myExperience Report

Term 1, 2021

Faculty: Faculty of Engineering

School: School of Computer Sci & Eng

Course: COMP3231/COMP3891/COMP9201/COMP9283 Operating Systems

Evaluation period: Apr 12 2021 12:00AM - Apr 29 2021 12:00AM

Course Report (Aggregate)

Comparison of results for "Overall I was satisfied with the quality of the course"

This course: COMP3231/COMP3891/COMP9201/COMP9283 Operating Systems

Overall I was satisfied with the quality of the course	
Statistics	Value
Response Count	152
Mean	5.13
% Agreement	96.1%

SCHOOL: School of Computer Sci & Eng

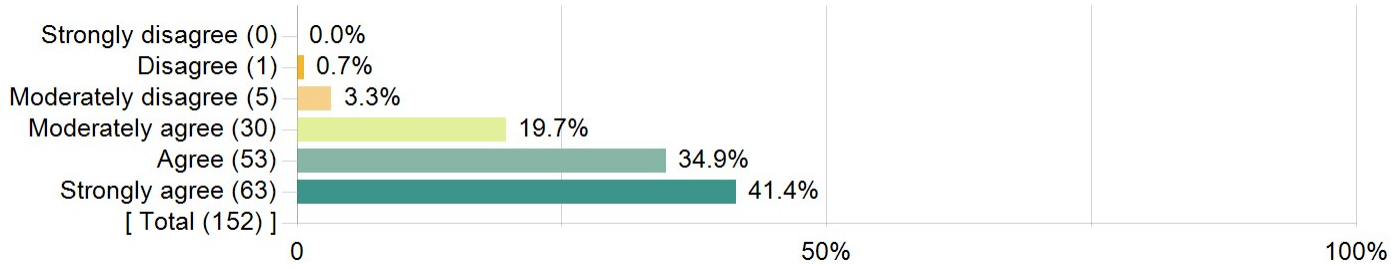
Overall I was satisfied with the quality of the course	
Statistics	Value
Mean	4.96
% Agreement	90.5%

FACULTY: Faculty of Engineering

Overall I was satisfied with the quality of the course	
Statistics	Value
Mean	4.90
% Agreement	89.1%

Overall I was satisfied with the quality of the course

Overall I was satisfied with the quality of the course



Statistics	Value
Mean	5.13
% Agreement	96.1%

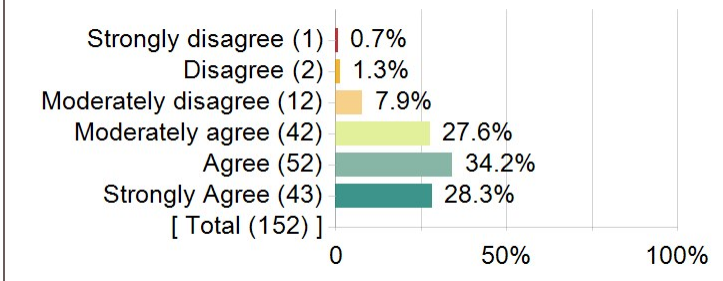
The table below shows the percentage of 'Agree' and 'Strongly agree' responses to the question 'Overall I was satisfied with the quality of the course'

Overall I was satisfied with the quality of the course

Statistics	Value
Agree/Strongly agree	76.3%

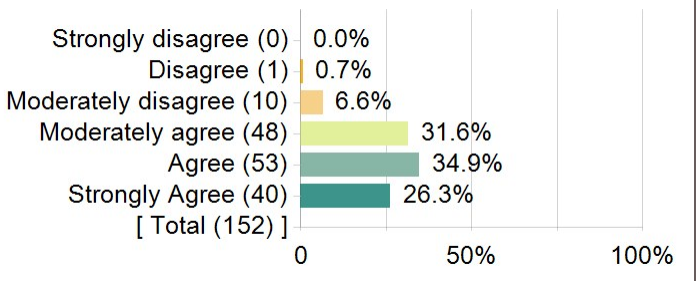
Course Questions

1. I felt part of a learning community



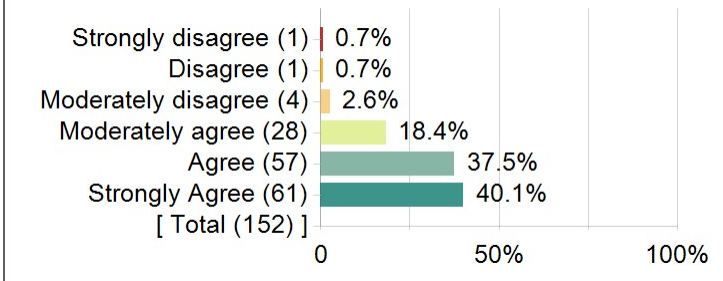
Statistics	Value
Mean	4.78
% Agreement	90.1%

2. The feedback helped me learn



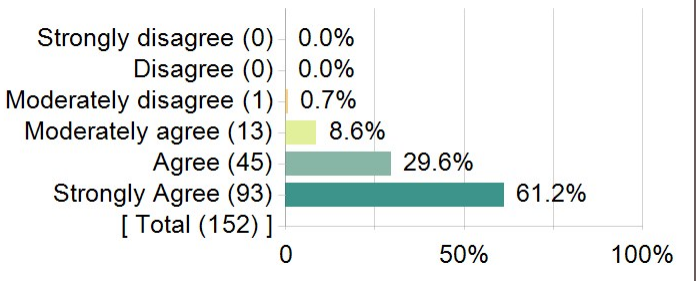
Statistics	Value
Mean	4.80
% Agreement	92.8%

