Report for CS 4740 - 001 Cloud Computing Chang Lou

Project Title: **2024 Spring Student Experience of Teaching**

Course Audience: **34**
Responses Received: **28**
Response Ratio: **82.35%**

Report Comments

Spring 2024 Individual Instructor Report by Section.

Final Report

Course Name: CS 4740 - 001 Cloud Computing
Instructor Name: Chang Lou

Evaluation Start Date: Apr 23 2024 12:00AM
Evaluation End Date: May 3 2024 12:00AM

Creation Date: **Thursday, May 16, 2024**

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Spring 2024 Questionnaire

Course Preparation:

1. The average number of hours (per week) that I spent outside of class preparing for CS 4740 - 001 Cloud Computing :

- Less than 1
- 1-3
- 4-6
- 7-9
- 10 or more

Course Questions:

Answer the following questions based on your experience in CS 4740 - 001 Cloud Computing.
(Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree)

1)The course increased my enthusiasm for the topic.

2)Through this course I gained a deeper understanding of the subject matter.

3)I had access to the course materials I needed to learn, including access to required textbooks, course readings, technology tools, and other materials required for class assignments and projects.

* ***If the above question generates a negative response, a branching question will be generated:***

3-A) You disagreed or strongly disagreed that you did not have access to the course materials you needed to learn. Please review the options below and select any of the reasons that may better describe what affected your access to course materials.

- Internet speed and reliability
- Internet connectivity
- It was difficult to obtain hand-on materials needed for the course
- I didn’t have the funds to purchase the course materials
- The instructor didn’t provide the course materials needed to learn
- Other: Please Specify

Learning Activities Question:
To what extent did the following learning activities contribute to your learning? (A Lot, A Moderate Amount, A Little, Not At All)

- Real-time lecture
- Recorded lectures
- Recorded video demonstrations
- Hands-on activities
- Real-time, whole-class discussion
- Real-time small-group discussion
- Online discussion boards
- Office hours

Open Comment Questions (Course):

1) Please tell us briefly how any of the above learning activities (or other activities not included above) contributed to your learning in this course.

2) What would you like the instructor and university administrators to know about your experience in this course?

Instructor Questions:

Answer the following questions based on your experience with Chang Lou. Your constructive feedback will help your instructor identify what went well and ways to improve the course in the future.
(Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree)

1) The instructor clearly communicated the course schedule and expectations for participation (e.g., readings, discussions).

2) The instructor clearly communicated the course learning objectives.

3) The instructor implemented learning activities and assignments that allowed me to demonstrate understanding of the course material.

4) The instructor provided me prompt and useful feedback on my learning.

5) The instructor provided opportunities for my active participation.

6) The instructor was available to help support my learning.

7) The instructor fostered an environment where I felt valued as an individual and that I belonged in the class.

8) Overall, the instructor was an effective teacher.

9) The instructor created an environment that respected difference and welcomed diverse perspectives.

* ***A positive or negative response to the above question will generate a follow-up comment question.***

9A) You selected "AGREE or STRONGLY AGREE" on the previous question: Please give specific examples as to how Chang Lou created an environment that respected difference and welcomed diverse perspectives.

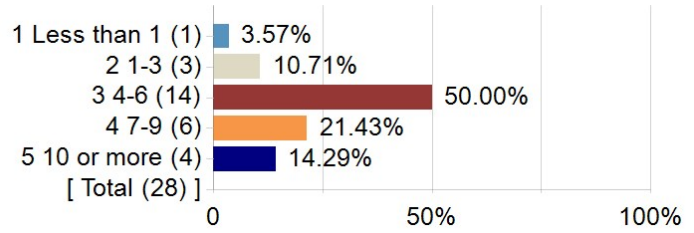
9B) You selected "DISAGREE or STRONGLY DISAGREE" on the previous question: Please give specific examples as to how Chang Lou did not create an environment that respected difference and welcomed diverse perspectives.

Open Comment Question (Instructor):
Your response to the open-ended question below will be shared only with Chang Lou. If this course was taught by multiple instructors, you will have the opportunity to provide feedback to each. Please avoid using instructors' names in your responses to ensure confidentiality.

1) What constructive suggestions do you have to help Chang Lou improve this course for future students?

Student Preparation

The average number of hours (per week) that I spent outside of class preparing for CS 4740 - 001 Cloud Computing:



Statistics	Value
Response Count	28
Mean	3.32
Median	3.00
Standard Deviation	0.98

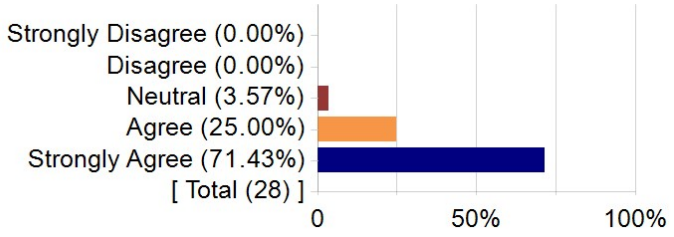
Course Questions

Mean values are displayed below.

Scale 1 = Strongly Disagree 2 = Disagree 3 = Neutral 4 = Agree 5 = Strongly Agree

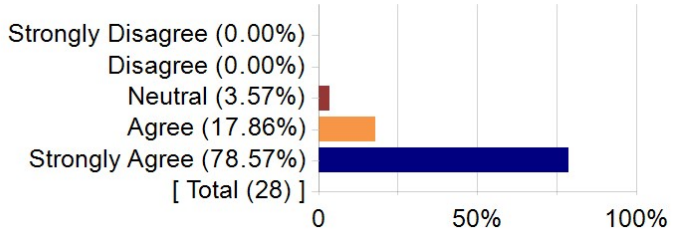
Question	Course (CS 4740 001)		Department (CS)		School (ENGR)		Institution (University of Virginia)	
	Response Count	Mean	Response Count	Mean	Response Count	Mean	Response Count	Mean
The course increased my enthusiasm for the topic.	28	4.68	3860	3.74	10303	3.84	59521	4.03
Through this course I gained a deeper understanding of the subject matter.	28	4.75	3860	4.16	10302	4.22	59500	4.33
I had access to the course materials I needed to learn, including access to required textbooks, course readings, technology tools, and other materials required for class assignments and projects.	28	4.79	3859	4.27	10299	4.32	59519	4.48

1. The course increased my enthusiasm for the topic.



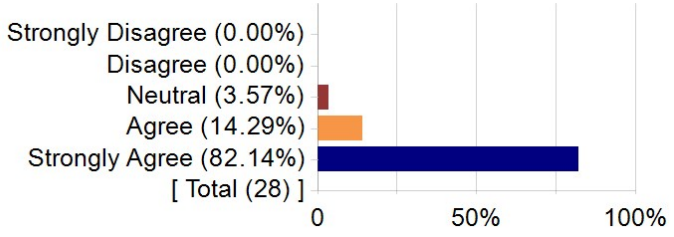
Options	Score	Count	Percentage
Strongly Disagree	1	0	0.00%
Disagree	2	0	0.00%
Neutral	3	1	3.57%
Agree	4	7	25.00%
Strongly Agree	5	20	71.43%
Statistics			**Value**
Mean			4.68
Median			5.00
Standard Deviation			0.55

2. Through this course I gained a deeper understanding of the subject matter.



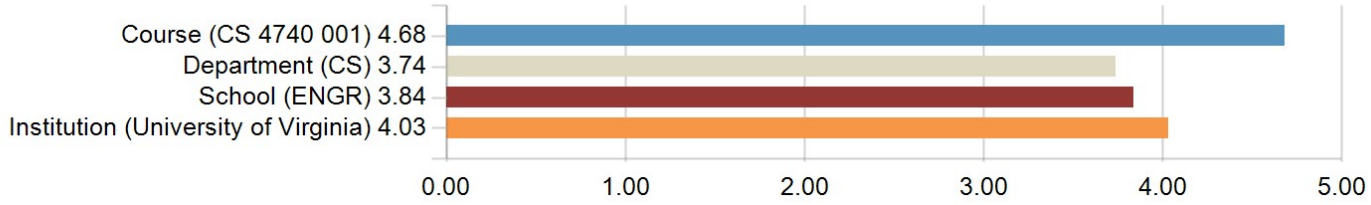
Options	Score	Count	Percentage
Strongly Disagree	1	0	0.00%
Disagree	2	0	0.00%
Neutral	3	1	3.57%
Agree	4	5	17.86%
Strongly Agree	5	22	78.57%
Statistics			**Value**
Mean			4.75
Median			5.00
Standard Deviation			0.52

3. I had access to the course materials I needed to learn, including access to required textbooks, course readings, technology tools, and other materials required for class assignments and projects.

