



## Spring 2025 Course Evaluations - Danforth Campus

# Spring 2025 Engineering Instructor Report for SP2025.E81.CSE.468T.01 - Introduction to Quantum Computing (Ron Cytron)



Created **Sunday, June 15, 2025**



**Courses Audience:** 82  
**Responses Received:** 74  
**Response Ratio:** 90.24%

## Report Comments

Welcome to your Instructor Report for WashU Course Evaluations. Below you will find response data from the specified course section. Responses to personalized questions appear at the bottom of the report.

The intention of this report is to provide feedback, and also to prompt improvement in areas that may be lacking. This report is accessible to appropriate department level and school level users, as determined by your school. We appreciate your dedication to our learning community at Washington University.

If you have questions about this report, please contact [evals@wustl.edu](mailto:evals@wustl.edu)

## Course Administration

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**Was a course syllabus or a course information sheet distributed or available online?**

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Options	Count	Percentage
Yes	71	100.00%
No	0	0.00%

**Did the syllabus explain the content and administration of the course (e.g., office hours, grading)?**

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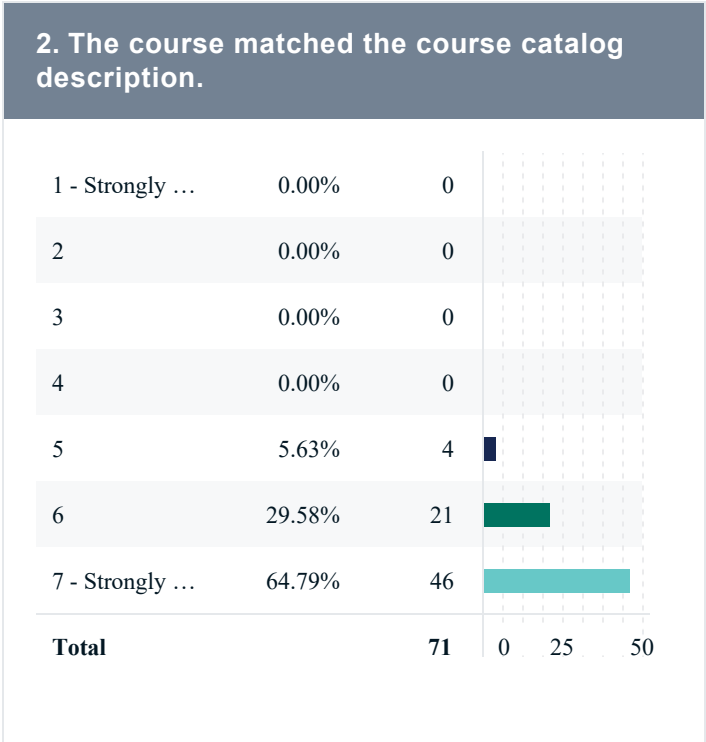
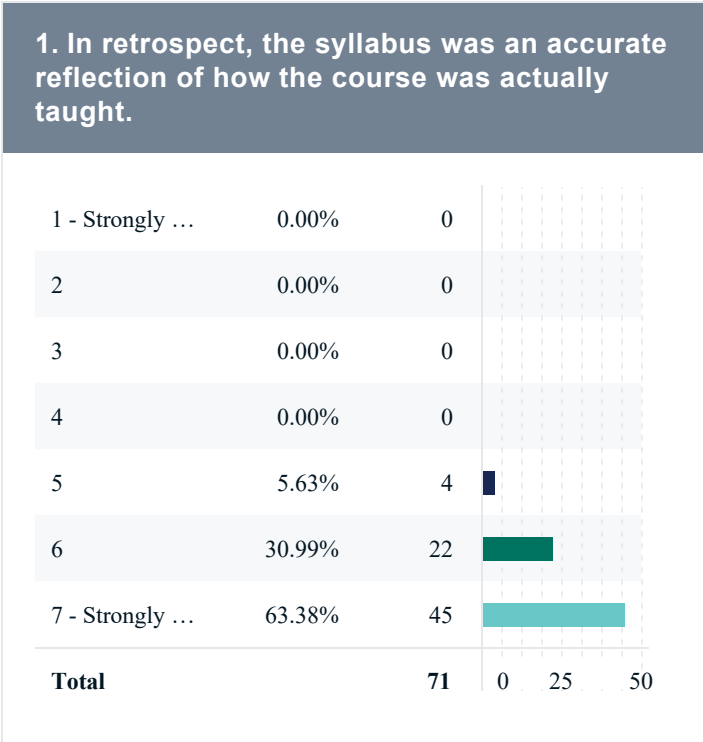
Options	Count	Percentage
Yes	70	100.00%
No	0	0.00%

# Early in the semester, did your professor explain the expectations for academic integrity?

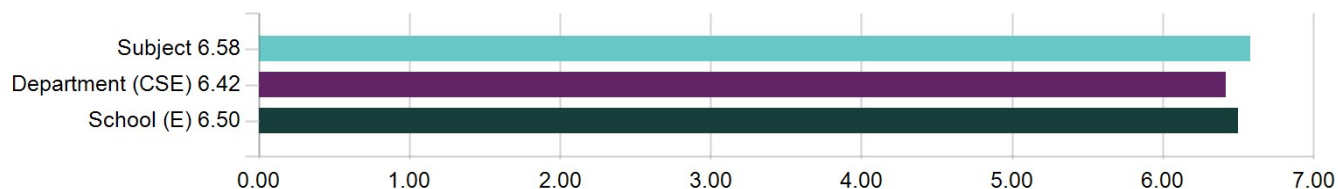
Early in the semester, did your professor explain the expectations for academic integrity?		
Options	Count	Percentage
Yes	71	100.00%
No	0	0.00%

## Rating Scale Responses

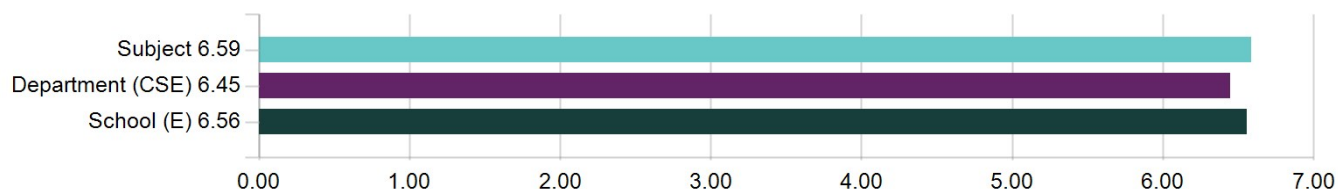
Question	Subject			
	Response Count	Mean	Standard Deviation	Median
In retrospect, the syllabus was an accurate reflection of how the course was actually taught.	71	6.58	0.60	7.00
The course matched the course catalog description.	71	6.59	0.60	7.00



### 1. In retrospect, the syllabus was an accurate reflection of how the course was actually taught.



### 2. The course matched the course catalog description.



**Please elaborate if you felt the course did not match the course catalog description.**

#### Comments

I did not feel that the course did not match the course catalog description.

N/a

N/A

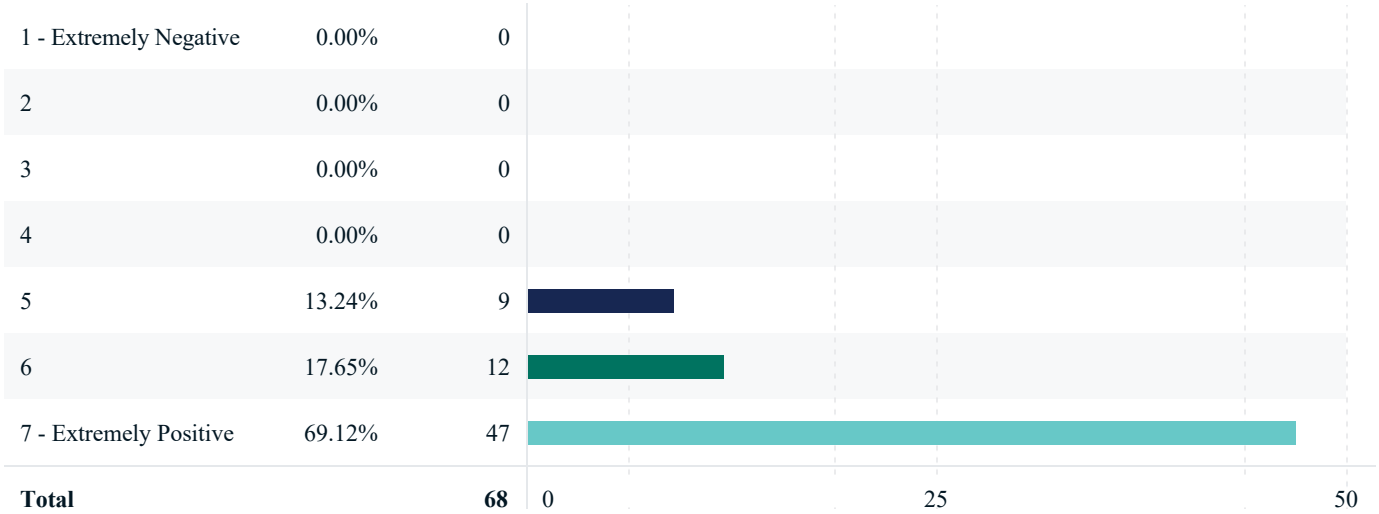
We did not make a quantum computer simulator.

N/A

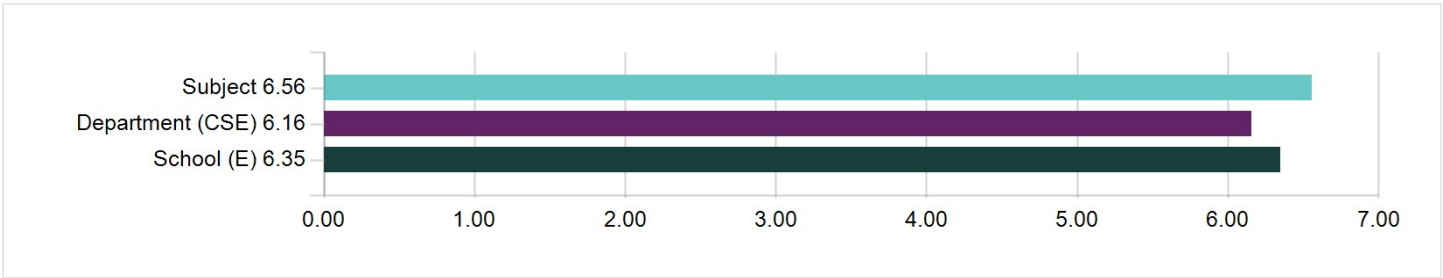
I think it should of been clear it was very math based

Please rate how well **Ron Cytron** promoted an inclusive learning environment with regard to the diversity of student personal backgrounds and identities.

Please rate how well **Ron Cytron** promoted an inclusive learning environment with regard to the diversity of student personal backgrounds and identities.