3. The course resources helped me learn



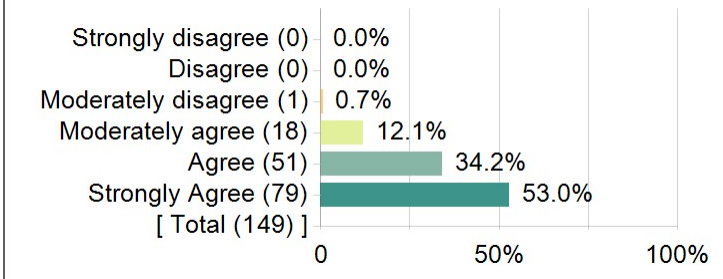
Statistics	Value
Mean	5.12
% Agreement	96.1%

4. The assessment tasks were relevant to the course content



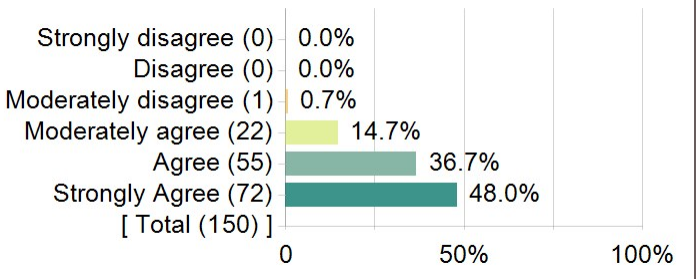
Statistics	Value
Mean	5.51
% Agreement	99.3%

5. The course encouraged me to be self-directed in my learning



Statistics	Value
Mean	5.40
% Agreement	99.3%

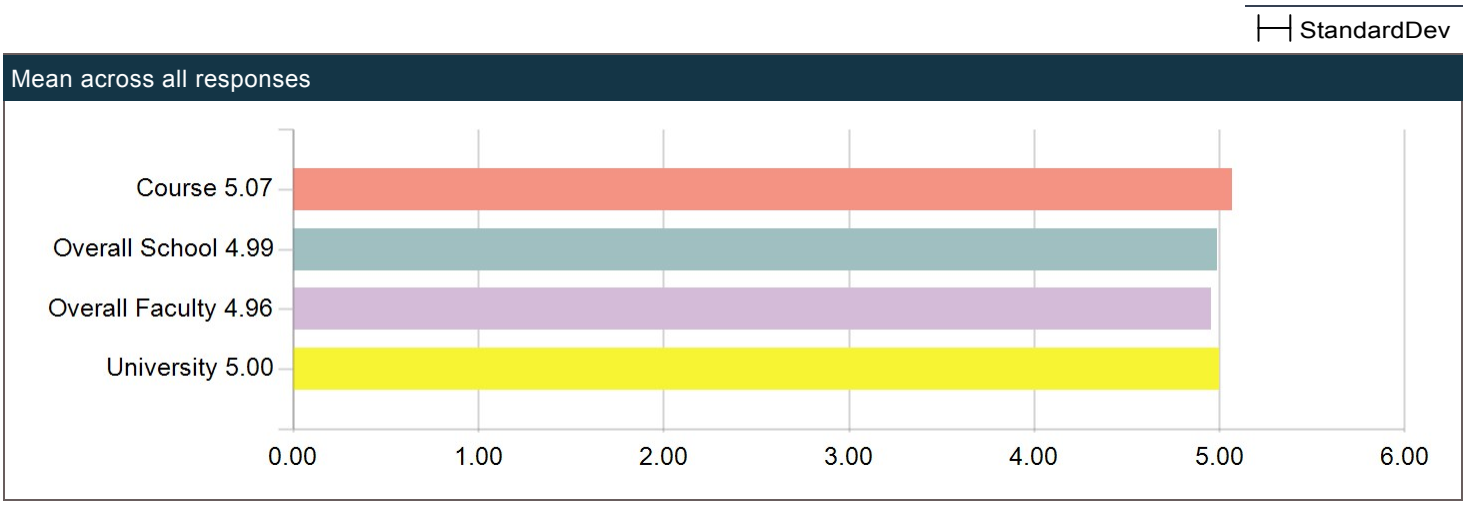
6. Assignments gave me opportunities to demonstrate my knowledge