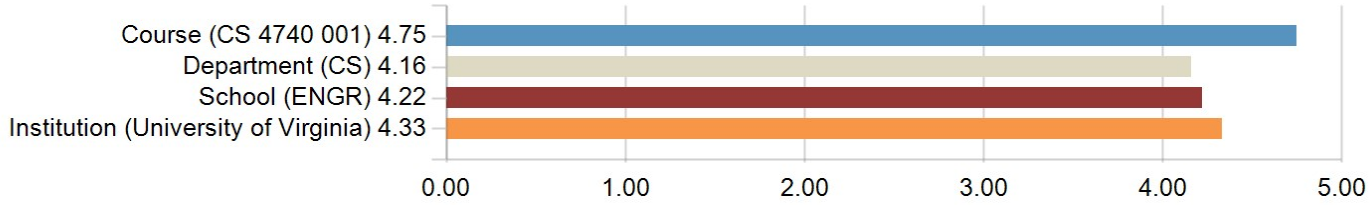


Options	Score	Count	Percentage
Strongly Disagree	1	0	0.00%
Disagree	2	0	0.00%
Neutral	3	1	3.57%
Agree	4	4	14.29%
Strongly Agree	5	23	82.14%
Statistics			**Value**
Mean			4.79
Median			5.00
Standard Deviation			0.50

1. The course increased my enthusiasm for the topic.



2. Through this course I gained a deeper understanding of the subject matter.



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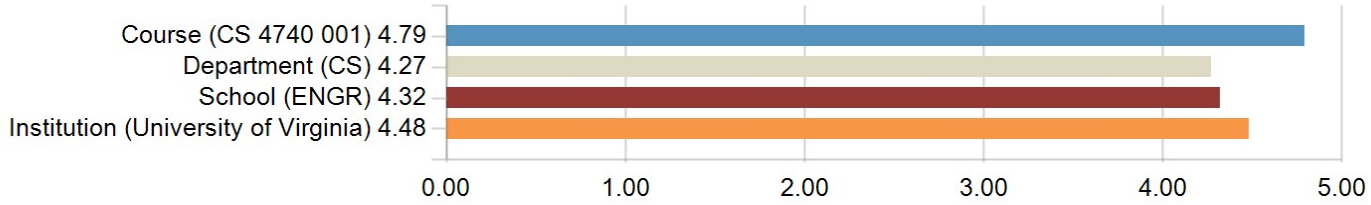
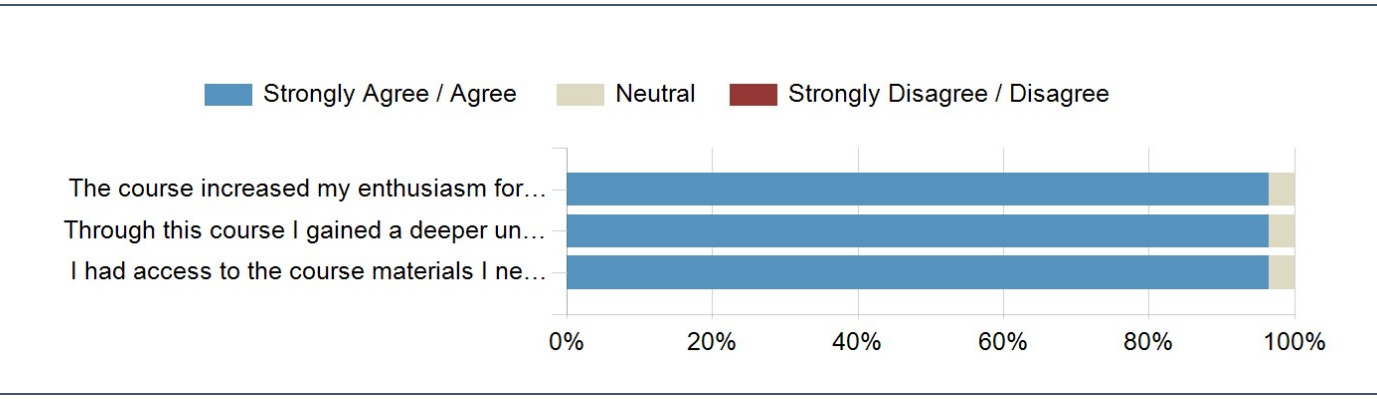




Learning Activities

Mean values are displayed below.

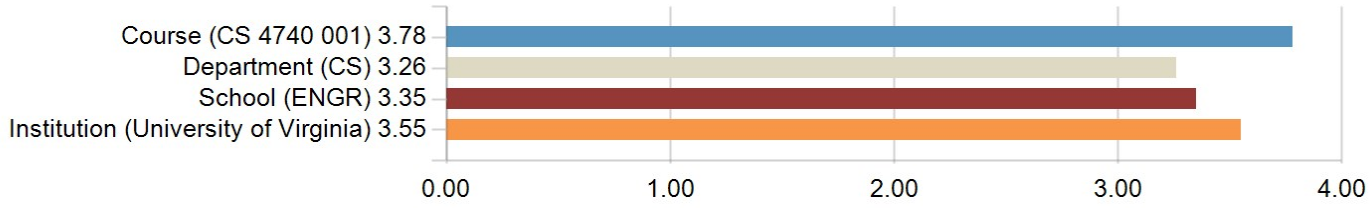
Scale: 1 = Not at All 2 = A Little 3 = A Moderate Amount 4 = A Lot

Learning Activities: To what extent did the following learning activities contribute to your learning?

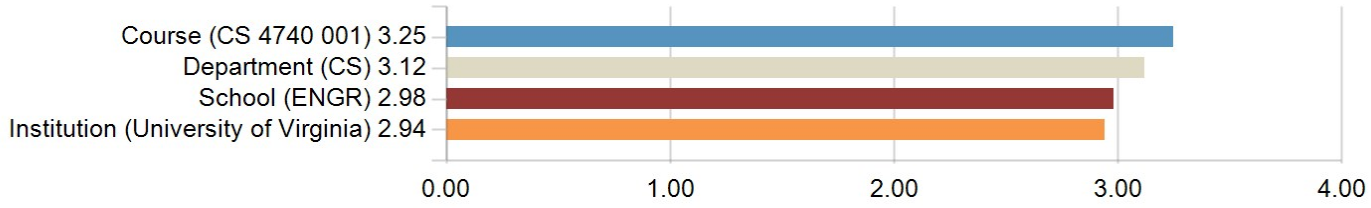
Question	Course (CS 4740 001)		Department (CS)		School (ENGR)		Institution (University of Virginia)	
	Response Count	Mean	Response Count	Mean	Response Count	Mean	Response Count	Mean
Real-time lecture	27	3.78	3553	3.26	9629	3.35	54186	3.55
Recorded lectures	4	3.25	2591	3.12	6111	2.98	25887	2.94
Recorded video demonstrations	12	3.33	1836	2.81	4756	2.80	23238	2.86
Hands-on activities	27	3.70	3170	3.40	7832	3.41	40465	3.36
Real-time whole-class discussion	26	3.27	2469	2.78	7120	2.95	45382	3.29
Real-time small-group discussion	20	2.90	2492	2.93	7036	3.14	42238	3.29
Online discussion boards	21	2.81	2619	2.85	5244	2.66	24295	2.73
Office hours	21	3.29	2924	3.02	7509	2.95	35700	2.94

Learning Activities: To what extent did the following learning activities contribute to your learning?