Statistics	Value
Response Count	68
Mean	6.56
Median	7.00
Standard Deviation	0.72

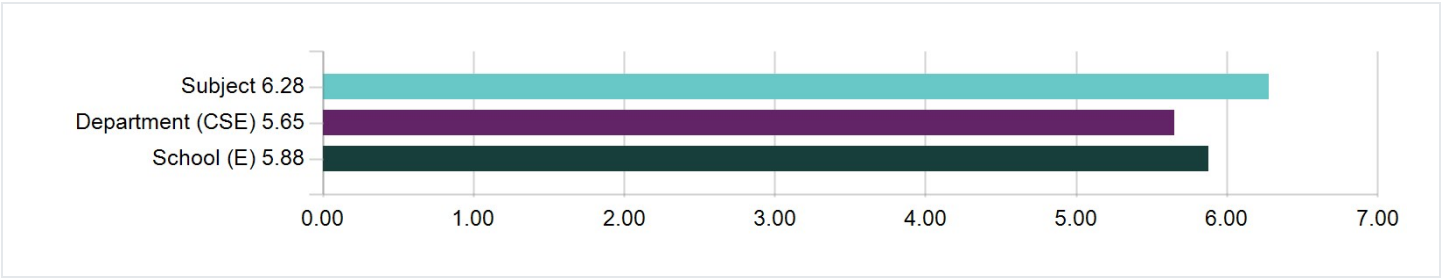
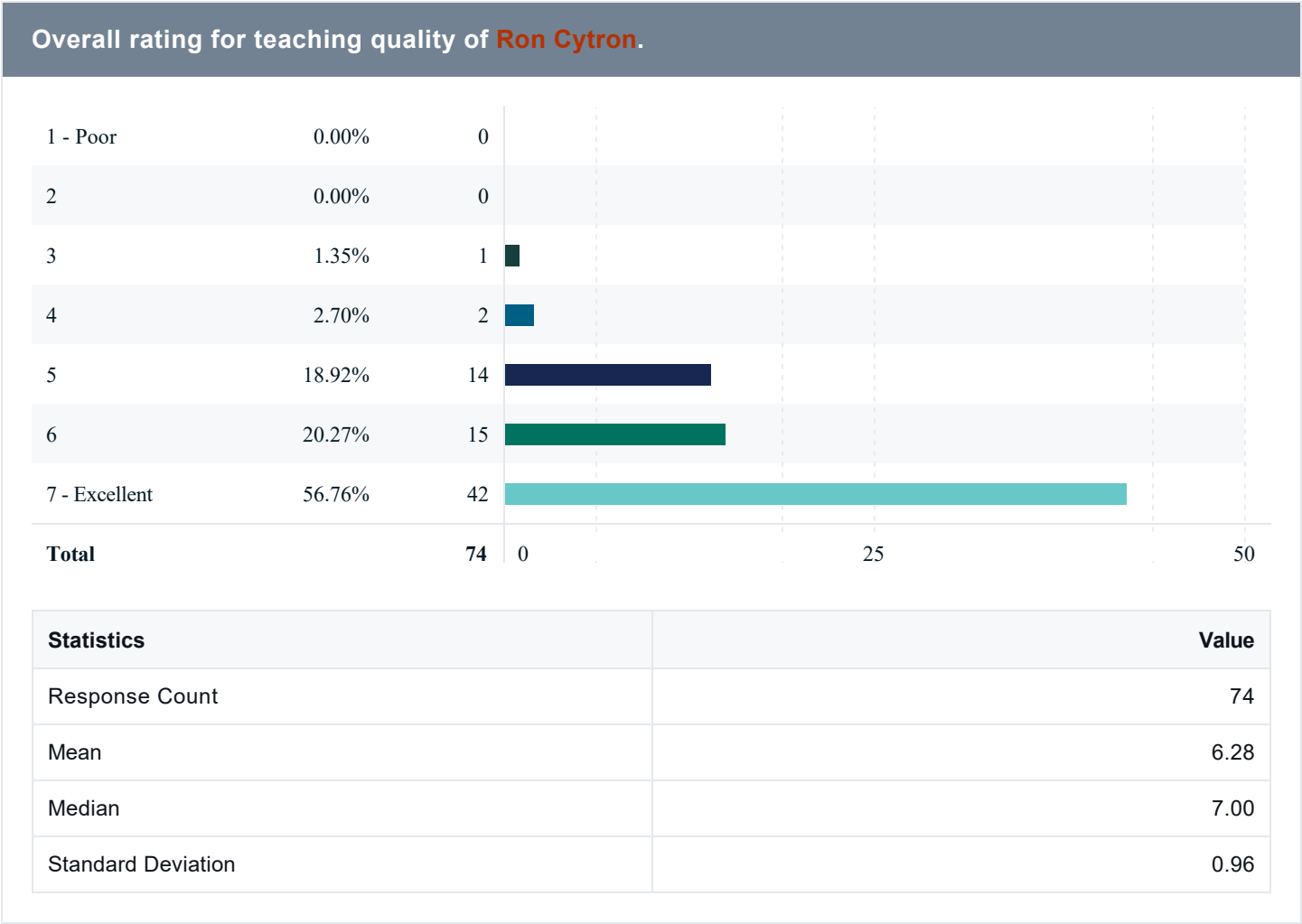


**Where relevant, please give specific examples to explain your answer above.**

Comments
Always willing to answer questions. Very informative.
He ensured that all people could have the chance to answer questions and made sure to give everyone opportunities.
Professor Cytron did an excellent job of creating an inclusive learning environment by encouraging feedback from students and collaboration between students.
Professor Cytron always took questions and answered them to the best of his ability, no matter who the question came from. He also did a great job of including the class with his jokes and great lecturing.
Allowed for students to present questions in class and after, accommodating different levels of comfort speaking publicly
N/A
Always willing to answering and open to questions.

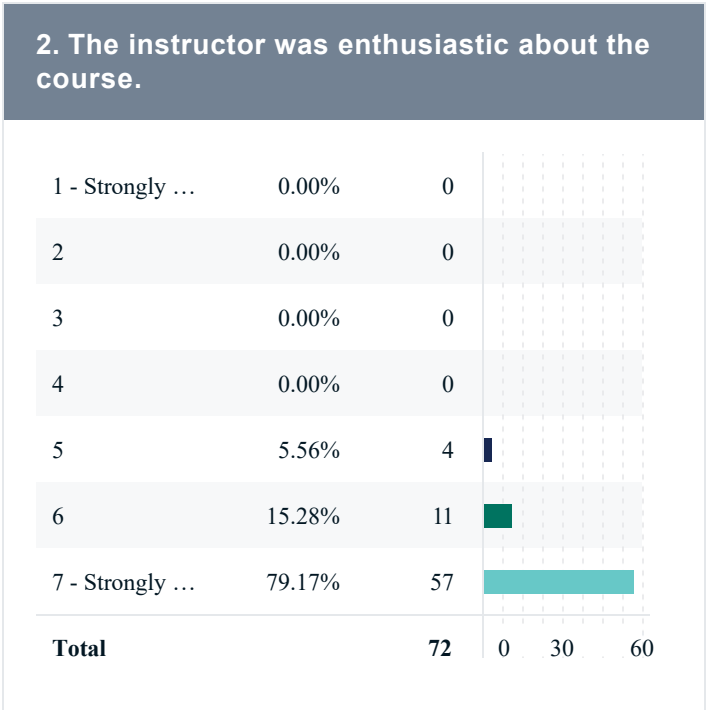
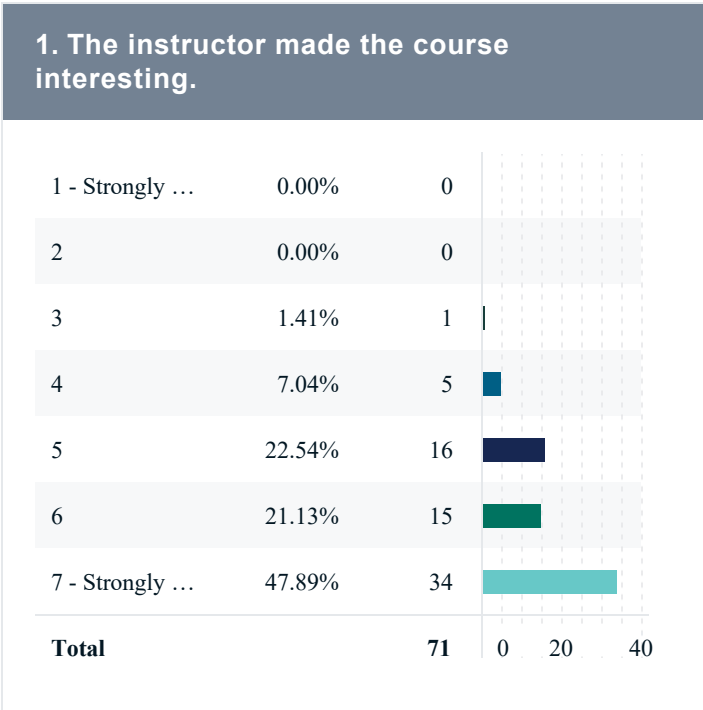
Instructor Evaluation

Overall rating for teaching quality of Ron Cytron.



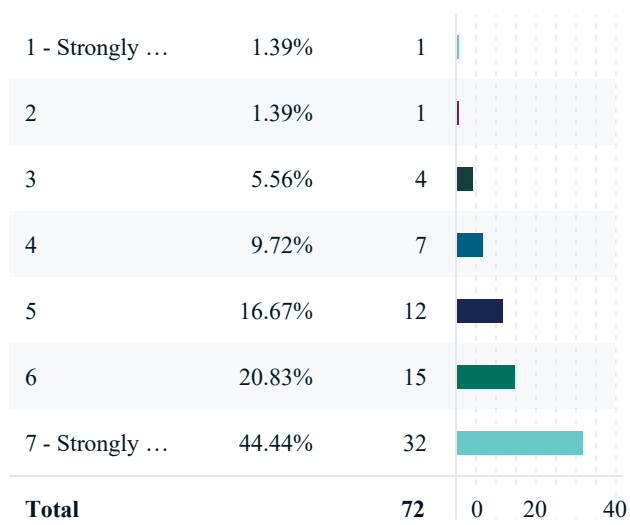
Rating Scale Responses for Ron Cytron

Question	Subject			
	Response Count	Mean	Standard Deviation	Median
The instructor made the course interesting.	71	6.07	1.06	6.00
The instructor was enthusiastic about the course.	72	6.74	0.56	7.00
The material was covered at a reasonable pace.	72	5.79	1.43	6.00
The instructor was available to answer questions (through office hours, email, etc.).	72	6.57	0.75	7.00
The instructor was well-organized and prepared for class.	72	6.53	0.79	7.00
The instructor explained the course material so that you could understand it.	72	5.93	1.20	6.00

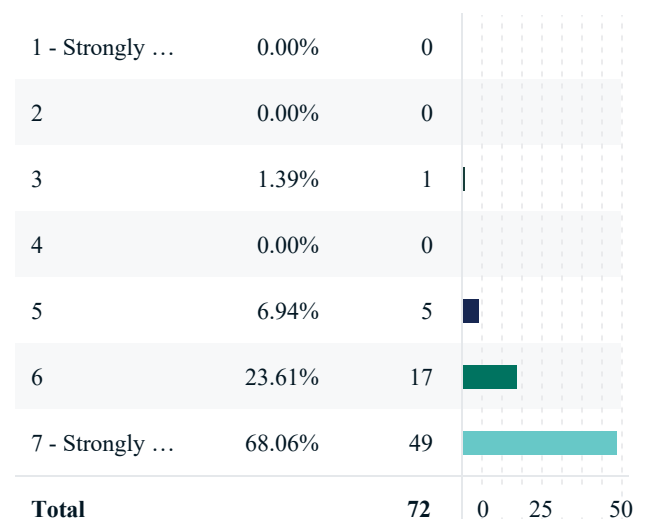




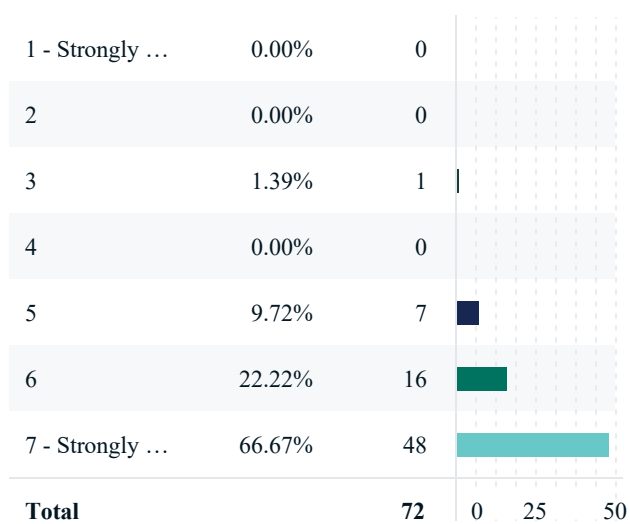
### 3. The material was covered at a reasonable pace.



