This report contains feedback from students about a course taught in the School of Informatics during the 2020/21 academic year, in response to the following questions:

- What advice would you give to a student taking this course in future?
- What did you find most valuable about the course?
- What improvements, if any, would you make to the course?
- Please add any other comments you have about workshops, tutorials or labs on this course.
- Please add any other comments you have about the presentation of course materials online and their accessibility.
- Reflecting on your experience of hybrid teaching and learning on this course, what has worked well for you?
- Is there anything else you'd like to tell us about your experience of hybrid teaching and learning on this course that would help us improve our approach?

Each course organiser receives this report as well as statistics on multiple-choice responses. All these reports, together with student feedback about individual members of teaching staff, are collected and sent to the Director of Learning and Teaching.

Please note that these are personal responses from individual students: some courses only have a few responses and a small sample can be unrepresentative.

Stereotyping and bias, especially unconscious bias, is a serious concern in any survey gathering personal responses. All students received the rubric below before completing the surveys, and you can read a brief introduction to issues of unconscious bias on the university web pages at [http://edin.ac/2iypZBv](http://edin.ac/2iypZBv)

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**Rubric given to all students taking the end-of-course feedback survey**

We value your opinions on the courses you take here at the University, as they allow us to shape future delivery and development. We welcome constructive comments about your courses, whether positive or negative, and ask you to give details about any issues in order to help the course organiser to understand and address them.

We encourage you to be aware of the potential for bias in the completion of these questionnaires, so we have developed resources which may be helpful to you:

- Equality, Diversity and Unconscious Bias ([http://edin.ac/2iypZBv](http://edin.ac/2iypZBv))

You also have a responsibility to provide feedback in a manner which does not breach the University’s Dignity and Respect Policy:

- University of Edinburgh Dignity and Respect Policy ([http://edin.ac/1Cq0V2Y](http://edin.ac/1Cq0V2Y))

The results of the questionnaires will never be analysed in a way that seeks to identify individual students from their responses. However, should you wish to remain anonymous, please do not identify yourself in your answers to the survey questionnaire implicitly or explicitly.
Comments Report

What did you find most valuable about the course?

- Generally I found the lectures to be extremely helpful in explaining things, and a great aid to the reading.
- Getting real insight into how operating systems — terrifying intimidating complex monstrosities — are actually made up. It demystified them and got me thinking about low level programming in a new way. Even applied some new-learnt skills to writing C extensions for Python in another course.
- The coursework have been amazing. They are so crystal clear and being able to get hands on with the innards of an operating system like that is such a great and necessary opportunity. I think that's the best way to learn.
- Good lectures and great hands on experience with InfOS
- Interesting course. Great if you enjoyed Introduction to Computer Systems in second year.
- It did teach us top level Infor about os
- The course has clear goals and completes them competently. It has a really good overview of things, and does some interesting deep dives. The coursework is really good.
- The coursework gives us a lot of room to poke around a 'real' OS, which I think it very valuable. Of course the linux kernel is open-source but the complexity does very much get in the way
- The coursework and the support on piazza.
- The coursework were the best, especially when released all at once at the start of the semester. I enjoyed being able to work through them early and gave me a quite relaxing semester.
- The effort made by lecturers to go above and beyond to make coursework setup instructions clear and to support all questions.
- The lectures were well presented, always on time and the slides matched the reading well. I really enjoyed the coursework on this course. 10/10 for effort to Tom Spink for the coursework intro videos they were brilliant. The first two coursework were a nice introduction and not too difficult. The final two coursework were much harder than the first ones and quite a challenge (in a good way).
- Useful for real world application.
- Using Linux
- Very interesting course - learning about operating systems is very enlightening and provides lots of valuable context for many things in computer science.
- Very nice course, I really liked Antonio's pre-recorded lectures, and the coursework throughout the course was brilliant, very interesting, stimulating and fun (on that note, I really appreciate Tom's coursework introduction videos).
- coursework
- coursework was interesting

 Definitely too much of it, compared to other courses, but if it was spaced out better / exam had less weighting, I wouldn't mind.
What improvements, if any, would you make to the course?

- A little better lectures. A little clearer explanation on the coursework would be helpful.
- Connect the coursework with the actual lecture content a lot more. There is pretty much 0 link between them. Lecture videos were very boring
- Have more challenging non graded projects that more confident students may attempt.
- Having tutorials for this course might work well and allow students to practice questions and get them marked. There's quite a big learning curve required on the coursework if you don't know C++ so an intro or some suggested resources would be good.
- I personally would have like to come out being able to start writing an os from scratch. I'd also like to know how interfaces work
  Additionally releasing all the readings on time
- I think the last coursework was a little too vague in its description and it felt more like an exercising in understanding another's code base (which given the size of this codebase, I think unreasonable for a coursework) than actually implementing the features request.
- I would add more interaction within the course, whether that be online lectures or at least making the slides little more exciting. There is often just reading off the slides without elaboration and often not making much sense / clarity.
- Lower the number of assignments maybe? Four is too many assignments especially if we're doing SDP in the same year.
- Maybe some more tutorial-like sessions and problem sheets for the things that will be asked in exam.
- Maybe tutorial sessions for students having not learned C before.
- More tutorials on not-InfOS related OS questions - eg.: instead of the 1 hour live classroom where people can ask questions (which usually only filled 15 minutes at most) give a few exercises, and then provide solutions and comments for them in that 1 hour (it did happen like that for the first 1 or 2, but then it was somehow left to slide)  Please comment parts of InfOS we have to interact with! Unfortunately self documenting code is still very hard to understand without comments.
  Feedback on coursework was slow and not detailed
- N/A
- Not much support was given to us regarding coursework 3 and coursework 4 for the controlled assessment. Some of my questions on piazza were not answered.
- The coursework assignments are extremely easy and very surface level. They take at most a couple of hours and just don't provide challenging intellectual problems. It's difficult to look at the labs students of other universities get to do and not feel jealous
- very good so far
2. Operating Systems -

2.1) What advice would you give to a student taking this course in future?