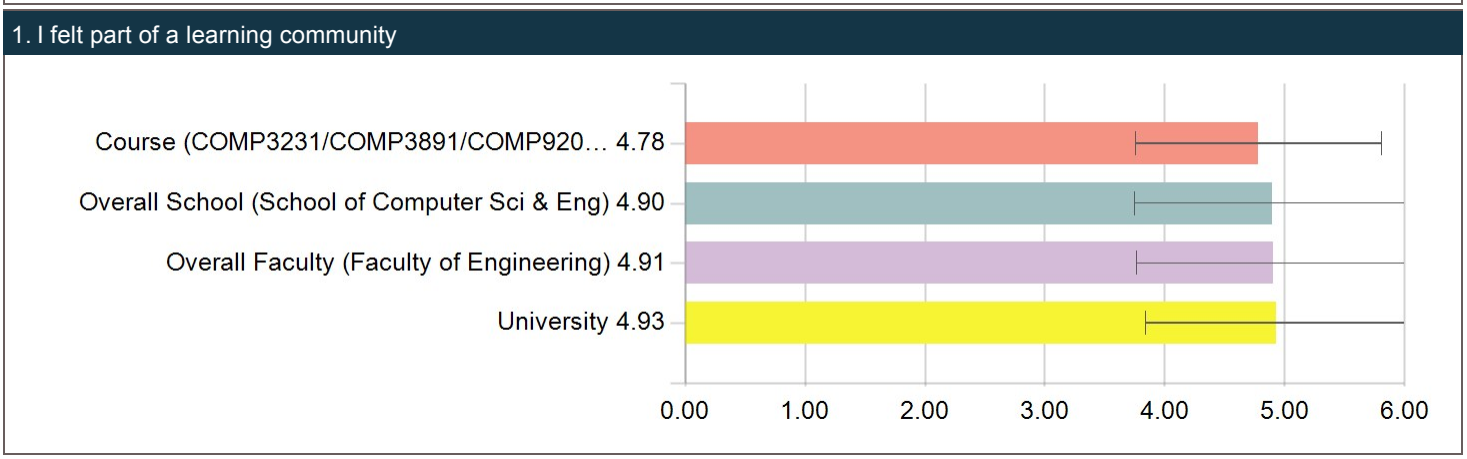


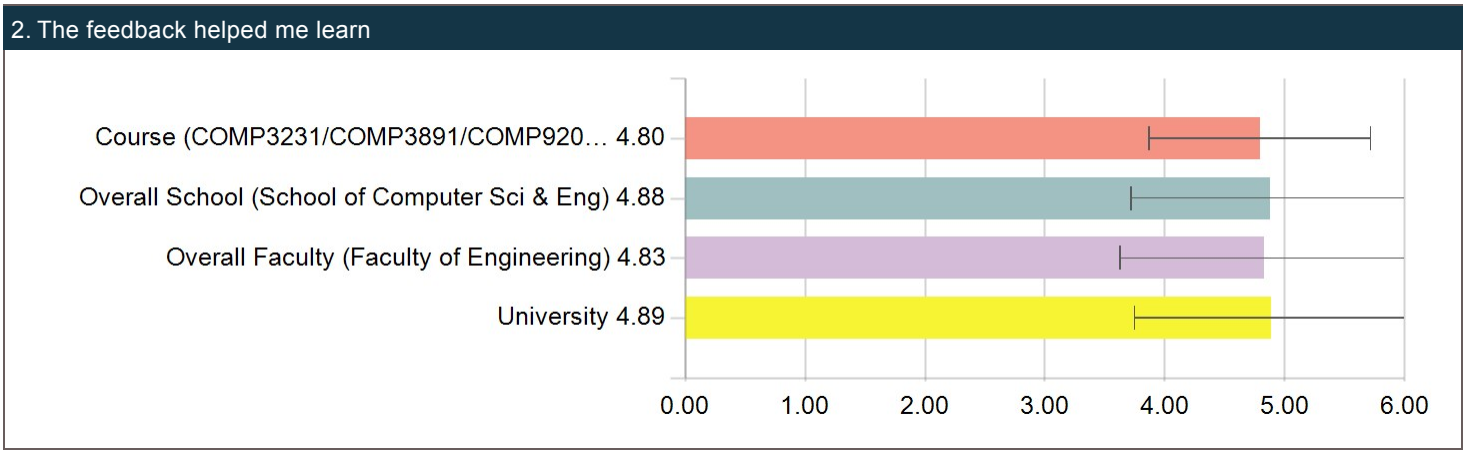
Statistics	Value
Mean	5.32
% Agreement	99.3%

Comparison Statistics

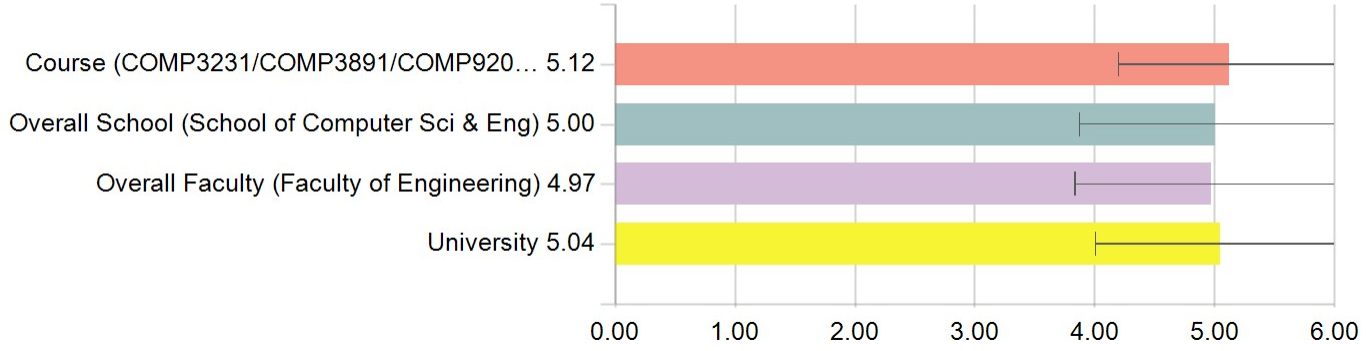
Mean (average student responses between 1 and 6) and StandardDev (Standard deviation of student responses) are used for comparison statistics between Course, School, Faculty and University.