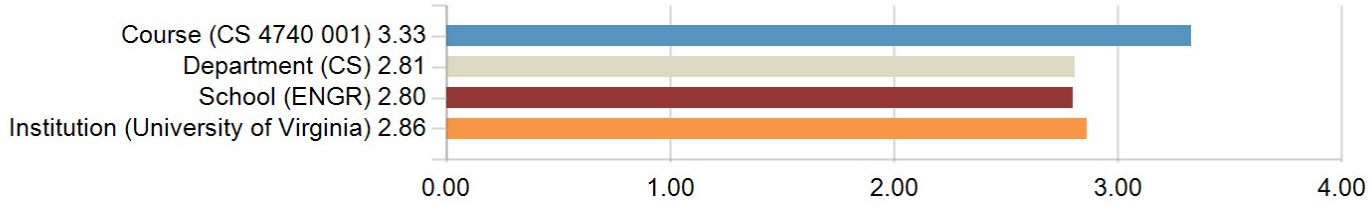
1. Real-time lecture



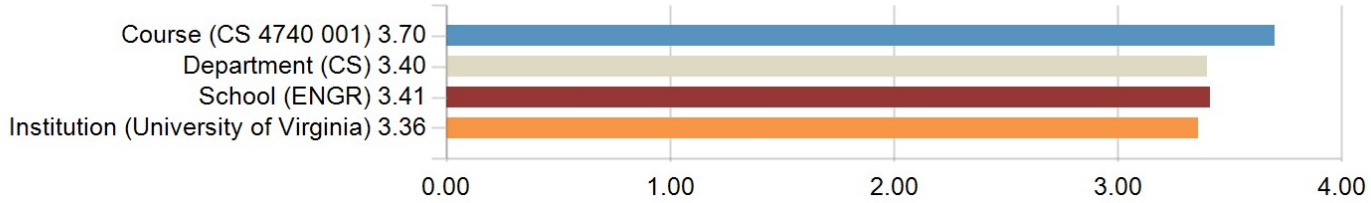
2. Recorded lectures



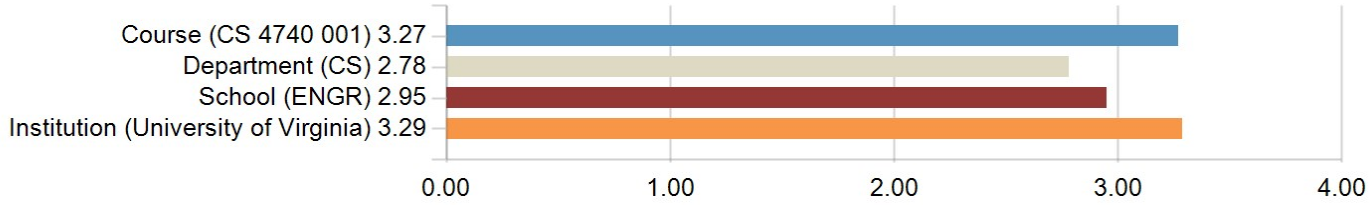
3. Recorded video demonstrations



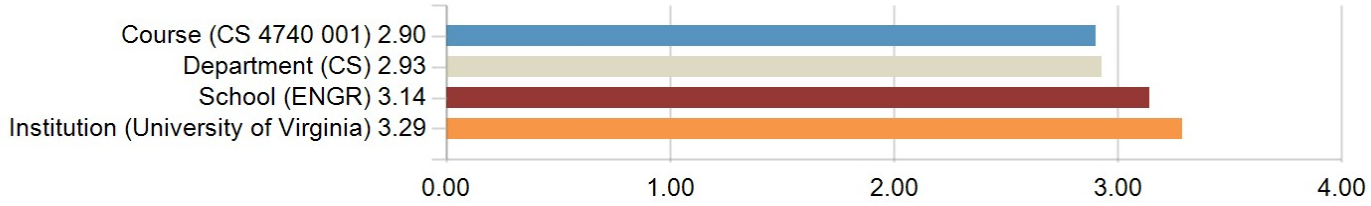
4. Hands-on activities



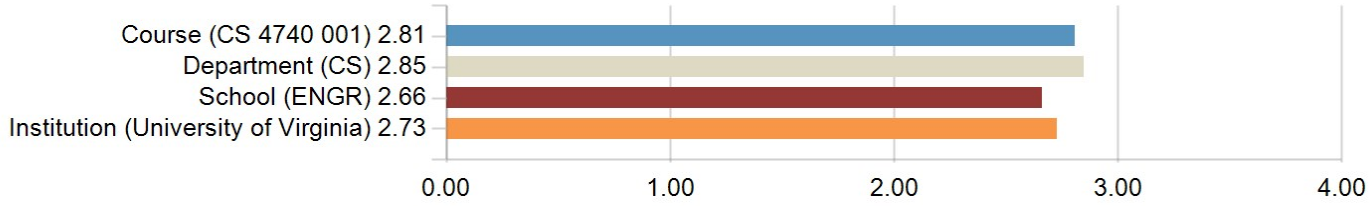
5. Real-time whole-class discussion



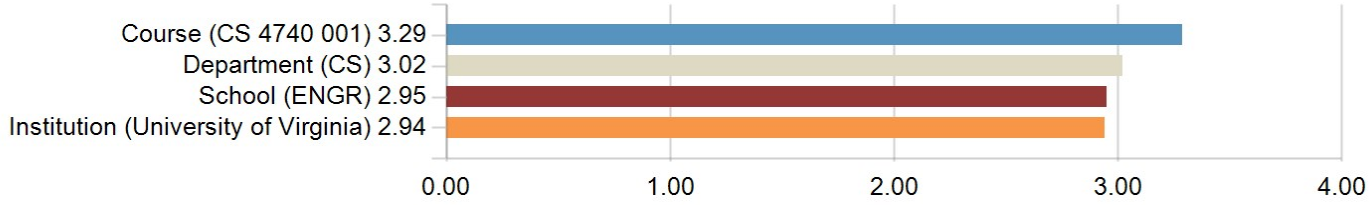
6. Real-time small-group discussion



7. Online discussion boards

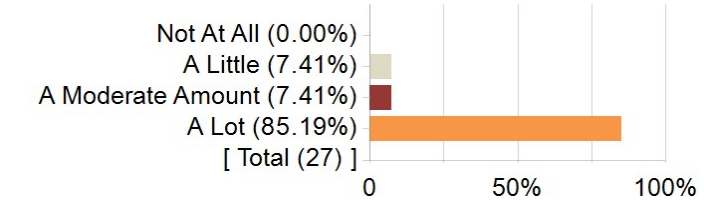


8. Office hours



Learning Activities: To what extent did the following learning activities contribute to your learning?

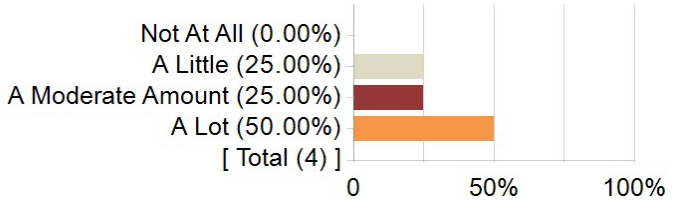
1. Real-time lecture



Options	Score	Count	Percentage
Not At All	1	0	0.00%
A Little	2	2	7.41%
A Moderate Amount	3	2	7.41%
A Lot	4	23	85.19%

Statistics	Value
Mean	3.78
Median	4.00
Standard Deviation	0.58

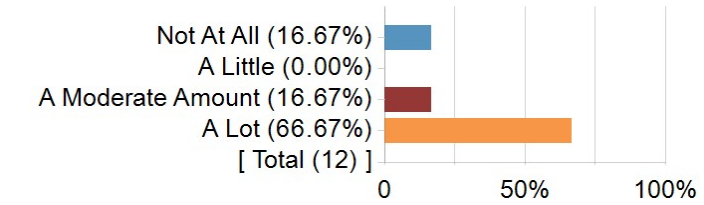
2. Recorded lectures



Options	Score	Count	Percentage
Not At All	1	0	0.00%
A Little	2	1	25.00%
A Moderate Amount	3	1	25.00%
A Lot	4	2	50.00%