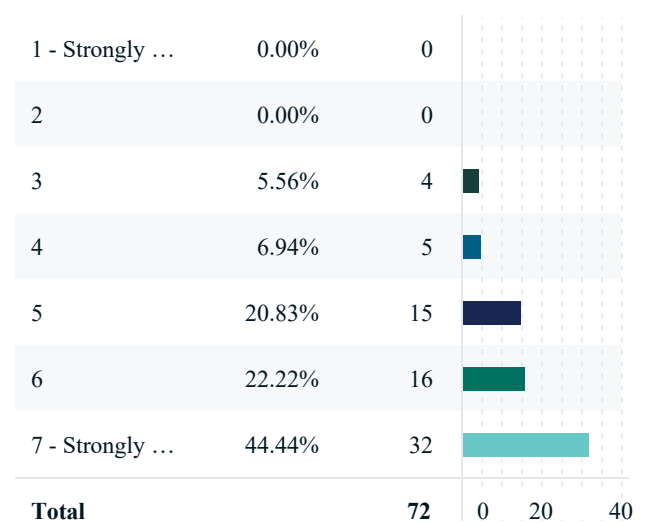
### 4. The instructor was available to answer questions (through office hours, email, etc.).



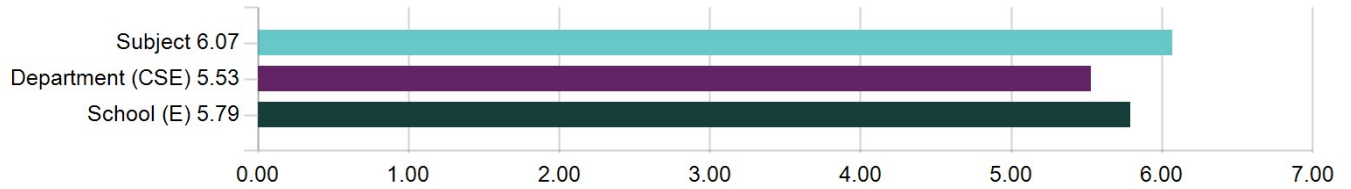
### 5. The instructor was well-organized and prepared for class.



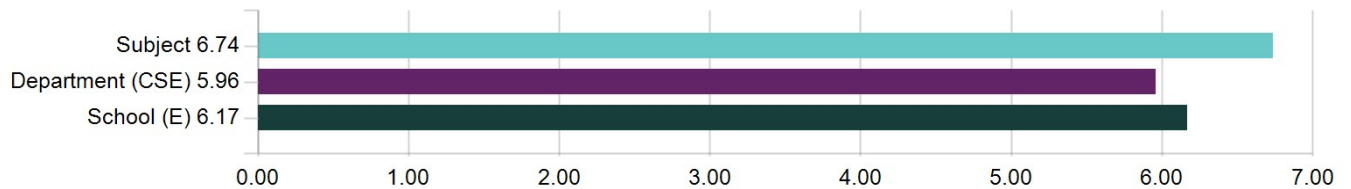
### 6. The instructor explained the course material so that you could understand it.



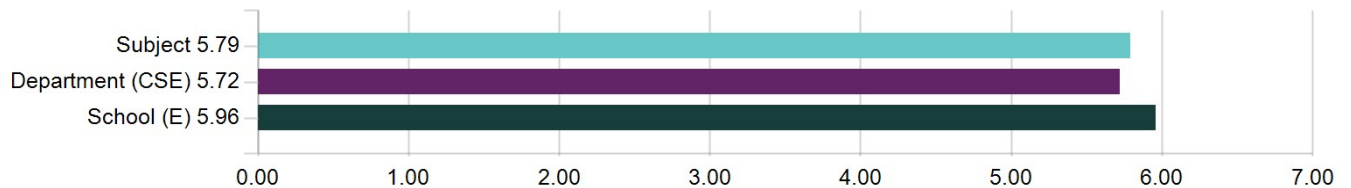
### 1. The instructor made the course interesting.



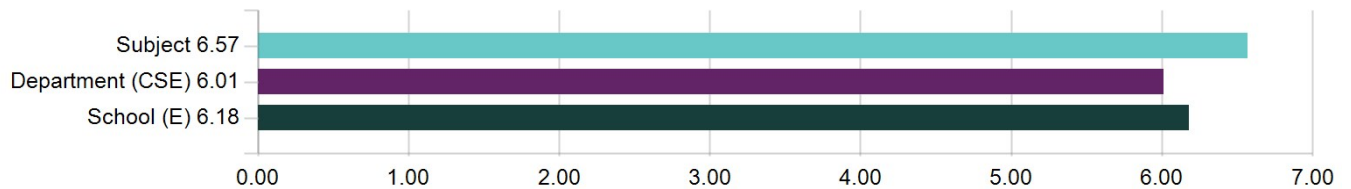
### 2. The instructor was enthusiastic about the course.



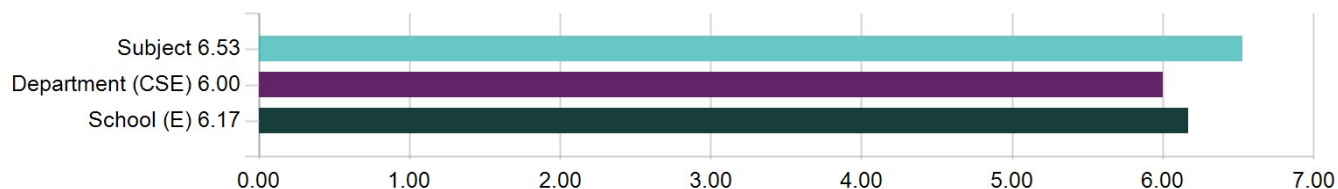
### 3. The material was covered at a reasonable pace.



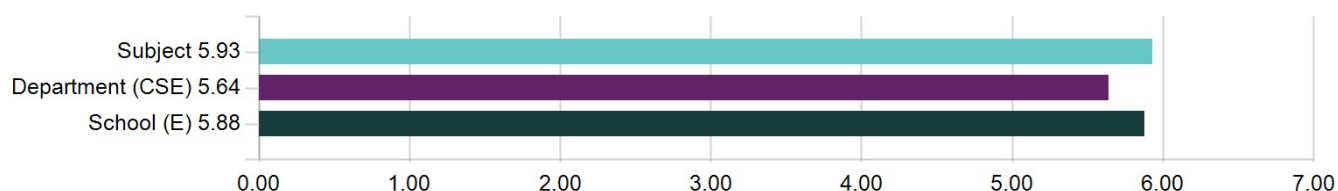
### 4. The instructor was available to answer questions (through office hours, email, etc.).



### 5. The instructor was well-organized and prepared for class.



### 6. The instructor explained the course material so that you could understand it.



### Please elaborate if you felt the material was not covered at a reasonable pace.

#### Comments

Sometimes I felt overwhelmed by the amount of material on the slides. I would be trying to understand something and then all of a sudden we move to another slide. I personally needed more time to digest the material.

class moved fast but he warned us of that at the beginning but still hard to keep up

I did not feel that the material was not covered at a reasonable pace.

Way too fast, I feel like he brushed over some very complex processes so quickly

N/a

Perhaps I'm not the right reference for this, I did see some other students mention pacing issues. I rated a 7 because I found the pacing fine.

a little fast

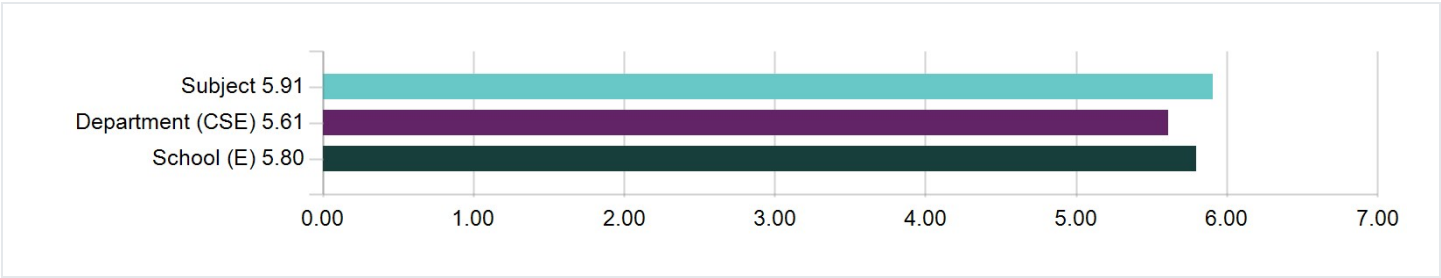
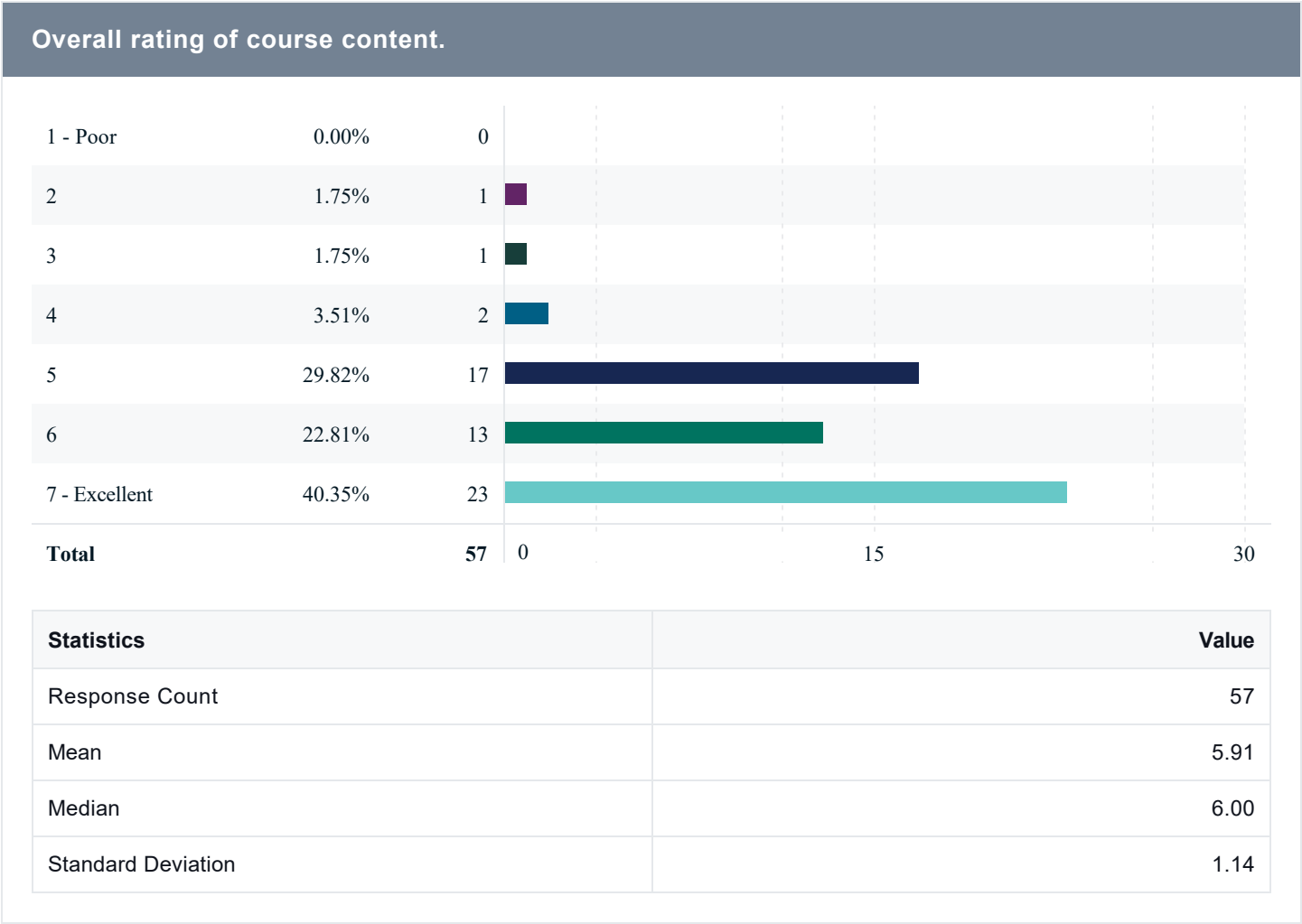
At times it felt like the material moved very quickly in the course. I felt that the use of the course slides for all of the material, aside from the additional content in the last few classes sometimes made it difficult to follow along. In the time where professor Cytron worked through examples written on the board, I found it much easier to keep up, since the pace of working these examples was much slower.