- Attempt the coursework early, read the textbook.
- Do the reading and start coursework early.
- Enjoy the coursework.
- Get some C++ experience before you start (don't need much, if you have seen C before you will be fine). Course is pretty straightforward and has good resources available.
- I would advise them not to take it.
- If you don't know C give yourself a bit more time than estimated because you will spend quite a bit of time trying to figure the code out more than applying the theory.
- Learn C++ and pointer logic before taking this course.
- Start early on the coursework. Brush up on your C++ skills.
- Start the coursework early, and if you're not comfortable with C (and by extension C++, but I knew only C when I started and I was able to learn quickly), you need to catch up. Not just the language itself, but you need to understand how and why it works, on the low level - which is what you'll be working on. I noticed multiple people on Piazza had no deep understanding of what happens at the low level of a computer, which is essential for doing the coursework well I think.

Extending from that, I recommend to revise INF2C-CS Computer Systems (if taken prior), because that basically ensures both, that you already understand C on a sufficient level, and it is a very nice overview of how a computer system works, all the way from the lowest level, up to the basics of OS, and this course more-or-less builds on that (or at least it gives you a very good overview, and then here you can go deeper, and I just think that's a very nice thing).
- Start the coursework early, ask questions on piazza, and in general looking at how things are implemented on wikis helps a lot.
- Stay ahead with readings and lectures, get started on CW's when they're released.
- Take it! But try and find more opportunities to work on operating system related content outside of just the class.
- This is a great course and really covers a wide range of materials. Start the coursework early as they can take a while and often you can get stuck on a bug that you need to take to come back the next day to find.
- Try not to let the coursework get to you. It will feel huge and really scary but if you can get started, you should be okay.
- Work on cw early.
- prepare for coursework in advance.
3. Operating Systems -

3.1) Please add any other comments you have about the presentation of course materials online and their accessibility.

- I found completion of this using remote dice to be completely impossible. I had to spend a large amount of time setting up a virtual machine which I struggled with running due to technical limitations and ultimately it was not the best development environment.

- I really appreciate that everything was managed through Learn and not any other site.

- Learn page was well laid out. Especially liked the layout of the course materials as everything is there in one place.

- Lectures are not bad, but lots of the value is in reading the book. The videos explaining the corresponding coursework assignments are useful, but again, the coursework assignments are just way too easy.

- N/A

- Please make a consistent structure for accessing course materials on Learn.

- The courseworks videos are amazing. Great use of images and diagrams to explain the concept and makes it much easier to visualise what the concept to be implemented is like.

- The lecture table was well structured, and the newly recorded lectures were great – good audio quality. Only negative is that the face-cam was sometimes in front of text on the lecture slides.

  Oh, I didn't like that there is both an assessment and coursework tab on Learn. Please combine the two, thanks!

- good
6. Reflecting on your experience of hybrid teaching and learning on this course, what has worked well for you?

- A course largely based on learning technical knowledge is quite suitable to online teaching. Asynchronous lectures are pretty useful and there aren't really any major issues with online course delivery for a course like OS.
- It was not hybrid at all. It was entirely online.
- It's great that the instructors and assistants are so responsive on Piazza.
- Online lectures were good quality, piazza was well utilised.
- Online worked well.
- Remote dice did not work well for this course, and it was not possible to run it on Mac at all. Therefore I found the initial setting up of coursework to take longer than the first two coursework did to implement. I did not always find the professors to be the most responsive on piazza.
- Stop calling it hybrid, it's only been online, no one is falling for it.
- The lecture videos and the coursework introduction videos.
- This course was not taught hybrid and was entirely online. The course organiser appeared to have planned for hybrid but had to change this due to restrictions. There was a lot of effort put into the lectures despite them being online, it cant be easy talking into a screen for hours and the enthusiasm Antonio had is appreciated.
- To catch up on lectures in my own time, especially when 4th year I'm swarmed with dissertation work.
- Watching lectures whenever I want is nice but not having anything live makes me fall behind.
- could review lecture recordings later.
6.2) Is there anything else you'd like to tell us about your experience of hybrid teaching and learning on this course that would help us improve our approach?

- An overview of previous work done in
- As mentioned before 1 hour question classrooms could have been better structured with questions and exercises from the textbook
- Do more live.
- Please just release the coursework videos at the start of the course. They often let us know about important information when developing the coursework that we otherwise have to find out on our own. I found getting ahead in this class was the only reason I was able to stay on top of all my other classes.
- Stop calling it hybrid, it's only been online, no one is falling for it
- There was no hybrid learning, it was completely online.
- Tutorials for basic C coding or getting used to the InfOS would be great.
11. Thank you -

Thank you very much for taking the time to complete this questionnaire. Your response and comments will be fully considered.

Please provide any additional comments you may have about the course, the teaching on the course or the resources that support it in the box below.

- Coursework 4 is worth half the marks of coursework 3, but took twice as long
- Stop calling it hybrid, it's only been online, no one is falling for it
- The online videos from Dr Tom Spink on how to set up the coursework were incredibly helpful!
- This course is a great example of how to implement great online learning, and I want to say that I am thankful for all the effort the organisers and lecturers clearly put in