Statistics	Value
Mean	3.25
Median	3.50
Standard Deviation	0.96

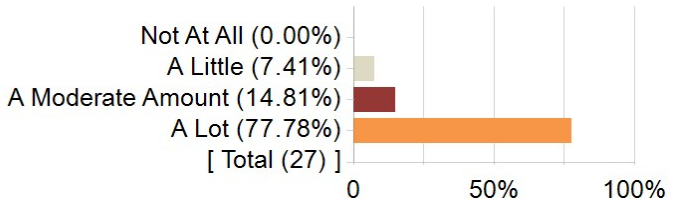
3. Recorded video demonstrations



Options	Score	Count	Percentage
Not At All	1	2	16.67%
A Little	2	0	0.00%
A Moderate Amount	3	2	16.67%
A Lot	4	8	66.67%

Statistics	Value
Mean	3.33
Median	4.00
Standard Deviation	1.15

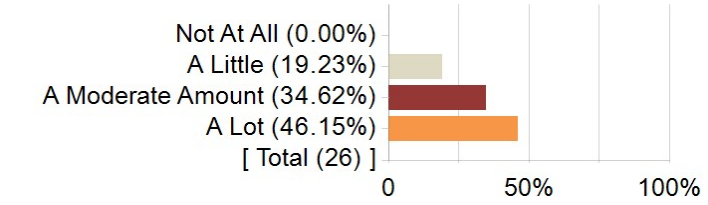
4. Hands-on activities



Options	Score	Count	Percentage
Not At All	1	0	0.00%
A Little	2	2	7.41%
A Moderate Amount	3	4	14.81%
A Lot	4	21	77.78%

Statistics	Value
Mean	3.70
Median	4.00
Standard Deviation	0.61

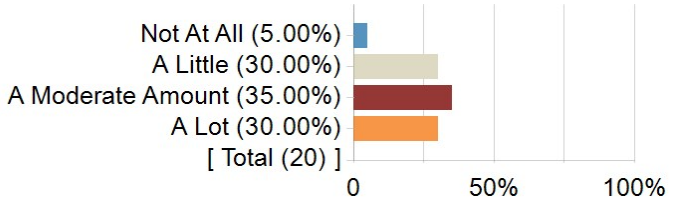
5. Real-time whole-class discussion



Options	Score	Count	Percentage
Not At All	1	0	0.00%
A Little	2	5	19.23%
A Moderate Amount	3	9	34.62%
A Lot	4	12	46.15%

Statistics	Value
Mean	3.27
Median	3.00
Standard Deviation	0.78

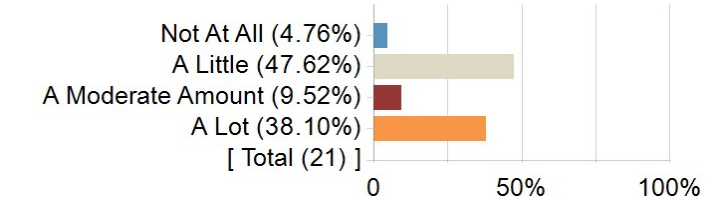
6. Real-time small-group discussion



Options	Score	Count	Percentage
Not At All	1	1	5.00%
A Little	2	6	30.00%
A Moderate Amount	3	7	35.00%
A Lot	4	6	30.00%

Statistics	Value
Mean	2.90
Median	3.00
Standard Deviation	0.91

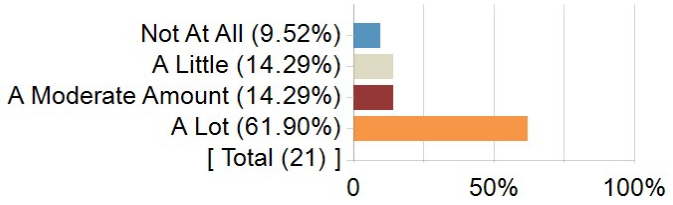
7. Online discussion boards



Options	Score	Count	Percentage
Not At All	1	1	4.76%
A Little	2	10	47.62%
A Moderate Amount	3	2	9.52%
A Lot	4	8	38.10%

Statistics	Value
Mean	2.81
Median	2.00
Standard Deviation	1.03

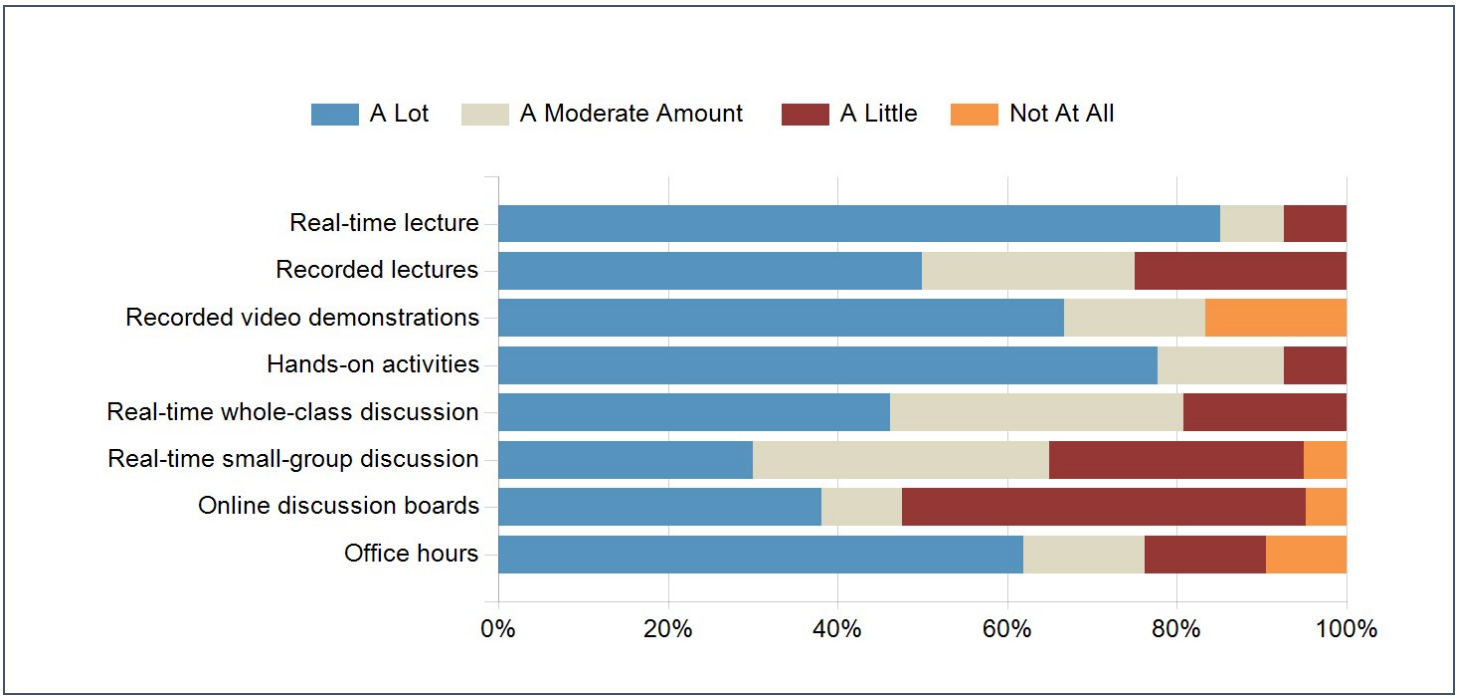
8. Office hours



Options	Score	Count	Percentage
Not At All	1	2	9.52%
A Little	2	3	14.29%
A Moderate Amount	3	3	14.29%
A Lot	4	13	61.90%

Statistics	Value
Mean	3.29
Median	4.00
Standard Deviation	1.06

Learning Activities: To what extent did the following learning activities contribute to your learning?



Please tell us briefly how any of the above learning activities (or other activities not included above) contributed to your learning in this course.