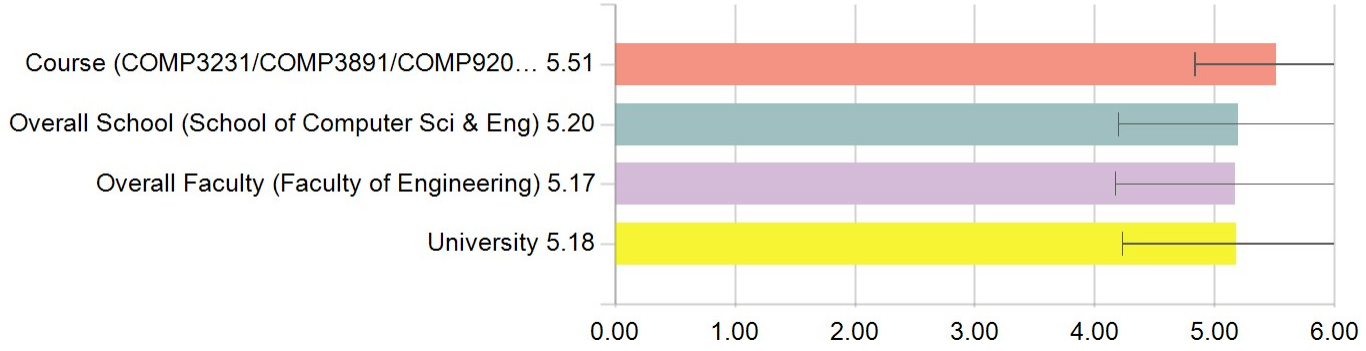




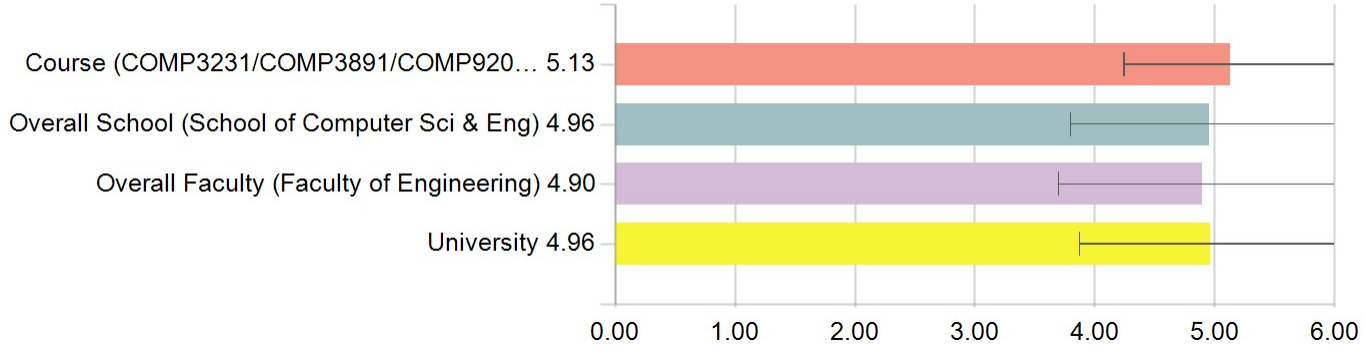
3. The course resources helped me learn



4. The assessment tasks were relevant to the course content

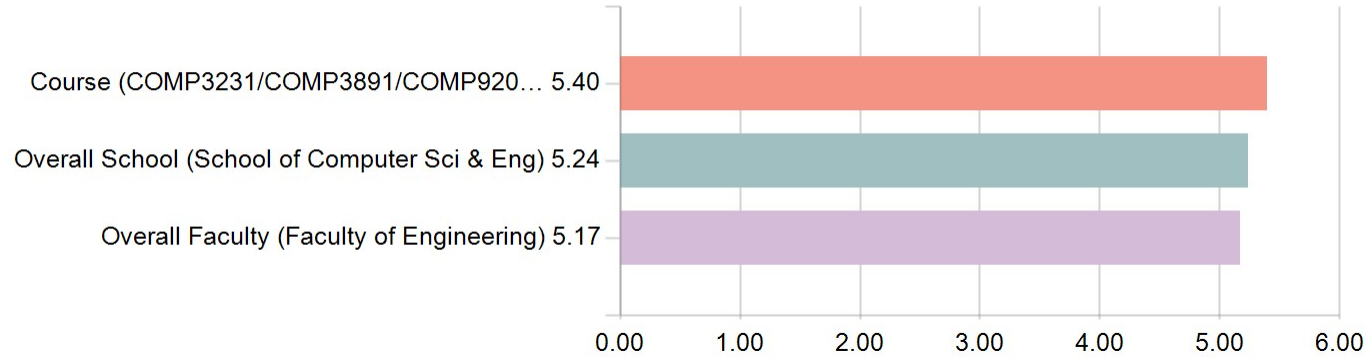


5. Overall I was satisfied with the quality of the course

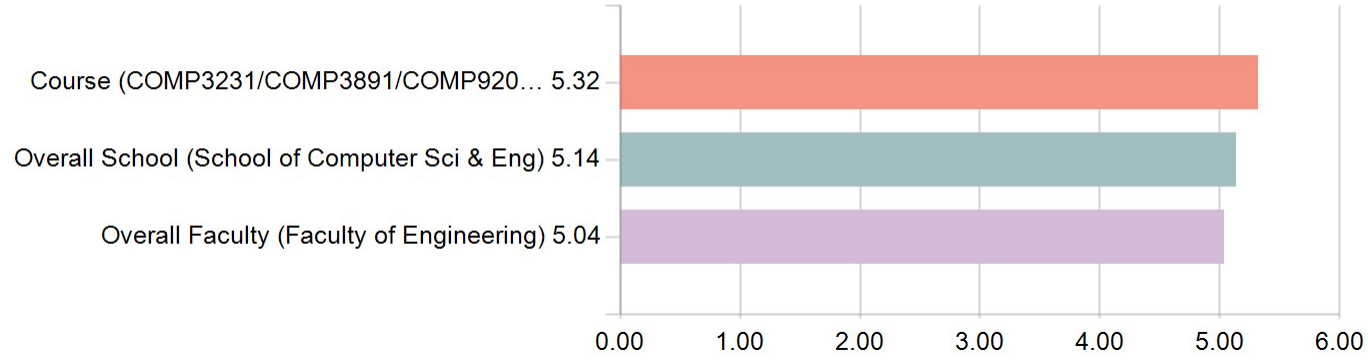


Faculty of Engineering specific questions

1. The course encouraged me to be self-directed in my learning



2. Assignments gave me opportunities to demonstrate my knowledge



The stats this year seem comparatively favourable to the school, faculty, and UNSW (as in past years).

Regarding being part of a learning community and feedback being slightly less that UNSW-wide averages. It's hard to infer much from this. Being forced online seems part of it, but it can't be all of it as it would be true for all of UNSW. I'm curious if the level of effort I put into curating and providing content on the forum is considered feedback or community building?

Anyway, let's see what the comments bring.

Raw Comment Data

What were the best things about this course?

Comments
I found the content of this course very interesting.
The assignment is the best part of this course. Stressful but arranged properly! Good to understand the content of the lecture.
Felt like the 3rd assignment helped me learn alot
the lecturer is super smart
The lectures were nicely separated by topic which made study easier.
The assignments were very interesting and fun to do.
Lectures were immensely helpful in introducing concepts and the workload was well balanced, giving me adequate time to understand content without drowning me in work.
The consultations and Q&As
The course contents itself
Course resources are useful and relevant. Communication between staff and students is great.
The lecture videos are nicely categorized by topic and has a table of contents for skipping to specific slides. The assignment videos are very helpful for completing the assignment, although I feel that the assignments would be too hard without them.
This course is incredibly well run, with good lectures, tutorials and relevant assignments.
The 3 assignments are really great.
Tutorials were very relevant to course content, assignments were engaging.
The structure of the course is very clear,materials are organized orderly.
Ed is a great resource and so so essential! Really well organised course, great content
– lectures were presented in an engaging way – assignments were given enough time despite being challenging
Definitely the assignments. It was so cool to actually work on an operating system and implement stuff.
Really interesting
Challenging content but very achievable. I particularly liked the assessment structure, with the early submission bonus. The incentive to start early is a great idea and I think other courses in the computer science department should adopt the same policy.
Very interesting content and i thoroughly enjoyed the assignments!
Engaging content and assignments. The offline lectures were good for learning the content at your own pace, but the live lectures (particularly the EOS lectures) were well delivered and engaging. Asst2 and 3 were challenging enough (with the advanced parts) that it wasn't a walk in the park, but wasn't so easy that it felt like a waste of time.
Kevin does a good job at explaining concepts and making the lectures very enjoyable to watch. The past recordings are edited and seem very professional.
Everything was perfect. Good job.
The assignments were very interesting, although the difficulty ramped up very quickly between
Useful lecture contents. Lots of concepts explained in moderate depth.
The lecturer,
Lecture, tutorial content were helpful
The assignments were full of things id never done before
The assignments were great, they gave me experience working with large existing codebases and pushed me to think about what I was doing and how I would do it. Having lecture videos and then lecture Q&A sessions was also a good approach.

Comments
It was easy to interact with others to seek help on points of confusion in the course. Also the lecture content was clear, and slides were also useful to reference on their own – which was particularly helpful for assignments.