Sometimes the class went a bit fast, but it was overall ok.

I thought that the course could of been a little slower so that we can have a little time between topics since it is a heavy math course load where people needs to process a little

Course Materials and Assignments

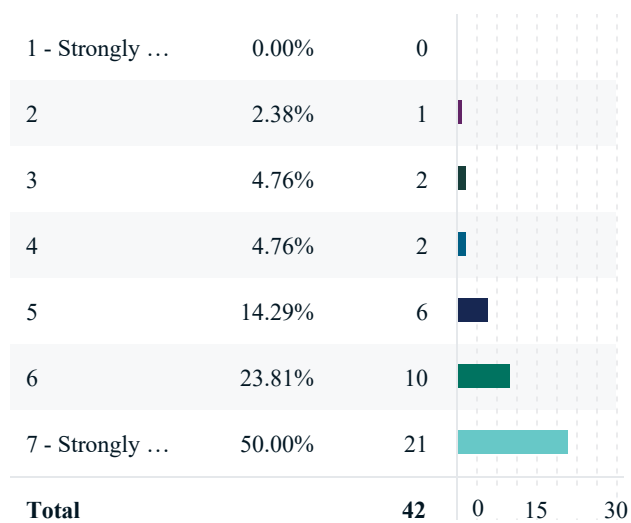
Overall rating of course content.



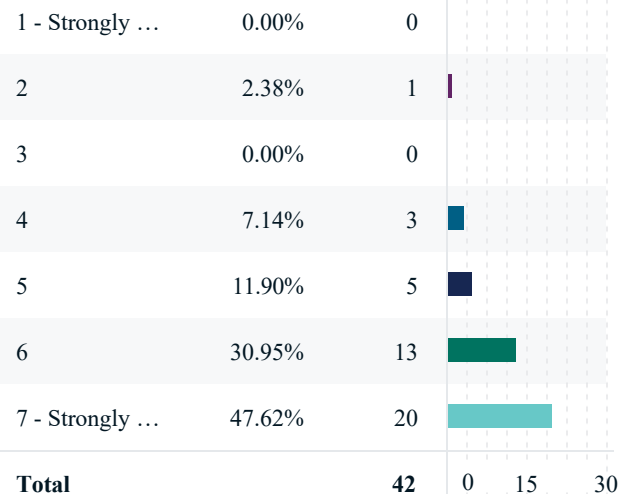
## Rating Scale Responses

Question	Subject			
	Response Count	Mean	Standard Deviation	Median
Textbooks/readings complemented the lectures.	42	6.02	1.30	6.50
Textbooks/readings were useful.	42	6.12	1.13	6.00
Assigned homeworks were helpful and relevant to the course.	68	6.41	0.93	7.00
There was reasonable time to complete assignments.	68	6.50	1.03	7.00
Assignments were returned within a reasonable period of time.	68	6.50	0.94	7.00
Comments on graded work were helpful.	66	5.92	1.42	7.00
Labs were an effective supplement to the course.	44	6.30	1.11	7.00
The course material drew upon real world applications.	66	6.27	1.03	7.00

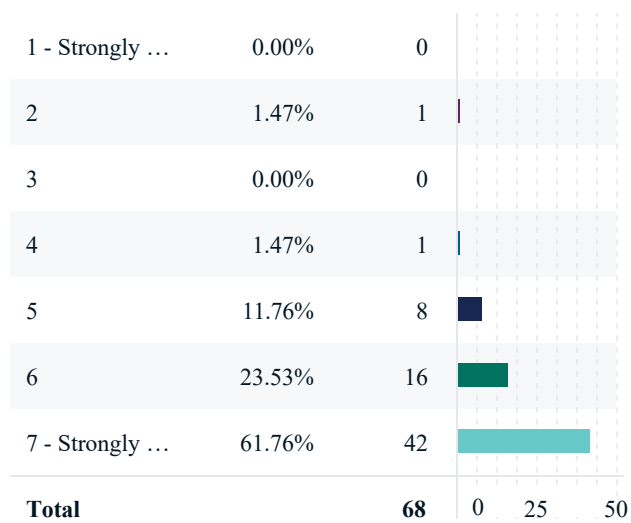
### 1. Textbooks/readings complemented the lectures.



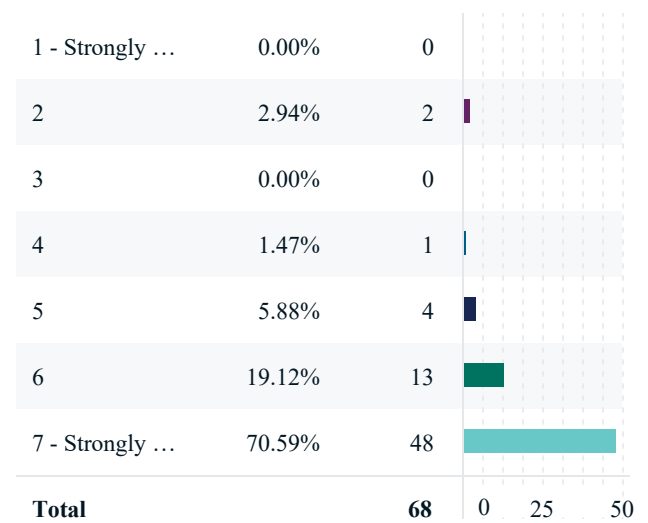
### 2. Textbooks/readings were useful.



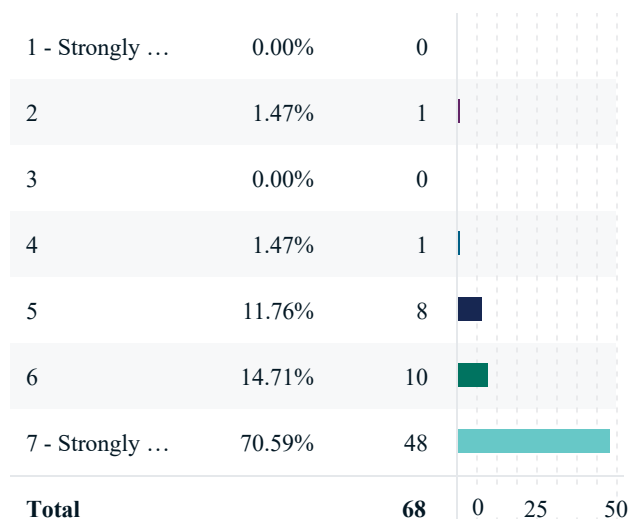
### 3. Assigned homeworks were helpful and relevant to the course.



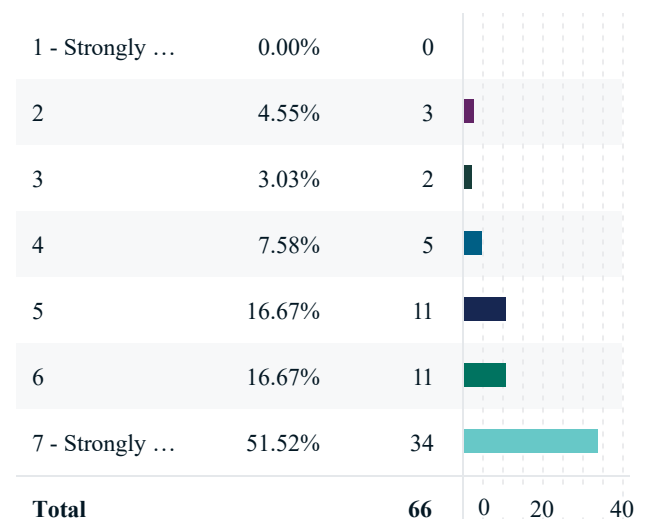
### 4. There was reasonable time to complete assignments.



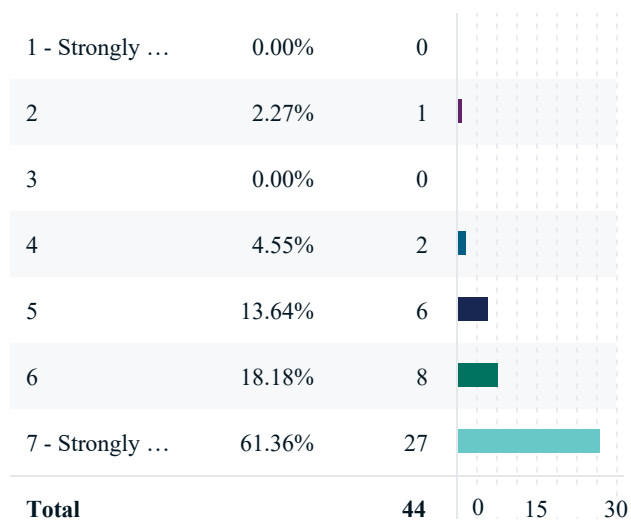
### 5. Assignments were returned within a reasonable period of time.