Comments
The lectures were really good
Activities and in class lectures are fun.
Each of the above learning activities contributed greatly to my learning in this course. Professor Chang's learning activities keep students engaged and promote a comprehensive understanding of the course materials.
The games and activities we did in class were so creative and engaging. In practice, the algorithms we use to navigate problems in distributed systems make a lot of sense when demonstrated in those scenarios and games.
Labs were really interesting and useful.
The activities provided by the professor were extremely helpful when it came to attaining a greater understanding of the material. The learning activities prepared me well for exams and for my future career as a software engineer. Nevertheless, the lab office hour sessions that were provided were helpful when it came to tackling the challenging labs.
Professor Lou's lectures were well–planned and engaging. The really helped me understand the material and become more interested in the topic. The homework projects were also very educational —- the perfect balance of challenging but not impossible.
The labs were the best. They were an excellent activity to apply our learning from the class.
Lecture material as well as TA lab sessions help students get an idea of the course material as well as the history of the concepts. However, the bulk of the learning was done through hands on experience when implementing the lecture material.
The TA's were very helpful in making review sessions for each lab.
This whole class was just perfectly structured. I think it gave me enough time outside of class to really be hands–on while still guiding me through the lecture. However, if I were to take it again I would really appreciate recorded lectures.
A lot of learning came through the lecture content then through manually implementing these concepts in the labs. The office hours were a great way of supplementing this and I really appreciated the fact that there were office hours (either by the professor or one of the TAs) every day.
Interesting classroom interactions, the instructor is very effective in preparing and guiding students to think critically, which enhances their learning in this subject area.
I really enjoyed class and the assignments were also really cool.
Very in depth coverage of material in lecture
I think that the lab overview sessions held and recorded by the TAs were one of the crucial components to my success in the course. They were extremely helpful, and I know that without the guidance from the lab overview sessions the labs would have been nearly impossible.
The Office hours were very helpful when working on labs. The TAs and Professor Lou were able to help me navigate bugs in the code and clear misconceptions about the projects which solidified my learning.

Course Comments

What would you like the instructor and university administrators to know about your experience in this course?

Comments
It was a good course, I enjoyed it and am glad I took it
Fun. I hope UVA CS has an official distributed systems class. Learning cloud platforms are easy and should be left to one’s own time. Learning systems is hard and should be taught more in a class.
This course has an incredible structure. Professor Chang is a great communicator, and his lectures are highly engaging.
First of all, I would like to thank Professor Chang for the immersive and enjoyable course. The material taught in the course was really valuable to become a better and more prepared computer science student. This version of the cloud computing course allows students to walk out of the class knowing the fundamentals of how cloud systems are created and work underneath and be able to hold discussions of distributed systems within the space of software development.
Professor Lou's new version of Cloud Computing is fantastic! I think this has been my favorite CS elective I've taken. I entered knowing very little about cloud/distributed systems and left with a lot more knowledge and excitement about the topic. If I had taken this course earlier in my undergraduate career, I would have definitely persuade research in this area. Professor Lou seemed like he had put a lot of effort into creating the course and his knowledge and interest in the field is very evident. His grading was fair and his programming assignments were some of the best I've completed because they were difficult but doable and I felt like I learned a lot from them.
Really fun and interesting class! Professor Lou was genuinely such a great and effective lecturer, and you could tell he really cared about us learning, even when us students make it harder by not answering questions in class right away etc. I usually don't write any comments, but I was surprised time and time again every time I went to class how great the class and Professor Lou were.
Great work with this course!! well done. I very much enjoyed it, especially the labs.
Very hard but rewarding. I liked that I could feel the passion the professor had for the topic.
It was hard, but very rewarding.
This course should be a requirement!
Chang's enthusiasm for the subject matter and care for his students shone through in every lecture. It was a pleasure taking this course with him. I appreciate the pivot toward learning distributed systems fundamentals over my understanding of the previous Cloud Computing course that taught AWS.
I really enjoyed this course. The material is advanced and relevant to the real world, and Professor Lou and the course staff are very enthusiastic, knowledgeable, and kind.
A well–designed class that greatly aids my learning.
One of if not my favorite class I've taken at UVA
Professor Lou is very passionate about distributed system topics and is an effective teacher. His in–class games and activities made the class really engaging and fun!
Very good
Overall, this course improved my enthusiasm for Cloud Computing. I would like administrators and the instructor to know that the course is very well organized and that the course content feels very relevant across all careers under the broad computer science umbrella. Professor Chang is very good at explaining the fundamental ideas of cloud systems. This course makes me want to learn more about certain aspects of Cloud Computing and carry out related independent projects.
The course was well structured and I thought all components were good, no complaints. I appreciated the content taught and the course staff were incredibly helpful and knowledgeable. While this class was not easy, we were presented the expectations for the course well in advance and I am excited to continue exploring Cloud Computing in more depth in the future. I believe this course was much more useful and relevant than previous semesters and the restructuring of the curriculum was beneficial for students.

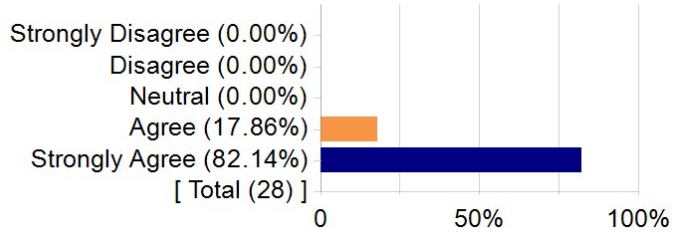
Instructor Questions

Mean values are displayed below.

Scale 1 = Strongly Disagree 2 = Disagree 3 = Neutral 4 = Agree 5 = Strongly Agree

Question	Instructor Average - this course		Instructor Average - all courses (cqx3bu Chang Lou)		Department (CS)		School (ENGR)	
	Response Count	Mean	Response Count	Mean	Response Count	Mean	Response Count	Mean
The instructor clearly communicated the course schedule and expectations for participation (e.g., readings, discussions).	28	4.82	28	4.82	3930	4.30	10973	4.35
The instructor clearly communicated the course learning objectives.	27	4.78	27	4.78	3929	4.26	10969	4.33
The instructor implemented learning activities and assignments that allowed me to demonstrate understanding of the course material.	28	4.71	28	4.71	3923	4.20	10960	4.28
The instructor provided me prompt and useful feedback on my learning.	28	4.54	28	4.54	3922	3.80	10960	3.98
The instructor provided opportunities for my active participation.	28	4.82	28	4.82	3926	4.04	10958	4.20
The instructor was available to help support my learning.	27	4.81	27	4.81	3917	4.10	10934	4.25
The instructor fostered an environment where I felt valued as an individual and that I belonged in the class.	28	4.75	28	4.75	3921	4.03	10948	4.20
Overall, the instructor was an effective teacher.	28	4.75	28	4.75	3922	4.06	10958	4.21
The instructor created an environment that respected difference and welcomed diverse perspectives.	28	4.39	28	4.39	3925	3.97	10952	4.10

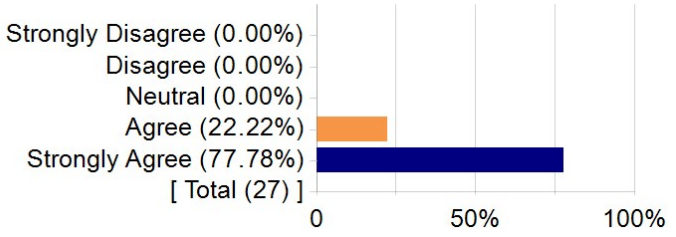
1. The instructor clearly communicated the course schedule and expectations for participation (e.g., readings, discussions).



Options	Score	Count	Percentage
Strongly Disagree	1	0	0.00%
Disagree	2	0	0.00%
Neutral	3	0	0.00%
Agree	4	5	17.86%
Strongly Agree	5	23	82.14%

Statistics	Value
Mean	4.82
Median	5.00
Standard Deviation	0.39

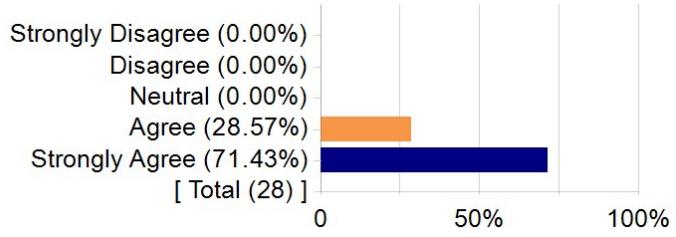
2. The instructor clearly communicated the course learning objectives.