Lectures were very good, despite being prerecorded from previous years Assignments were fun to do, and helped me a lot with learning the content A LOT of help was provided on the forums. I have nothing but positive comments for this course
The lectures were clear and well taught
great in–depth assignment work
As much as I hate recorded lectures, I'd say this has the best recorded lecture resources. Specifically, the ability to see slides and the timestamp.
Professor Elphinstone is a great lecturer. It helped that most of the lectures were recordings of live lectures from a prior year. The difference between these and the non–live recordings (presumably recorded during the pandemic) were night–and–day. In fact, since lecture recordings were common going back to at least 2019, I don't know why more courses have not used such recordings instead of having professors record new, boring, unengaging and monotonous lectures in front of their webcams.
The organisation of the course was really good. Lectures and tutorials were released on time. Assessments were released and deadlines were very clear. Also, I don't think this is a bad course, I found the content itself useful and enlightening, but low–level is not my thing after doing this course and 1521 I've realised, so don't feel bad about my strong opinions in the improvement tab.
Great course 10/10. Assignment help videos were super useful.
the forum
Clear list of topics. Simple and practical course structure so I could focus on learning rather than generally "keeping on top of the course".
Kevin explains very succinctly.
Course material and guidelines were very clear. Assessments were very fair and informative, with lectures adequately covering all the content around the assessments and course outcomes. Staff were also responsive and helpful on the course forum.
I really liked the late penalty system. It wasn't too harsh, but still gave me motivation to complete the assignment after the due date even when I wasn't able to get it working for a long time. Other courses take marks off your total max mark per hour after the due date, and I feel as though that system doesn't really motivate me to continue working as my mark is capped – as well as the stress of losing marks per–hour as opposed to per day. The assignments were also really enjoyable, and really let me apply the knowledge I learnt over this course. I think the workload was also pretty good – it wasn't way too much nor too easy.
OS was great! Lectures were fine, lots of helpful people on the forum too.
I am very grateful to be able to learn Operating Systems from Dr. Elphinstone. I think it is a fascinating course learning about OS. I really enjoyed the lectures from Dr. Elphinstone, even though recorded. I also enjoyed the Q&A sessions that I was able to attend.
An overall well taught course.
The course resources were great. I liked that we could access the previous years learning resources. Ed Forum were helpful and responsive.
The course is very organised and well run. I liked that the lectures were front–loaded and became less intense by the end of the course. The assignments were challenging, but not impossible nor unnecessarily time–consuming and complex. They drew from the concepts in the lectures very well. The course forum was very helpful, particularly when students shared what they learnt from debugging their assignments. I learnt a lot and felt supported. The outcomes of the course were clear from the very beginning.
extended content quite interesting
Enough practice chance
How thorough the material is about the OS's. You really feel like you know a lot about what's under the hood by the end.
The last assignment, where I felt my understanding of OS161 was really coming together
The course content access and the ed support was very useful, and interactive.
The content was really interesting and the teaching staff were very passionate about it.
Structured in a very cohesive way that was easy to follow. Assignments encouraged a great level of maturity and independence which I appreciate a lot.