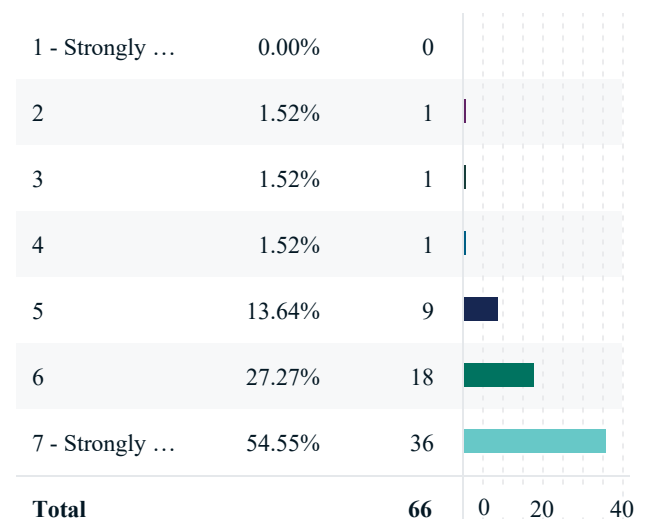
### 6. Comments on graded work were helpful.



### 7. Labs were an effective supplement to the course.



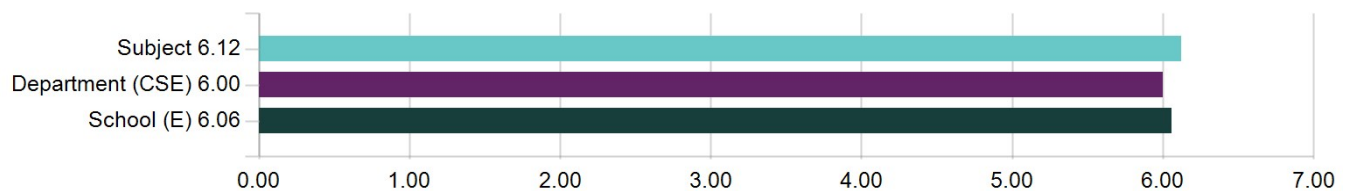
### 8. The course material drew upon real world applications.



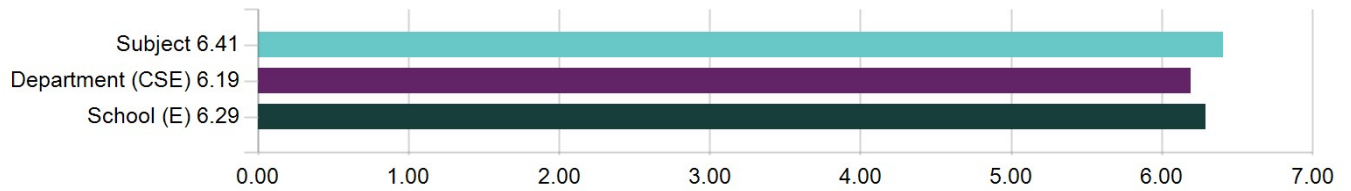
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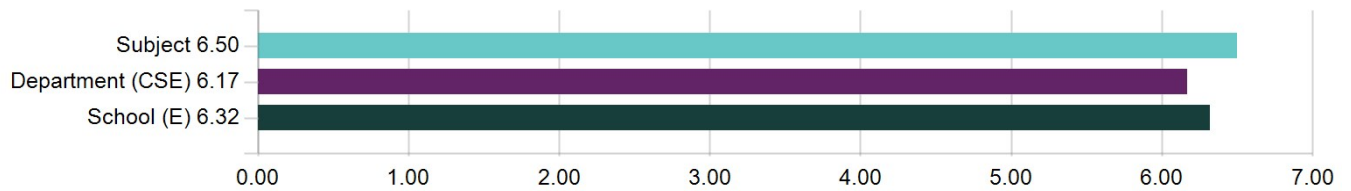
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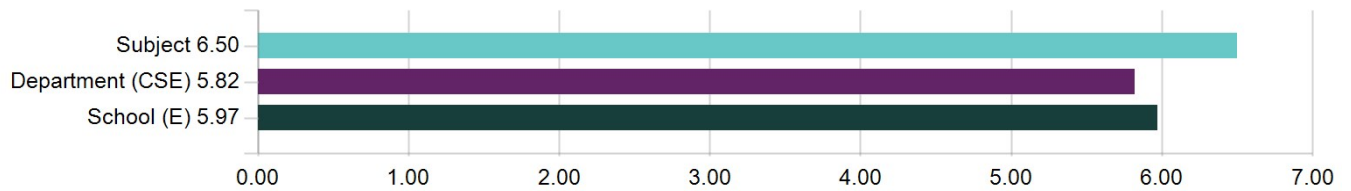
### 3. Assigned homeworks were helpful and relevant to the course.



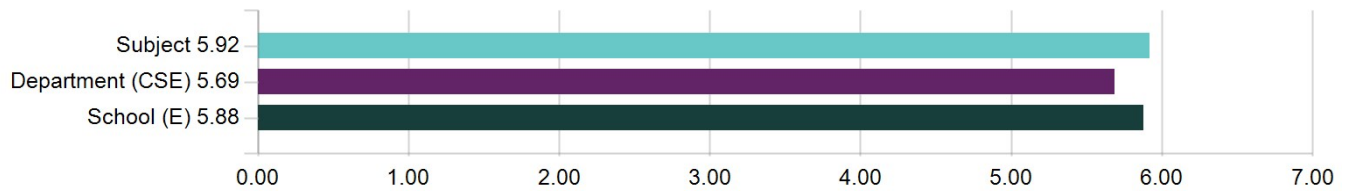
### 4. There was reasonable time to complete assignments.



### 5. Assignments were returned within a reasonable period of time.



### 6. Comments on graded work were helpful.





### 7. Labs were an effective supplement to the course.



### 8. The course material drew upon real world applications.



**Please elaborate if you felt the textbooks/readings were not useful.**

#### Comments

The textbook did diverge from the course in some topics, but the text was not required and was not a core component of the course.

there was no clear textbook, only the slides. would be nice if there were multiple resources, since slides were confusing

N/a

The slides are the primary resource anyway, and work just fine.

no textbook

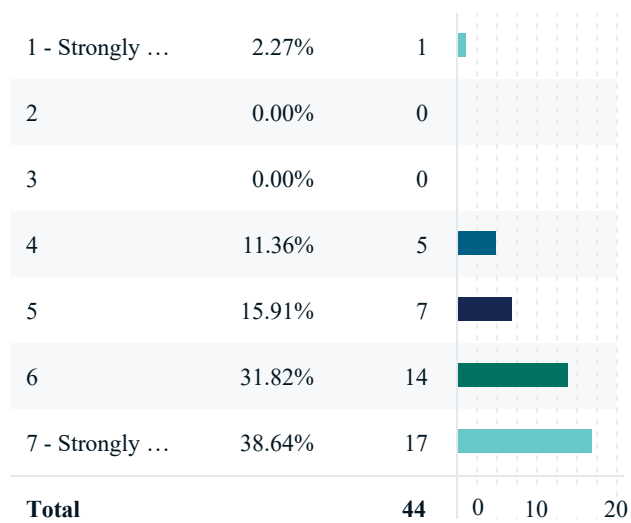
N/A

I did not use it for this class.

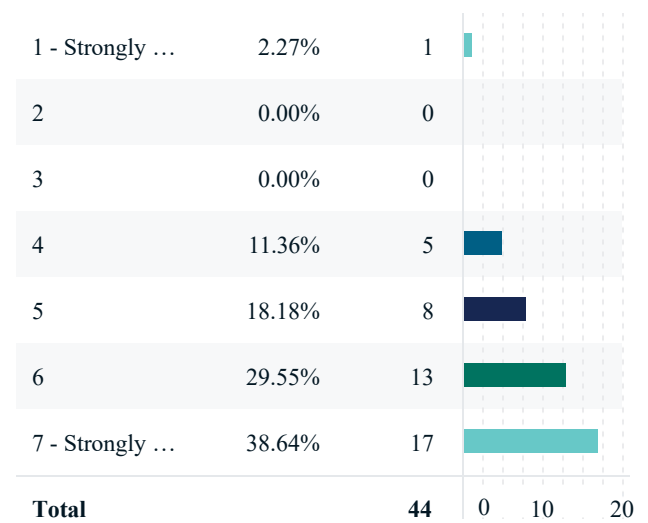
### Rating Scale Responses

Question	Subject			
	Response Count	Mean	Standard Deviation	Median
The assistant to the instructor was effective.	44	5.89	1.26	6.00
The assistant to the instructor was available and responsive to questions.	44	5.86	1.27	6.00
Recitation section served to enhance your understanding of the course material.	38	6.08	1.00	6.00

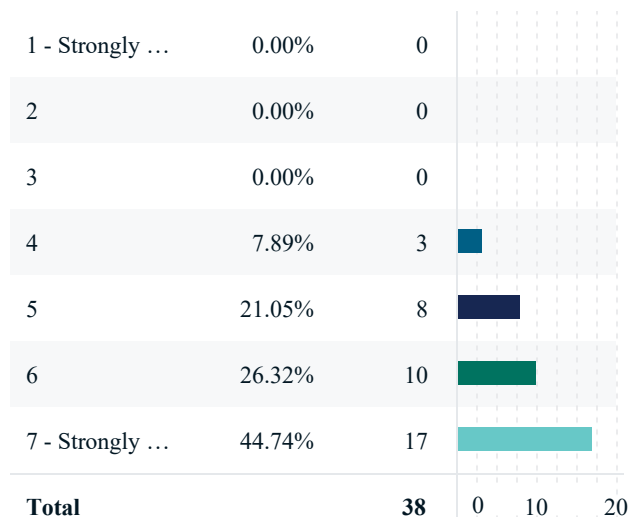
### 1. The assistant to the instructor was effective.



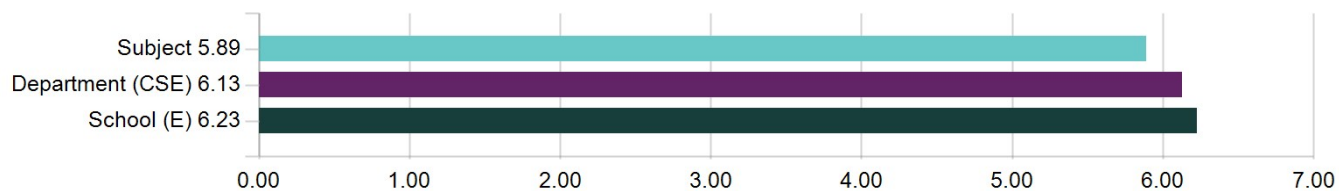
### 2. The assistant to the instructor was available and responsive to questions.



### 3. Recitation section served to enhance your understanding of the course material.



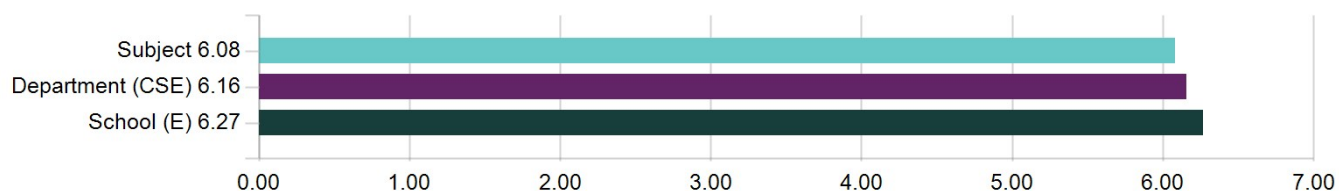
### 1. The assistant to the instructor was effective.