Options	Score	Count	Percentage
Strongly Disagree	1	0	0.00%
Disagree	2	0	0.00%
Neutral	3	0	0.00%
Agree	4	6	22.22%
Strongly Agree	5	21	77.78%

Statistics	Value
Mean	4.78
Median	5.00
Standard Deviation	0.42

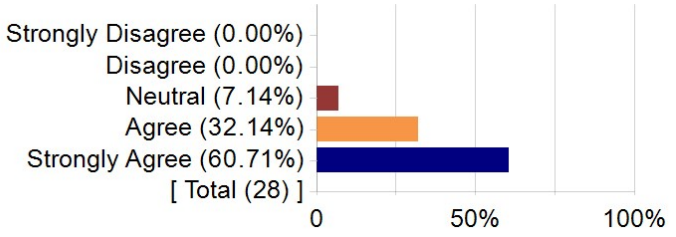
3. The instructor implemented learning activities and assignments that allowed me to demonstrate understanding of the course material.



Options	Score	Count	Percentage
Strongly Disagree	1	0	0.00%
Disagree	2	0	0.00%
Neutral	3	0	0.00%
Agree	4	8	28.57%
Strongly Agree	5	20	71.43%

Statistics	Value
Mean	4.71
Median	5.00
Standard Deviation	0.46

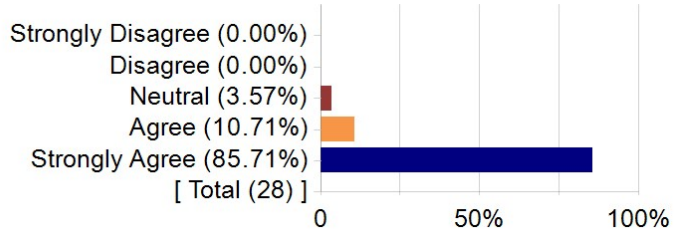
4. The instructor provided me prompt and useful feedback on my learning.



Options	Score	Count	Percentage
Strongly Disagree	1	0	0.00%
Disagree	2	0	0.00%
Neutral	3	2	7.14%
Agree	4	9	32.14%
Strongly Agree	5	17	60.71%

Statistics	Value
Mean	4.54
Median	5.00
Standard Deviation	0.64

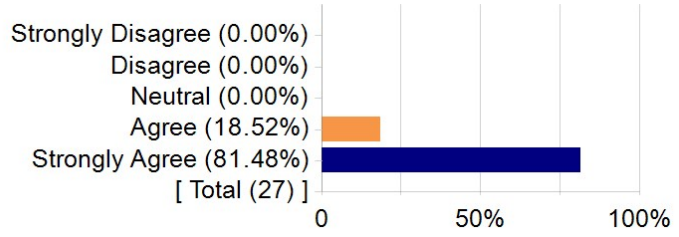
5. The instructor provided opportunities for my active participation.



Options	Score	Count	Percentage
Strongly Disagree	1	0	0.00%
Disagree	2	0	0.00%
Neutral	3	1	3.57%
Agree	4	3	10.71%
Strongly Agree	5	24	85.71%

Statistics	Value
Mean	4.82
Median	5.00
Standard Deviation	0.48

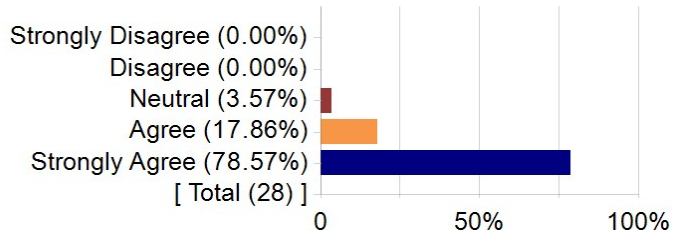
6. The instructor was available to help support my learning.



Options	Score	Count	Percentage
Strongly Disagree	1	0	0.00%
Disagree	2	0	0.00%
Neutral	3	0	0.00%
Agree	4	5	18.52%
Strongly Agree	5	22	81.48%

Statistics	Value
Mean	4.81
Median	5.00
Standard Deviation	0.40

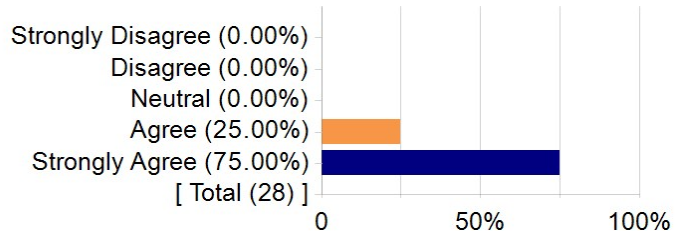
7. The instructor fostered an environment where I felt valued as an individual and that I belonged in the class.



Options	Score	Count	Percentage
Strongly Disagree	1	0	0.00%
Disagree	2	0	0.00%
Neutral	3	1	3.57%
Agree	4	5	17.86%
Strongly Agree	5	22	78.57%

Statistics	Value
Mean	4.75
Median	5.00
Standard Deviation	0.52

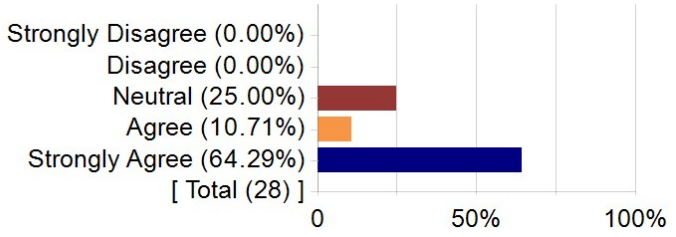
8. Overall, the instructor was an effective teacher.



Options	Score	Count	Percentage
Strongly Disagree	1	0	0.00%
Disagree	2	0	0.00%
Neutral	3	0	0.00%
Agree	4	7	25.00%
Strongly Agree	5	21	75.00%

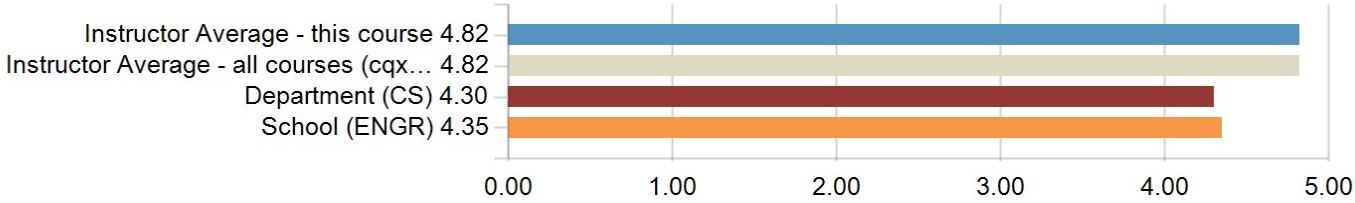
Statistics	Value
Mean	4.75
Median	5.00
Standard Deviation	0.44

9. The instructor created an environment that respected difference and welcomed diverse perspectives.

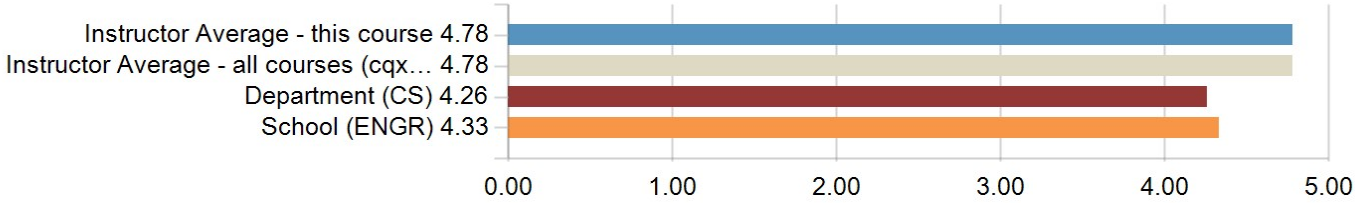


Options	Score	Count	Percentage
Strongly Disagree	1	0	0.00%
Disagree	2	0	0.00%
Neutral	3	7	25.00%
Agree	4	3	10.71%
Strongly Agree	5	18	64.29%
Statistics			**Value**
Mean			4.39
Median			5.00
Standard Deviation			0.88