Comments
The assignments were really well made. I really appreciated the assignment overview videos as they were very helpful in helping my group get started. Kevin was also very present and helpful on the Ed forum.
Bonus marks!!!
Interesting content. Assignment–driven which is refreshing for a COMP course. Early submission bonus marks is novel and ingenious.
great lecture content ED forums is very good, similar to piazza, significantly better than webcms forums
The lecturer is amazing and great at teaching <3 The way the course material is structured and how good he is at explaining, I wish he were my lecturer for all my courses.
It was really interesting to learn about how operating systems work.
The assignments are pertinent to the content being covered in the lectures and require you to understand the material in order to build a correct implementation. Utilization of diagrams in lectures is very effective in understanding certain concepts e.g. multiprocessors and spinlocks, clock page replacement, dining philosophers. Overall, interesting topics and good depth covered.
The course was challenging, but in a genuine challenging way. It followed logical structure of learning concepts (in quality detail), and then applying them to as real world a situation as possible without being impossibly complicated. The challenge didn't come from random exercises where the content wasn't taught, or from an overload of activities that take way too many hours. Instead it was just understanding complex concepts, and learning how to apply them. More computer sciences courses should be like this course, with a focus on technical knowledge instead of broad empty topics.
The assignments and Kevin are fantastic.
Thoroughly enjoyed the assignments. Recorded tutorials are the best! The recorded lectures and the forum were also great. I can honestly say that without the excellent responses and help on the forum, the assignments would have been much harder to complete.

What could be improved?

Comments
It would be better if we had more of a consistent amount of lectures per week. Some weeks we had 5 or 6 hours of content where others only had about 2.
The first and second assignments were too easy and didn't really contribute to learning anything.
lecture notes/slides could be improved to be a bit more detailed
live lecture is important
The prerecorded lectures with examples from literally last decade come across as being lazy in a field such as CS where things move so quickly. The assignments were HUGE amounts of work and took my partner and I much more time than is reasonable for a single task, especially when there is multiple such tasks. It simply overloads students and makes it difficult to learn the course content successfully.
The lecture notes could be more detailed. Had to rewatch lectures or read the textbook to understand concepts because just looking back at the course notes wasn't enough.
Having only recorded lectures was quite rough, even just a few live online review sessions or QA lectures (not consultations) would have been good.
The course website is old enough to drive and will soon be old enough to purchase alcohol and vote. It got the job done, but a slight update wouldn't hurt.
More time to work on everything.
Inclusion of a lab alongside the tutorials could help with learning.
Advanced components of assignments are very vague. The advanced assignment videos should be released sooner.
I personally feel a lecture "linking" our code to the hardware side of things would be really useful. For instance we talk about very low level programming but at some points we just say "the hardware takes care of it". I would love to have gained a little bit of insight into how the hardware handles the code we provide it through the course.

Regarding "the best things in the course"

Thanks for the all positive feedback. I highlight a few things of note:

1. The feedback seem to reinforce my perception that recycled live lectures are preferable to re-recorded lectures (which end up being monotonic droning into a webcam, to paraphrase).

2. Ed (the forum) continues to be valuable (discourse might be as good, don't know).

3. Recorded tutorials seem valued.

Regarding what could be improved:

1. Pre-recorded lectures are unpopular for some. The sense of community is an issue when online, and I think attending online lectures probably helps in this regard.

It's not clear how to weigh this this up with positive feedback regarding the pre-pandemic face-to-face lecture recordings. Even pre-pandemic >50% of students (I'm sure it was more) resort to just video (see 2019 survey), and I was pondering how sustainable lecturing was to a small minority.

I think I can't win here until face-to-face returns. Personally, I think spending the time saved not prepping for a live lecture on being more active on the forum might be a more useful use of time, but that is hard to test.

Also, live online-lecturing to 500 may not be as interactive as some hope.

