.31%)	39 (2.01%)

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~ QUESTIONS AND DETAILS ~	~ ANSWER MATRICES ~

27. Please make any overall comments or observations about this course:

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Question Type: Short Answer

~

contributed by Office of the Provost

Results for CS-4414-001

Total	Individual Answers
20	*See below for Individual Results*

Great class! Loved the lectures and enjoyed the assignments. One of the best classes in CS that I have had.

I had thought a lot about what to write here, but since the text box gives the feeling that it should be short, I'll summarize. First, I appreciate some qualities of the instructor that have let me enjoy this class: 1) He's more concerned about you learning, exploring, and creating something of value (to yourself or other) and his class has this feeling of "lightheartedness" (though the homeworks are sufficiently serious), 2) He does not define an upper bound on how much you can do in homework, which makes you want to try and impress him, and 3) He's honest and concrete when giving feedback (he'd say whether you have done enough for the assignment, and you could have also done so and so). Traditionally, the OS class as UVa has a dual purpose of making you a better programmer and teaching you OS. I have found Professor Evans's class to succeed wonderfully in the first regard. Due to the sheer number of hours I have put into programming this semester (partly due to Professor's second quality), I have improved more in this semester than any other time period of equal duration. In particular, two important things I have learned are: reading source code is not scary, and ask questions on IRC. In this regard, using Rust for the class was probably the right move. I predict the predominant criticism of this class is that it feels more like an "Introduction to Rust" than "Operating Systems". The first question of this evaluation form suggests the professor is aware of this. To a certain extent, they are right. However, to be fair to Professor Evans, his coverage of OS materials is probably only lacking due to the missing PS4 (and him missing the first two classes due to sickness).

I would space out the projects we had, simple web server, shell, complicated web server out across the semester with the SWS first thing in the semester and CWS as possibly the last thing. In between I would have smaller assignments/problem sets/coding that exposed more things about rust. I guess what Im trying to say is that I think there should be more, smaller, assignments so students have more exposer to rust.

Overall, I enjoyed this class, the homework, and the project. The class is well-organized and the lectures (love the demos and guest lectures) are insightful. I have not missed a single class, but I would like to apologize for not paying attention due to exams/projects. My project is not exactly working out due in part to rust being a new language without much documentation/support. I am hoping that that is okay. MC

He was pretty disrespectful in the office hours. But the course was overall a good experience, and I learned a lot out of the class. We could've had a better experience with the class if the Rust language had been more thoroughly documented and resources reasonably available online.

Very unconventional, very steep learning curve. We'll see when grades come in, but the experience would be better if either we didn't have to freak out about grades the entire semester and accept things would be hard but we'd be okay, or, the hard assignments were a little more guided.

n/a

If Rust ever becomes a fully developed language, I think it will be really useful. I really liked the high "truthiness" aspect. If the code compiled if usually ran how I expected it would. If it didn't compile, the error messages generated by the compiler were quite useful in debugging the code, far better than the segfault disaster of C++. I hope Rust makes it!

I really liked this class and it taught me more than just the technical side of operating systems. I am also thinking about my future differently which is what a university class should do as opposed to just restating some material that could be read on wikipedia.

David Evans is an excellent Professor and I have recommended this class to many of my peers. The decision to use Rust instead of C was definitely a unique one but I think it paid off in the end. Even if Rust doesn't take off it puts you in an exciting new place as a programmer -- thinking about problems in a new, safer, way, especially when dealing with concurrency. I had a great deal of fun working on the deadlock, for instance, trying to make a safe language deadlock was a neat challenge. Professor Evans' take on assignments and exams was refreshing -- the option to change the class goals if I didn't agree with them was appreciated even though I never took it. His goals were reasonable, fair, and attainable with the right amount of effort. I'm glad I took this course when I did, I feel like I've been a part of what should be the way this course is taught into the future.

I liked using Rust but I think the reasons for using Rust weren't adequately incorporated into the subject material. I think it could've been emphasized more the reasoning for using rust over C

I appreciate you letting us do whatever we wanted to do with the project. I also like how you snuck interesting topics pertinent to the real world into the lecture that made it worthwhile to go.

This course was really worthwhile

Your "on track (1)/not on track (0)" grading policy is I think good and necessary for a course of this difficulty level. Your lectures were engaging and enlightening. The giveaway incentives were very fun. You made yourself approachable and available outside of class and stuck to appointments. Piazza was a good learning tool and the messages were helpful even when I didn't feel prepared enough to contribute.

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~ QUESTIONS AND DETAILS ~	~ ANSWER MATRICES ~
	I think most of my opinions can be discerned from the evaluations above. I know this is an experimental course, and it has potential, but I did not particularly enjoy it due to the specific things I worked on. The course would have been much more effective if we used a programming language that was not currently being developed I believe Rust may need more documentation and/or stability before it could be effectively used as a programming language for this course. I'm very torn on Rust. I thought it was a nifty language at first but as time went on, I found that the safety/pointers were very hard to deal with, and I was always coding in Java/C++ mode. I found myself spending way more time looking up what to do in Rust instead of understanding what was actually happening in the program. Course was great, just not a fan of learning Rust myself. I learned a lot, but I'm not sure if I learned a lot about Operating Systems

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