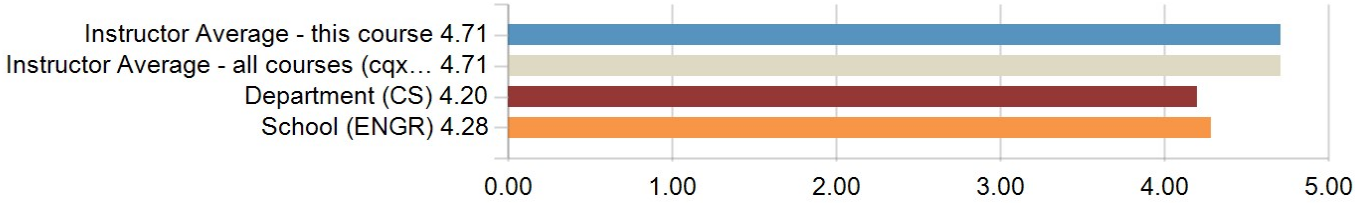
1. The instructor clearly communicated the course schedule and expectations for participation (e.g., readings, discussions).



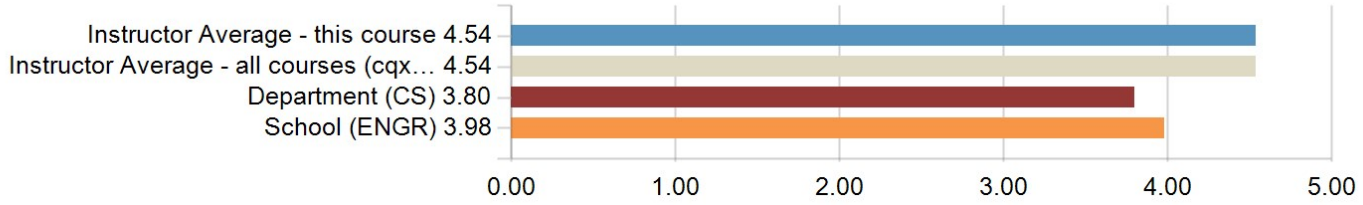
2. The instructor clearly communicated the course learning objectives.



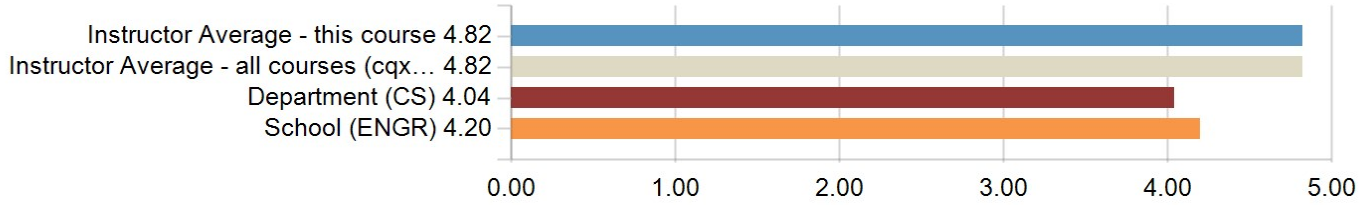
3. The instructor implemented learning activities and assignments that allowed me to demonstrate understanding of the course material.



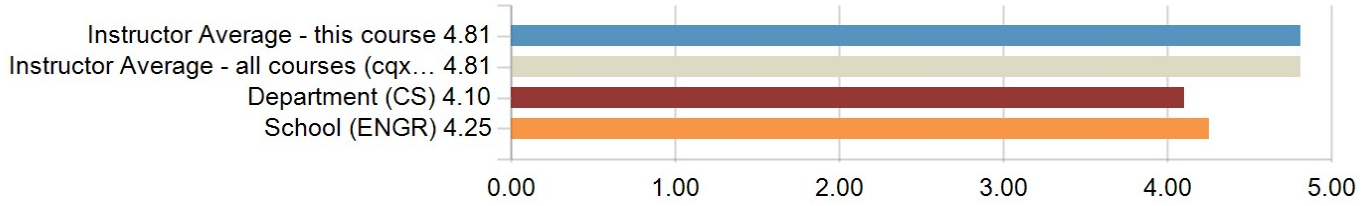
4. The instructor provided me prompt and useful feedback on my learning.



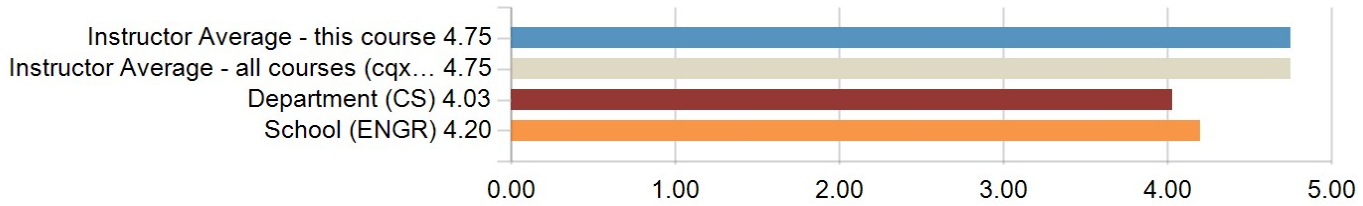
5. The instructor provided opportunities for my active participation.



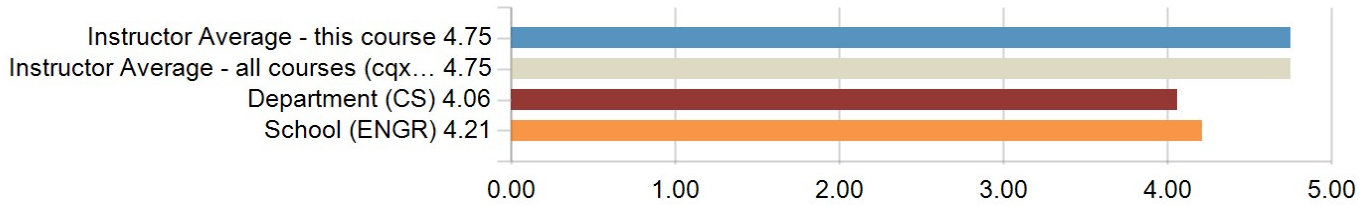
6. The instructor was available to help support my learning.



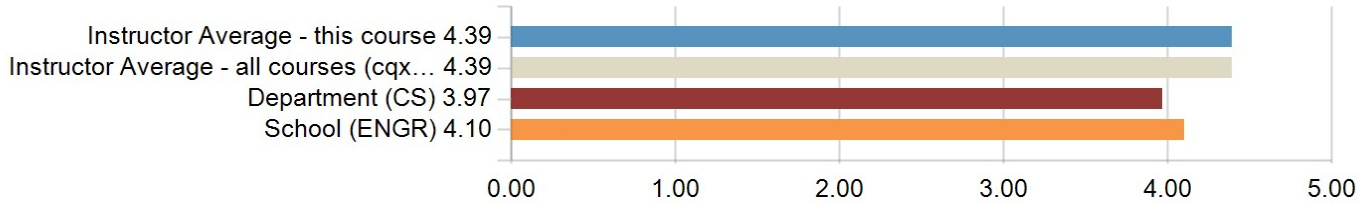
7. The instructor fostered an environment where I felt valued as an individual and that I belonged in the class.