2. Tutorials are still a bit of a squeeze in 10 weeks (despite reducing a significant number of topics in the course), noting that the intention is not to cover all questions in a tutorial, only the challenging ones.

3. Some comments seem unrelated to the course - there are no participation marks?

Comments
I did a little bit of my own research on the topic and found the below on Stackoverflow which pretty much answered my questions. Anyway, since I was able to figure this out for myself maybe it doesn't need to be included! Stackoverflow: "here's how to build a computer in a few easy steps". • Start with some simple logic circuits, such as AND, OR, NOT, and a flip–flop. A flip–flop is a pair of transistors arranged so that if one is ON, the other is OFF, or vice–versa. That way it can "remember" one bit of information, so you can think of it as a storing a single binary digit. Some input lines can put it in one state or the other, and thus "write" to it. • You can store a bigger number by having a bunch of flip–flops, and call it a "register". For example, if you have four flip–flops in a register, there are 16 possible combinations, so you can think of it as holding a number from 0 to 15. • Skipping ahead a little bit, you can buy a "memory chip". What that is is a good number of registers, like say 16 of them. It has 4 wires coming in (the "address" wires), and it has 4 wires coming out (the "data" wires). So a number from 0 to 15 can come in as an address, and that selects one of the 16 registers, whose value is presented on the output data wires (thus "reading" it). Another few wires can cause data to come IN on the data wires to cause numbers to be put into ("written") the register. • Now suppose you have an external 4–bit register (call it R), and a bit of circuitry, so that it 1. presents the value in R to the memory address 2. reads the 4–bit value at that register and moves it into R 3. and repeats this over and over
I think there was not enough information in the assignment 3 brief which has led to great confusion for how to get started.
Everything is best
Hints about how to explore different parts of a real OS (e.g. Linux) would be appreciated, such as commands to list/explore data structures (if they exist). For example, df –i to view inode use.
Regarding the logic of assignment, it could be clearer.
Perhaps the introduction of weekly labs would be good for this course. I found many of the assignments difficult to work through even after exhausting the resources available in this course (i.e. tutorials, lectures, links on assignments).
The lecture slides are sort of dependent on you walking through and explaining them in the lectures. That made it a bit hard to quickly review stuff because you'd have to go back to the lecture video and then watch the explanation. Although, the lecture videos did have that nice table of contents thing on the side so it's not that bad.
The difference in difficulty between assignment 1 and assignment 2 was huge. While we were guided, it would have been nice if they were closer in difficulty (so making assignment 1 harder or maybe letting us explore more of OS161 before assignment 2).
In person tutorials need to be offered.
In this term I only watched the pre–recorded lectures so I didn't feel part of a learning community. I liked the lectures and Kevin seems nice but I would have loved live lectures over zoom or teams.
Slightly more challenging asst1. It was a bit gimmicky, especially with being able to complete 2 parts with a near identical implementation of a circular buffer. Some more advanced examples of using GDB, ie maybe an "advanced asst0" that gets you more familiar with using the more powerful GDB tools.
The only knack I had was that the explainations were slightly confusing because the content is extremely heavy. It'd be nice to have more visual aid. More slides with less technical jargon. Some parts, i got lost in because the explaination wasn't clear which ended up making me more confused.
participation mark via forum is not good at measuring how participate to learning. tutorial question can be used as participation mark. for example, tutorial question that will go through at week 3 can be used as a exercise mutiple choice quiz by then end of week2, if student done it, award some participation mark, if student did not do it, student will lose some mark.
For assignment 2, it's hard a bit of direction around additional things that should be tested might help. I found that I didn't know what I didn't know, and lost marks accordingly for not accounting for edge cases involving invalid buffers ect. For the group assignments (2 + 3), these assignments are not well suited for work that can be completed in groups. A lot of the work required is sequential and has little opportunity for parallel work. (e.g. in assignment 3 you can't do anything until you've designed the data structures, and in assignment 2 you can't do anything until you can open a file). Using a sane development approach such as design, implement + test results in one person having to do this alone, then spend the time all over again to explain this work to their team member. This issue is further exasperated when the ability level of the team members is not similar.
1. Slides are too old. 2. Not enough live lectures. I felt little connection with the community. 3. Tutorials are short, which is unable to talk about all the questions.
Starting off the latter assignments were difficult at times, maybe a explanation of the starting code relevant to assignment in