### 2. The assistant to the instructor was available and responsive to questions.



### 3. Recitation section served to enhance your understanding of the course material.



## Please comment on the effectiveness of the assistant to the instructor (AI).

Comments
Never went to OH but my friends have went and have had positive things to say about them.
I had no interaction with the AIs of the course
The TAs were helpful in this class with clarification on concepts taught in class and on homework assignments.
When I went to office hours, the TAs were super unhelpful. I would ask a question, and they wouldn't know how to answer it. I left feeling incredibly discouraged, confused, and unhelped.
I never spoke to the AI during this course
N/A
I did not attend.
The TA's could of been better. sometimes they get lost or unsure of the topic themselves so its a little frustrating since the course is pretty hard

## Please comment on the effectiveness of the recitation section.

Comments
n/a
N/A
There was no recitation section
N/A
I didn't go/There was not any
I did not attend.

## Exams and Grade

### Expected grade for this course.

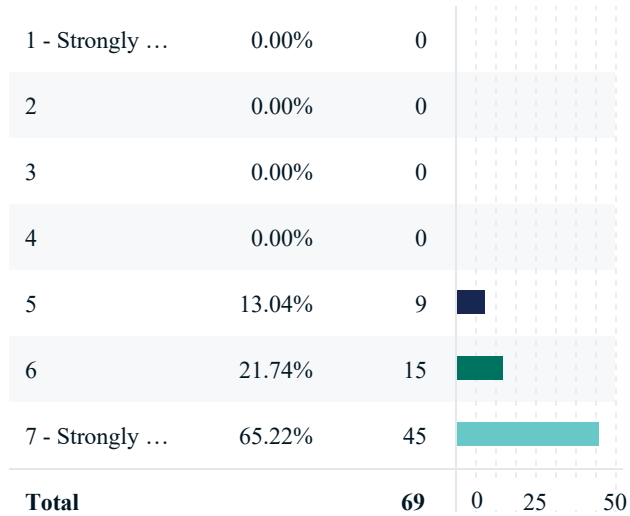
#### Expected grade for this course.

Options	Count	Percentage
A	38	66.67%
B	14	24.56%
C	3	5.26%
D	1	1.75%
F	0	0.00%
P	1	1.75%

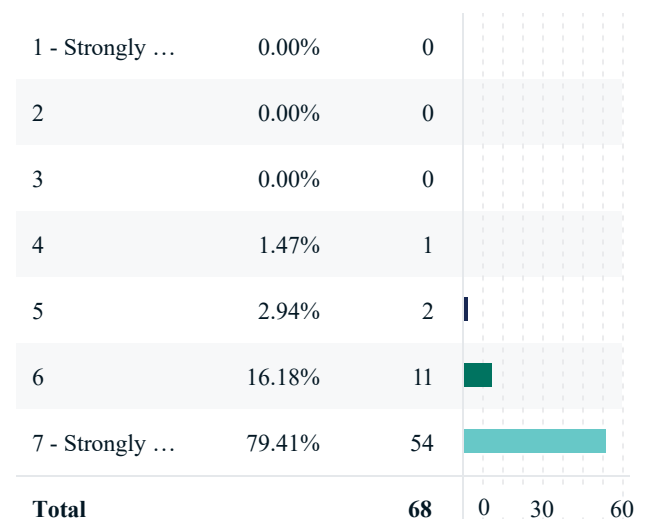
### Rating Scale Responses

Question	Subject			
	Response Count	Mean	Standard Deviation	Median
Exams reflected material taught.	69	6.52	0.72	7.00
Adequate time was given to complete exams.	68	6.74	0.59	7.00
Your grades to this point accurately reflect your understanding of the material.	69	6.28	0.87	7.00
The grading system was consistent and equitable.	69	6.54	0.76	7.00

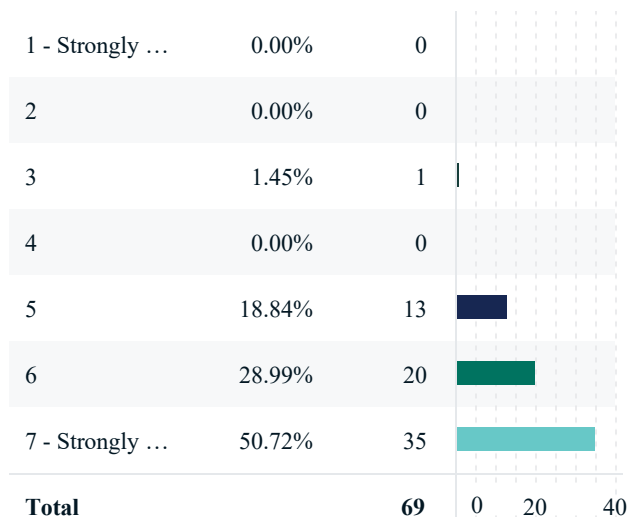
### 1. Exams reflected material taught.



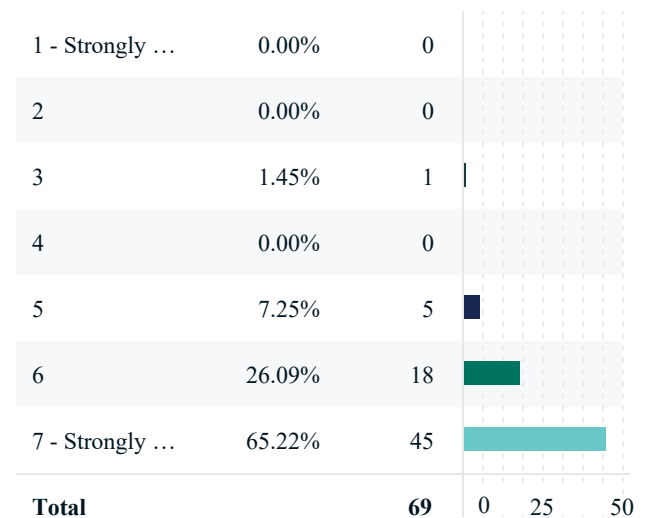
### 2. Adequate time was given to complete exams.



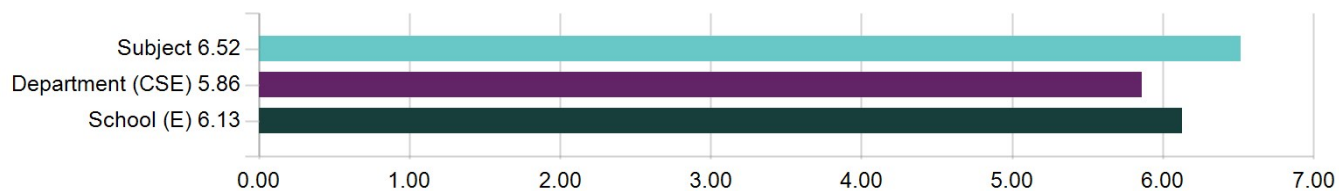
### 3. Your grades to this point accurately reflect your understanding of the material.



### 4. The grading system was consistent and equitable.



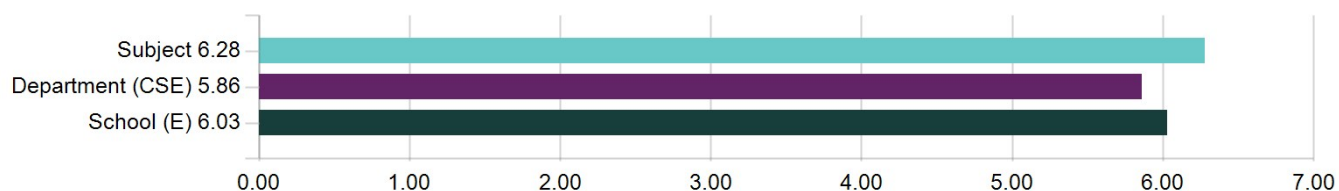
### 1. Exams reflected material taught.



### 2. Adequate time was given to complete exams.



### 3. Your grades to this point accurately reflect your understanding of the material.



### 4. The grading system was consistent and equitable.





Please elaborate if you felt the grading system was not consistent and equitable.

Comments
I did not feel that the grading system was not consistent and equitable.
N/a
N/A
N/A

Participation

Overall

About how many hours per week did you spend on this course outside of class?

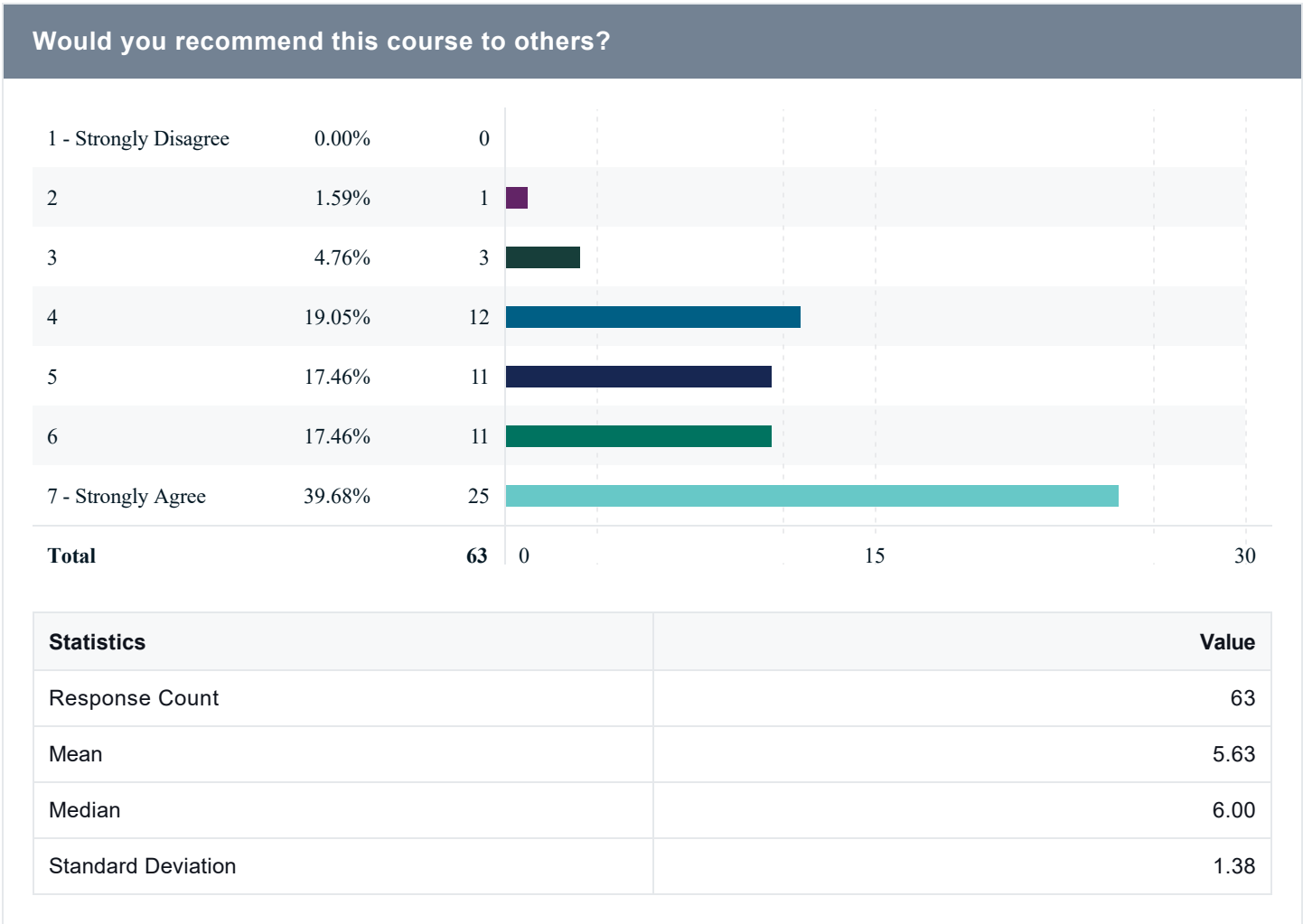
About how many hours per week did you spend on this course outside of class?		
Options	Count	Percentage
0	0	0.00%
1-3	17	24.64%
4-6	35	50.72%
7-9	11	15.94%
10-12	5	7.25%
13-15	1	1.45%
Over 15	0	0.00%