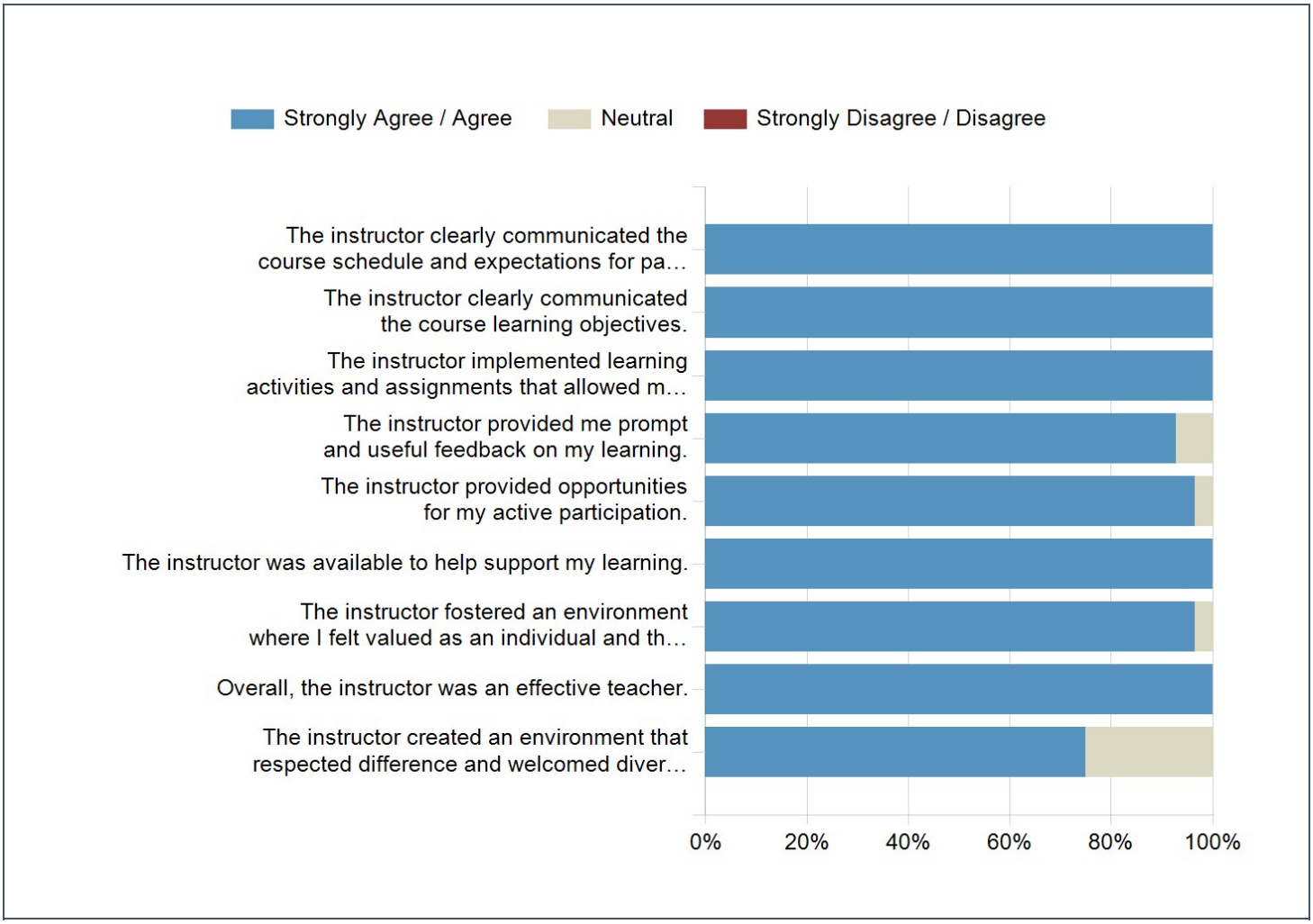


8. Overall, the instructor was an effective teacher.



9. The instructor created an environment that respected difference and welcomed diverse perspectives.





You selected "AGREE or STRONGLY AGREE" on the previous question: Please give specific examples as to how Chang Lou created an environment that respected difference and welcomed diverse perspectives.

Comments
Professor Chang incorporates group discussions, competitions, and collaborative labs into his lectures. These activities create an environment where students with diverse perspectives are able to share their thoughts.
Healthy environment where people aren't scared to speak up.
Professor Chang would enable class discussions where students were encouraged to ask and answer questions about the content. Moreover, the professor would also create gamified group activities to motivate students to participate and discuss the content with fellow students.
He always asked for input and welcomed questions and answered with equal enthusiasm no matter who asked.
Prof often asked for everyone's opinion on any subject, and was absolutely not judge when anyone answered incorrectly.
he was happy to talk to students and was very receptive to people's answers to questions on distributed systems benefits and cloud computing.
STRONGLY AGREEE.
He is really inviting and not threatening of a professor. I find it easy to speak during class if needed.
Professor Chang's lecture style is highly interactive. He is constantly asking questions addressed to all students in the class. He welcomes any and all contributions to in–class discussions and activities.
Professor Lou is very respectful of his students and their situation and has shown consistently that he will work with us to help us succeed in the course.

Instructor Comments

What constructive suggestions do you have to help Chang Lou improve this course for future students?

Comments
More comments describing what each of the Raft tests attempts to check could be helpful. The majority of difficulty I had in this course came from debugging.
You should have recorded lectures so that people who missed them can still watch it (and yes I know in person lectures are much more effective).
The only constructive suggestion I have for Professor Chang is to consider adding a textbook to the learning materials.
I believe the support for students starting to program in Go could be improved. Specifically, hosting a lecture or lab session to enable students on using Go and features of the language that can make the subsequent labs easier with such knowledge.
Thank you for a great semester — this was a really educational and enjoyable course! A few notes of feedback: One, both of the lab days were too short to really be able to digest a whole codebase and then make modifications. It would've been better if they were spread across more days or were partially homework. Two, I appreciated the heads up that your course was going to be different than the one typically taught but that email was probably more scary than it needed to be (this course involved serious work but it was a very fair workload). Finally, I thought your lecture style was very engaging, just keep working on making it ok for students to give their best answer even if it is wrong. As I got used to the class, I felt more comfortable speaking up but at the beginning it sometimes felt like a pop quiz. But again, overall, this is probably the best CS elective I've taken and I hope you keep teaching it at UVA!
I think some more specific exercises to work on in terms of the lecture material may have been helpful. Like maybe a homework due before the exams with questions similar to what might be on the exam.
At the beginning of the course, the times office hours were held were a little awkward considering the project's due date.
N/A
After taking this course, I became much more interested in what happens behind the scenes at the big cloud computing companies. Perhaps at the end of each lecture or topic, it would be interesting to have a mini example or recent research showing a modern approach to the common problems we discussed in class.
Nothing, but networking and OS2 would definitely help as a pre–requisite for this class!
Assignments. Maybe instead of having 3 parts of Raft, cover another topic?
i think you could give more projects. lab 2c was like 30 minutes of work for me and it was kind of disappointing. in general, i had way more time for projects than i needed. it could have been interesting if we had projects for topics in the later parts of the semester.
It would be nice if there weren't any due dates the week after spring break.
The class is well–designed and filled with interesting discussions and games. One small suggestion would be to break down the lab a bit, making it easier for students to follow along.
I can understand why the last couple of lecture exist but comparatively a little less fun compared to the other lectures
I enjoyed the course and thought it was very interesting. I also enjoyed implementing the project labs. However, in future semesters, it would be nice if a bit more time was spent discussing the labs and helping students implement them in lectures. Also, many students would not know Go coming in, so if useful Go topics like Go routines, channels, etc could be covered that would great. Great class overall, more support and office hours on the labs would make it even better.
Less reading off slides + more commentary/analysis or extra information
My suggestion is very specific. On the exams, we are often asked to complete exercises that were introduced during in–class lectures. I think it would be extremely helpful to have access to practice exercises to prepare for exercises on the exams. Currently, for many exercises, the only source of preparation is just the one example from the lecture slides. I feel like this is not enough material to effectively prepare for the exam. It would be helpful to have access to a couple of practice exercises in addition to a worked–out exercise in the lecture.
N/A, I thought this course was great and it was by far the most useful and enjoyable CS course I have taken at this university. The skills I have learned in this course are directly applicable to relevant CS topics and from my experience in the CS program that is not always the case with other classes/professors.