Comments
assignment intro video.
Two of my assginment are group work. However, there is no peer review. My partner do nothing with assginment. I have to wait for his work and I have to do all the job by myself finally. I hope this course can allows us work alone that means one person can form a group.
Assignment 0 and 1 can be shorten into 1 week instead of 2 weeks, the last assignment can be given a extra week so that student can have more time to apply and finish the advanced parts
please don't do video recording
I don't think group projects were a good idea especially since a majority of students are still online and were unable to even meet their partners. These group projects required a lot of collaboration that just isn't possible online.
Having live lectures to go over course content rather than Q&As would be more engaging. Adding some interaction through the lecture quizzes plus Q&As could mimic in–person lectures.
While the assignments demanded theoretical knowledge as well as knowledge of how OS/161 works, once that knowledge had been attained, the actual implementation—the code itself—was mostly trivial. The assignments are too easy to be group assignments. The overhead of group work is more expensive than the work itself (parallels to parallelism). This leads to a feeling of having to put up with your partner for the sake of it, instead of actually feeling thankful that they are there to help you with the workload. Especially with assignment 3, where there was no obvious way to split the work up (assignment 2 was better on this front, having a set of semi–related syscalls which could be divided up). The problem is further compounded by the course's online nature, which made it harder both to find a suitable partner and to coordinate with them.
I don't like pre–recorded lectures. Maybe other students do, but I really don't like them because I have very little motivation to watch them as the term progresses and they feel very detached. Lecture livestreams would be much better where there is a live chat and the lecturer talks. I also think pre–recorded lectures are hard to pace through because there are no breaks. I find myself sitting for a couple hours at a time whenever I go through pre–recorded lectures. I think assessment 2 and 3 requirements were very confusing. I expected all the information we required to do the assessment to be in the written specification and the lecture video to be supplementary content but the lecture video was all the requirements for the assessment. Since it was pre–recorded, I found myself much less engaged and just waiting for it to be over so I could work on the assessment and get it over and done with.
Even though it's extra work, labs each week would've been great. a lot of the coding for the assignments felt like being thrown into the deep end with little to no direction of where to get started. although the forum & videos that were made to go with the assignments were very helpful and made getting started a bit easier but i personally would have been very lost without them
Pre–recorded only lectures was difficult for me – felt very lonely and isolating for these to be the main source of learning. Lecture Q&A's weren't always helpful for me (sometimes I was too confused to formulate specific questions to ask) but when I did have specific questions, Q&A's/consults were very helpful. Tutorials are great, would be nice to have them emphasized more for extended + exist for extended content. Would have appreciated the assignment walkthrough videos having more of a concrete structure, to help overcome the steep understanding curve for assignments.
The most annoying part of this course is finding a partner for the assignments. Not all students have friends! :(
Would prefer EOS to also have a more tutorial–style setup rather than the 'lectorial' seminar for EOS students, as that would have helped to encourage more student interaction and building a learning community.
Not a lot needs to be improved, maybe the course website could look a little better? but I don't really mind. I feel as though some weekly labs could make the course really good as well but it would definitely be a lot of work to implement.
finals weigh a little too much. Lots of theory to test but more assignments would make for better learning/understanding instead of an exam that one memorizes info for and forgets soon after.
There should add a part to assess the teammate. In my group, I do most of the job, especially on assignment2, my teammate haven't done anything. I don't think it is fair that we get the same mark on assignment.
It was unfortunate that our tutor [redacted] had internet issues and couldn't conduct the Wk 8 tute, especially because it was in the middle of the last and most difficult assignment. He spent 30mins getting disconnected and reconnecting and disconnected again so we all just left.
A lecture on debugging would be very useful – especially a demonstration on how to use gdb.
The 1 hour tutorial seemed to be a bit rushed. The online lecture sessions could include discussions on some tutorial questions and exercises, in addition to the current Q&A.
assignments quite hard, but ok
Move to Webcms3 for assignments and course related matters. You could have lectures just be links to the current .html pages, just

Comments
make it consistent with every other computer course we've done so far.
more weighting on assignments, and ability to get more than 100 for assignments by doing the advanced parts
The final assignment's technical difficulty was considerably harder than the other assignments which was unexpected. Would prefer if the final assignment was not as tricky, especially due to the bugs found in the assignment are considerably hard to debug.
Live streamed lectures. Kevins a great lecturer but I cant justify spending 4–5 hours watching lectures online before the lecture consultations which can take upto 2 hours each :(
The tutorials felt a little short at times due to the number of tutorial questions and needing to ask tutors about assignment specific questions. I think they would benefit greatly from being extended by half an hour.
Something like weekly quizzes to affirm knowledge would have been appreciated. The difficulty spike between assignment 1 and 2 was severe. Asst1 would have made a better introduction exercise a la asst0. The fact the course got significantly more difficult halfway through term felt like an underhanded way to get students to stay enrolled past census date when it would be too late to re–enrol in a different course.
assignments were easy but hard to debug pair work felt unnecessary, there wasn't tasks that were easily split up within the assignment.
Assignments are always difficult, usually because of lack of information. Students are thrown into the deep end, with knowledge of how to do, but not what to do. As such assignments take an overwhelmingly long time to complete, and most of that time is spent on google trying to find out what it is that we need to do, instead of actually doing the assignment. Can't say I disliked that approach though.
Asst 1 and 2 were really hard to start cause did not know which files we had to edit. Took a lot of time browsing through the files to find the relevant ones
Even though there is assignment overview lecture, but I still find it hard to approach the goal of the assignment. Lots of time is what I consider wasted in figuring out what is going on, what do I need to do etc.. It's very frustrating.
The assignments were quite difficult to get started on. I personally felt as though there isn't a clear cut path to completion that you would come to expect from having done assignments from the core COMP courses. There was a lot of time spent looking around the code base and the forums to figure out which files were relevant to the assignment. Although it could be argued that this was an intentional part of the challenge, I would've enjoyed the assignments more had they been easier to start (writing code).
Perhaps the introduction of small exercises/labs (don't want to increase the workload too much on an already difficult subject), where you have a chance to apply some of the concepts on a small scale before going straight into the assignments.
Perhaps assignment 1 could've been made a little bit more interesting by trying to get people to solve a concurrency problem concerning the actual OS code itself, not in toy programs running within the OS. However, I acknowledge that this is probably easier said than done — it's likely done this way because a lot of the concurrency–sensitive parts of the OS require additional knowledge about other parts in order to fully understand the situation. Just my thoughts, though.