## What percentage of the lectures did you attend?

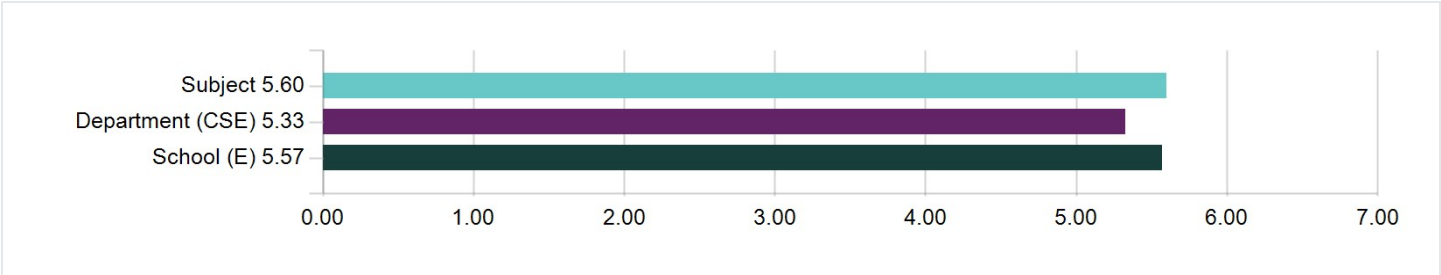
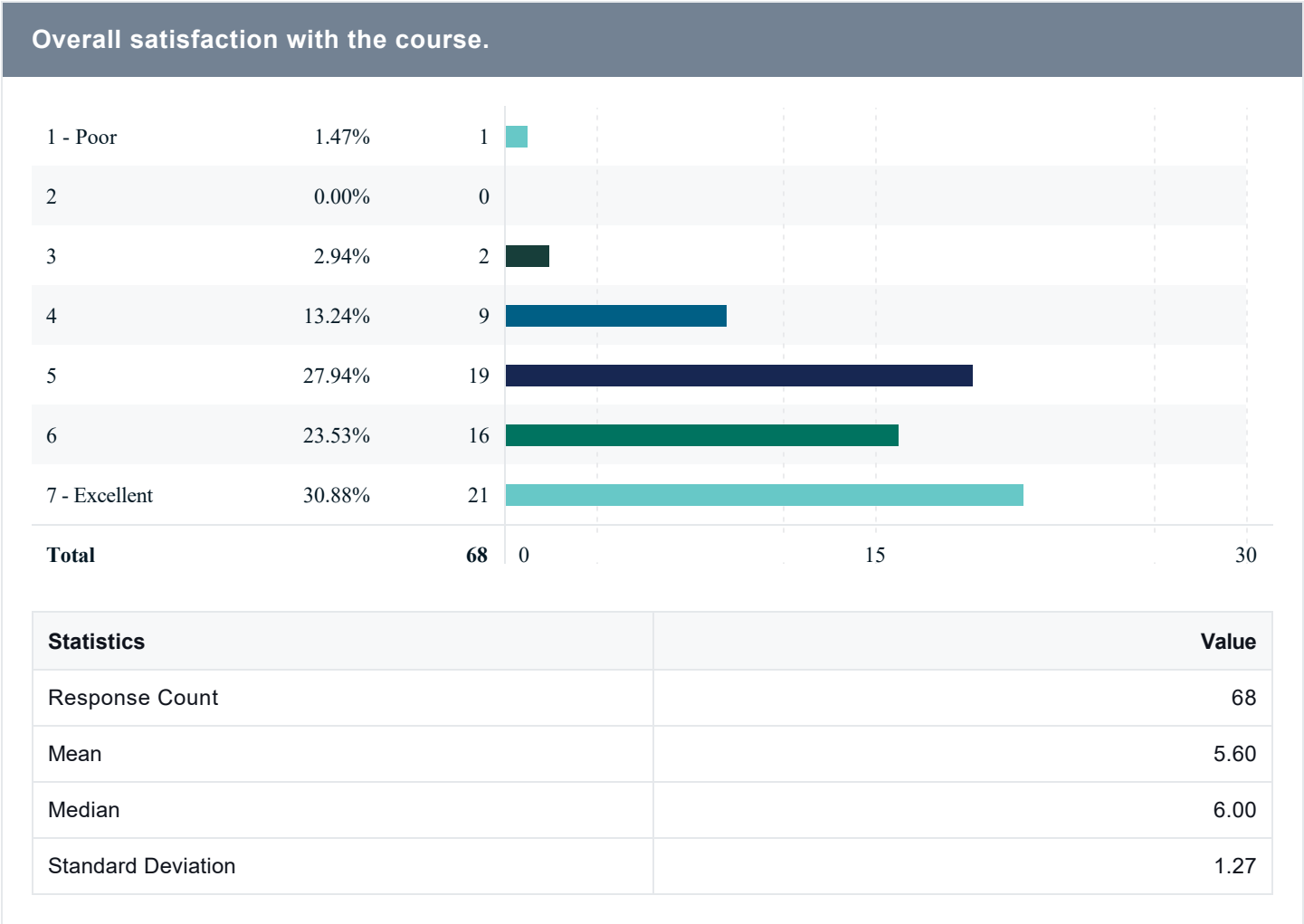
What percentage of the lectures did you attend?

Options	Count	Percentage
0%	1	1.47%
10%	0	0.00%
20%	4	5.88%
30%	5	7.35%
40%	3	4.41%
50%	9	13.24%
60%	3	4.41%
70%	9	13.24%
80%	12	17.65%
90%	11	16.18%
100%	11	16.18%

Would you recommend this course to others?



Overall satisfaction with the course.



## Any comments on why you did or did not attend lecture?

Comments
I found it easier to understand the material at my own pace.
Some weeks I had dance and also I had a severe throat infection that kept me out of the class because of appointments at Habib. I tried my best to attend class as much as possible though!
The hours did not work for me when I have many other commitments on campus. I feel like I can do most of the studying with notes. The classes that I went to are very interesting and engaging but I struggle to have motivation.
Course material can be learned without going to class using outside material.
Recruiting
I regularly attended lecture so I could hear verbal explanations of the concepts of this class. Much of the course material can be challenging to comprehend, but Professor Cytron did a great job of presenting the material in a way that was easy to understand.
Lecture was unhelpful, so I missed frequently. Content is very difficult, and slides/lecture did not help my understanding. I had to heavily research other materials (youtube videos, other articles) to gain understanding of the material.
It was a late class
I thought lecture was very fun and engaging, while also being very informational. I always enjoyed lecture and learning about how quantum computers work and what is happening in real life with the development of the computers as well.
I just thought it was interesting
N/A
I had a packed tues/thurs and needed to find time to eat in those days
Slides were posted online, and lecture was often confusing. There was a lot of dialogue from the instructor without much student engagement.
They are very theoretical, sometimes hard to catch up.
Too busy with other things sadly.
Road conditions after a winter storm
The lecture did not make sense to me. Pretty hard to catch up. very boring. looked like I was attending a speech rather than an enaging lecture. Maybe add some videos to watch or recommend some to understand better the material or something ..

## Comments

## What did you like most about this course?

Comments
Interesting topic
I liked the real world applications that we studied about quantum computing. Made me feel and know how the material was applied.
I really liked the theory and how it all connected together. Sometimes I would not understand a concept and later it would show up again and I would see an application and it started to make more sense! I also like the complexity of the topic and challenge of learning the subject.
The professor
Professor Ron Cytron.
The lectures showing quantum in real world in second class, the light.
I was very fascinated by the material of the course and I really liked how it was presented. The explanations of the concepts in this class were some of the clearest explanations I have seen of these concepts in quantum computing.
quantum computing
Connection to cryptography
The instructor was very enthusiastic about the material.
The slides were super detailed and helpful!
That this course is aligned with the development of the field in real life
The exams and assignments are very lax, so more focus was put on lectures and their slides. The exams and assignments also integrate the slides directly, which I haven't seen before.
material covered was interesting and great professor
The instructor and his enthusiasm for the material.
The instructor
Felt really cool learning about really modern things
The initial portion of the course, where we were learning about the fundamentals of quantum computing.
There is sufficient time to complete assignments. The exams are take-home.
It was very interesting and different from other CS courses that I've taken here at WashU.
It was very interesting.
How different it is from normal computing. I also enjoy physics, especially quantum mechanics, and this course was a nice blend of the two.
The professor's enthusiasm
The reasonable amount of time we would get for homeworks and exams. Exams being take-home is very nice

## How could this course improve?

Comments
Recordings. If worried about attendance then maybe I–clicker.
I think a subsection to go over problems could be very useful for quantum computing!
As this is a course more on the theoretical side, the grading could be a little less harsh.
Honestly, making attendance mandatory would be good for this course.
Exams are difficult
maybe make lectures more real life applicable? kinda felt like we were just doing math without real motivation behind it. the coding part was super cool tho bc it showed what we did meant something
What would be great is for additional practice with building quantum circuits in Qiskit to be provided through jupyter notebooks on Canvas earlier in the semester when quantum circuits were first covered. This way students could be free to use the LinuxLab to play around with quantum circuits covered in class outside of the regular homework.
I think I need more material to understand the content
Better resources and method of instruction. Instead of reading off slides, write the content on the chalk board so I can follow along.
I felt that there could be more labs; there was less coding in this class significantly than other CSE courses. This could help with actual implementation for those who go on and use what we learned in class.
I think we can spend more class time looking at real world quantum news
I do have one suggestion. Some of the exam questions could use a bit more room on the page for work. I tend to burn through space when I am stuck on a question. As a result, I had to do most of my assignments on separate paper to fit.
would like more writing on the chalkboard—found that it was easier to keep up with lectures when things were being written down rather than the slides
More coding assignments/labs
I think the pace of the course is at times difficult to keep up with, and graded assignments often have incorrect portions just marked as wrong, with no feedback.
Maybe give more time to Mermin Peres, as it was quite confusing
Engage the students more by asking questions. Have us write more jupyter code as these were very fun.
Maybe by having more hands–on practices.
While I understand it is a theory class, I'd wish we could do more hands–on applications.
Perhaps explain more about the quantum theory.
Recorded lectures?
Some intuition about quantum hardware
Again, make it enagaing and inetersting by providing videos with visuals or something

## What did you like the most about Instructor **Ron Cytron**?

Comments
Enthusiastic, honest
One of the most enthusiastic teachers I have had at WashU. You can tell that he really wanted to teach and most importantly learn more.
Professor Cytron was so enthusiastic and passionate about Quantum Computing and it really made me more interested and passionate.
Very enthusiastic, knows what he is talking about well, intelligent, love the students.
One of the nicest professors I've had and is very passionate about quantum computing.
The labs are interesting, he acknowledges the land we live in.
He loves this field and is very professional.
He not only discussed class material but how it was relevant with current progress in the field of quantum computing.
he was very enthusiastic and clearly passionate. always made sure to answer any questions we have
I really liked how much he cared about the success of his students and how approachable he was. Stopping by his office hours this semester was a total pleasure beyond just receiving help on assignments, as I always loved what he also had to say about other topics in computer science beyond just the scope of this class.
He's really nice and helpful, and I like his class
Incredibly sweet personality, passionate about the course, understanding, and easily accessible.
He was very enthusiastic about the course content.
Really personable and passionate
That his lectures were always engaging and really interesting. And his jokes were awesome.
Cares a lot about the material
enthusiastic, helpful, kind
His knowledge on the subject and his willingness to talk to his students about the subject
His enthusiasm for the material is very clear, and makes the class more engaging than it otherwise would have been. He also brought a very positive demeanor that was refreshing for a lecture setting.
Enthusiastic about the topic
Very friendly
He appears to care a lot about the success of his students, and it shows how interested he is in quantum computing.
He's very approachable.
He was clearly very enthusiastic about the course content and was very helpful when answering questions.



Comments
He was very passionate about this class, and I think this passion transmitted to the students in a way.
His enthusiasm for the material, and often giving real-time updates on advancements in this growing field.
Willingness to receive and answer questions
Very attentive to questions and also any concerns.

## How could Instructor **Ron Cytron** improve?

Comments
n/a
None
Maybe make the course more down to earth (this might be a stretch since it's a 400 level class)
Possibly making the course attendance mandatory
More examples questions.
While Professor Cytron's lecture slides were very comprehensive and informative, the lectures earlier in the semester could have done a slightly better job of facilitating active note-taking.
More engaging lectures – rather than reading off slides, write the content on the chalk board so we can follow along. its easy to get lost if I miss one thing or if a tough subject is breezed over.
I feel that adding more interactive elements could help with the retention of students and their attention throughout the class.
I think he could spend more time and slow down because sometimes taking notes during class can be difficult to keep up with.
I can't think of anything
n/a
None
The pace of his course is sometimes difficult.
Slow down. The last two weeks of lecture without slides were slightly easier to understand, but again engage the students.
Perhaps have more interactive class sessions, as opposed to straight lecturing.
Overall amazing professor. Not sure
He could do better in his teaching. Not everyone wants to hear a lecture with pure talking especially since this course is very Theoretical based.

## What would you tell another student who asked you to describe this course?

Comments
Unique material but very fun overall.
I would tell them that this is a math heavy class and that it will be difficult. There is a lot of complex topics that are discussed but it is taught super well! Also, don't miss class as it is super easy to get behind.
Its an interesting course and is not too work heavy.
Not sure
This course is a very digestible introduction to quantum computing, and while it may appear intimidating at first, the first part of the semester will ensure you have the necessary foundational knowledge to tackle more advanced topics such as quantum algorithms and error correction.
This class is hard to understand at first, but you will learn a lot if you attend lecture and do the homework and lab
Be prepared to be completely lost. If you want to do well, you're going to have to put a lot of time in outside of class to actually understand the material. With no background, quantum is not intuitive and incredibly complex / difficult / different from anything you've ever done before, so you're going to be so lost.
This course is relatively low stress and allows you to learn about a new topic
This course is a very fun course. It requires time to understand what is going on but it is informational and interesting.
You're going to need to know matrix math beforehand, or at least it'll help a LOT to know beforehand.
you should take it! lots of interesting content
It's very math intensive but very rewarding experience if you put in the work
It is an interesting course, but you need to stay very consistently engaged with the material to do well.
It's cool
It starts as an intro to the principles of quantum computing and requisite knowledge. The rest of the course studies quantum algorithms.
It provides you with the theoretical foundation of quantum computing. Take it if you are interested.
It's a very interesting course, but I think there are probably better electives to take if one wants to learn things useful for industry/career growth.
Fun, but be prepared to work to understanding things.
The logic of computing combined with the illogic of quantum
Quantum algorithms great intro!
If you like math and theoritcal stuff, take it.

**Have you observed any violations of academic integrity (e.g., cheating) in this course?**

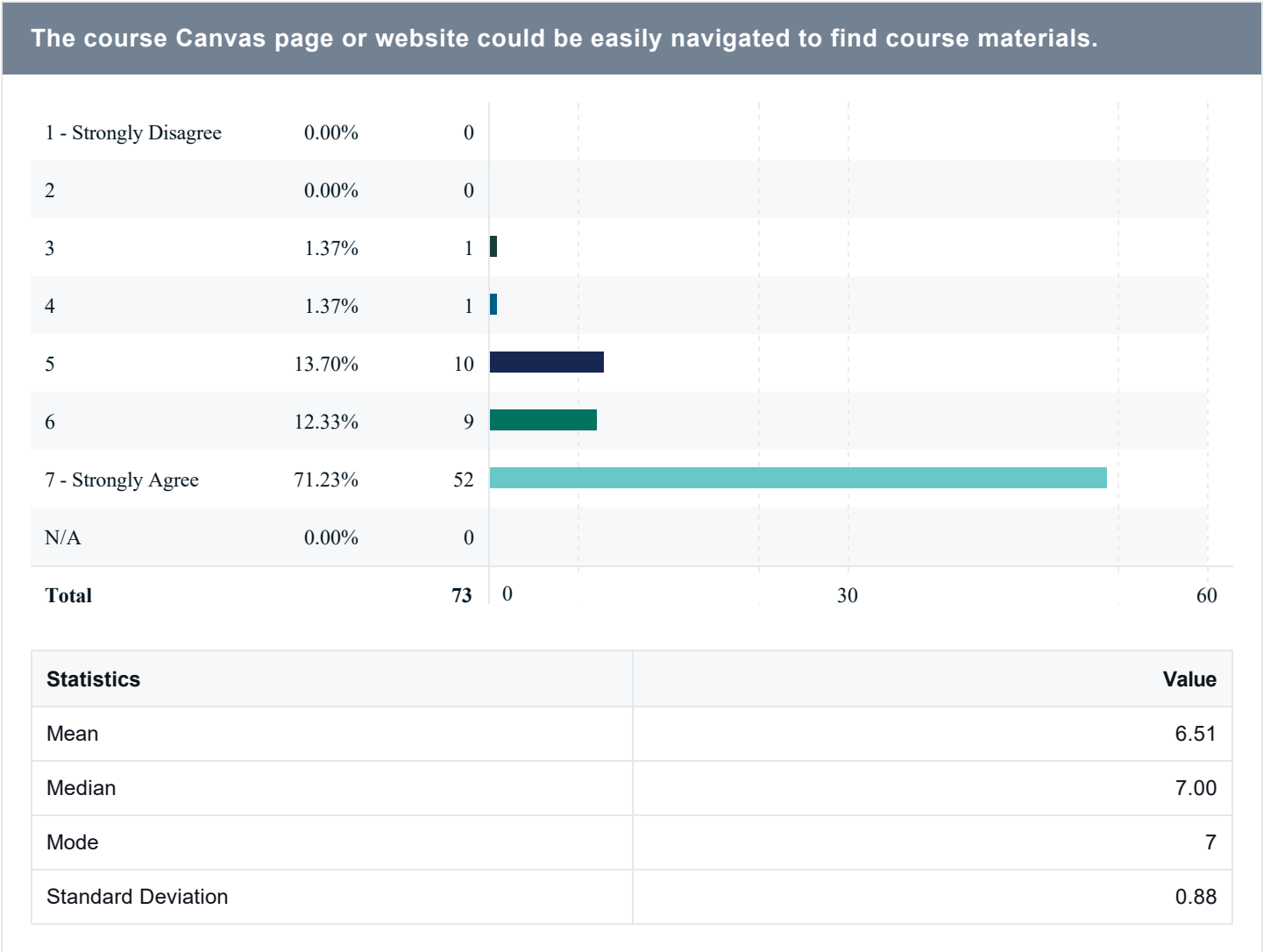
Comments
N/A
None
No
I have not observed any violations of academic integrity..
N/A
No
n/a
No.
no
no
No
No.
No
No
No
Nope
No

## Any additional comments?

Comments
Thank you for an excellent semester Professor Cytron. You are an phenomenal lecturer and kept me consistently engaged in the material through your enthusiasm and general energy. WashU will greatly miss you when you retire!
I do not have any additional comments.
Nope. Thanks for a wonderful semester!
None
No comment.
No.
Fun course! I would be interested in a "quantum computing 2" lecture in a couple years, as the field grows and evolves, and more practical use cases are discovered

Danforth Question

The course Canvas page or website could be easily navigated to find course materials.



Personalized Questions

What could have been done in lecture to make attendance more compelling for you personally?

Comments
More of the live demos. The one with the polarizing light filter was really cool.
I already wanted to attend class whenever possible but maybe talking more about real life applications and doing more of those.
The time of the class.

Comments
I think that requiring attendance and receiving a portion of the grade on that attendance would be compelling to me
I think the best motivator to go to classes for all students is to make attendance reflect on the gradebook.
Points for attendance is tough but effective. And I think online exams are too big an incentive for most to wait until the last minute to learn the material. I don't think there is an easy/correct answer. Maybe an earlier lecture time might help too? Ending at 5:30 can make scheduling a little complicated.
If I am actually a CS major who is not recruiting for finance XD personal reasons. Great class
Slower pace, more questions, more examples.
No, I attended most lectures
maybe doing more than reading off the slides? The lecture slides are amazing and totally completed my understanding of the material. i think reading from them made it kinda confusing because the material takes a long time to digest and fully understand so zooming through them in class made class time kinda wasteful to me. i feel like if we went slower on the slides in class or were able to draw upon real applications of what we learned and had to read slides ahead of time or something it wouldve made more sense
I liked how the later lectures used handwritten notes that I felt encouraged more active note taking than the lecture slides for earlier lectures. This made attendance more compelling, however I am not recommending to do away with the lecture slides, as I felt they were very helpful.
I'm not sure :(
Don't read off slides, write on the board.
more interactive elements/understanding checks during class
I attended almost every lecture so N/A
Honestly it was just the room and the timing of the actual class.
Nothing. I always looked forward to lecture.
I thoroughly enjoyed any lectures that included in-class experiments/showcases but also understand that it's not always possible when discussing algorithms
I'm already attending all of them anyway, you don't need to change it to make me "more invested", I already am
Also, as for the advanced version question, I am graduating in Fall 2025 so I won't be able to attend :(
less class size
more writing on board—easier to follow in my opinion
I attended all lectures.
It was already compelling
I went to every lecture
If the course remains to be about quantum algorithms, give more time to motivate these algorithms. Explain how or why people thought of doing these things on a quantum computer/give a little background. This may make us more involved with the problem and learning how it works.

Comments
By making it a component of the rubric.
Maybe some interactive elements e.g. poll everywhere, kahoots, etc.
Make it more interactive.
Not sure. I attended and engaged in all lectures that I could attend, because I found the class enjoyable.
Make it more interesting!! a mix of teaching materials would of make class better !

## Would you be available and interested in taking an advanced version of this course in Spring 2026?

