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

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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)

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/1Cq0VZy)

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.
1. What did you find most valuable about the course?

- Auction theory
- Great introduction to this area, well explained, rewarding and challenging but not impossible
- I enjoy Game Theory in general, my tutorials are very nice. The tutor is helpful and provides lots of hints, notes and explains the content very well.
- I particularly enjoyed the mathematical rigour with which Dr Kousha Etessami presented the material. His responses to live questions and on Piazza were also always extremely detailed.
- Interactive live classes. The lecturer made a clear and willing effort to teach at our pace, even though for a while we were behind schedule.
- It is very interesting and the lecturer is great, very detailed and helpful on Piazza and in lectures.
- Kousha is nice, and responsive on Piazza. Course material is challenging and interesting.
- Learning how to deal with a somewhat adversarial teacher.
- Nothing
- Really interesting concepts and real-world applications, challenging content but well structured and interesting to learn
- The course organiser was extremely responsive throughout the semester, always answering students' questions on piazza promptly and with care. He was also urging students to ask questions before and after the live sessions, which I found very useful.
- The coursework was really interesting to work on, most of the tasks felt more like little puzzles than chores.
- The lecturer was very precise and provided a clear explanation for all the materials.
- The tutorials
- Very interesting topics discussed with good examples
1.6 What improvements, if any, would you make to the course?

- Drop "applications" from the name of the course, it's misleading

- Feedback on the Assignment could have been faster, with better explanation and updates about when to expect such feedback

- I think writing on an online white board with a mouse is not a good idea. I can see the instructor is trying very hard, but perhaps a tablet that you can use to write on is essential for online teaching.

- I would like to see more practical examples of how to apply theorems taught in lectures.

- It would be nice to update the lecture slides based on the actually covered materials. Due to the delay, it was sometimes hard to follow which slides were used in which lectures, especially when we were looking for information for the coursework. Additionally, I think the way of writing into the slides and into the blackboard during the lecture and tutorials was very unprofessional and hard-to-follow. These explanations could be improved.

- Just a little bit more examples during the lectures to visualise the mathematics.

- Lectures are badly presented, cw is very challenging and often if more theory based

- More examples after proof of theorem would be helpful. Even though I can understand course materials, but exercises in the tutorials are not enough for me to finish the coursework.

- More examples in lectures. These are very theoretical and it can be hard to relate these to the practicalities

- Not all the coursework tasks actually had a detailed explanation in the lecture materials. For some of the tasks, I needed to search for additional material online first to understand how to approach them, which can be quite frustrating sometimes.

- Nothing really, it was a lot of fun!

- Provide more examples

- The course introduced us to a broad range of topics and, inevitably, we didn't have the time to cover all of them thoroughly. However, there were times when we spent a lot of time discussing a proof or a very specific concept. Though effort was definitely made, I believe that the right balance between simply mentioning something and digging deep is yet to be found.

- The course is teaching mathematics in a very bad manner. Reading definitions and examples off of slides is a very poor way to teach students how to think with those mathematical objects and how to get through examples. MLPR is a course similar in mathematical content, which is taught in a much, much better way. Just emulate what MLPR does and this course will be greatly improved. PDF slides are not course materials!!

- The lecturer only read power point in the lecture, and the lecture note is really bad to read. there is no example in the lectures and we only understand the lecture contents by looking other sources. In general I would say there are too much things need to improve in this course.

- The lectures 10-15 were a bit unclear since it is less clear how much we should know about this area (although still interesting)

- The pace of the content is atrotious. The amount of theory covered in each lecture is overwhelming and there is no example to verify the theory we go over. The courseworks are difficult and the course helps you little in preparing for them.

- The teaching material was messy, the presentation slides did not help the learning experience. These require significant re-structuring and re-formatting. Also, the external reading was not fit for purpose with many materials being unavailable for online reading in an exclusively-online semester.

- There are no examples in the lecture notes. It is very useful to have examples, to obtain a better understanding of the content. Sometimes it is difficult to grasp a concept, when we jump from one concept to another without understanding. The way certain concepts are explained is not the best. If I haven't known what "dictionaries" are, I would not be able to understand them from the slides or lectures, and probably would have to look for other resources. I do not think it is fair to release an assignment early, without covering the entire material necessary. It causes a lot of confusion and stress.
2. Algorithmic Game Theory and its Applications

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

- Advised to have strong foundation in mathematics. Prior knowledge on linear programming is helpful.

- Be prepared to study from other sources to understand the material.

- Don't expect you'll learn solving practical problems (no applications there). The lectures mostly consist of reading pure theory from slides, but then solving theoretical problems is required. You'll have to learn how to do it yourself elsewhere.

- Don't take it, unless you have absolutely no other choice.

- Don't take this course if you don't enjoy playing around with different mathematical concepts and spending a couple of days trying to figure out how to do a particular proof.

- I realise that this is not going to be a helpful and constructive criticism, but I would not recommend taking this course at all.

- If you want to learn about applying game theory this course isn't for you

- Interesting concepts with challenging content. Have a look at the lecture slides from previous years' course webpages to get an idea of the content.

- It is daunting at first but if you've done well in previous maths courses you will be fine

- Math is slightly challenging and can take some time to understand (if you came from a computer science background like me). But once you get it, I think it is satisfying.

- Take the course if you are interested in Maths and Logistics. Please notice this course is pure maths.

- The course is mathematics- and proof-heavy, so be confident in those areas and be prepared struggle with it and spend a lot of time on it.

- Very interesting topics, but rather dry delivery and course work very hard to solve with just the material provided

- Work on the tutorial sheets by yourself and then compare your solutions with the provided solutions. They are all very helpful for the coursework.

- You should notice that, this course focuses more on algorithm, rather than the concept for game theory

- its fun, its easy to visualise, concepts are built up after looking and understanding simpler games so its much more intuitive.
3. Algorithmic Game Theory and its Applications

[3.2) Please add any other comments you have about workshops, tutorials or labs on this course

- More examples in the tutorials.
- My tutor is a very good tutor.
- Recorded tutorial sessions were helpful. Not always well-explained how the lecture content relates to tutorial and coursework material, and how to use lectures to answer questions in tutorial sheets.
- The tutorials were helpful but some of the tutorial questions were not.
- Tutorial 3 was extremely unuseful. The global tutorials were nice as well as the solution documents.
- Tutorials are intentionally covered in a way to avoid helping students with the coursework.
- While I certainly liked working on the tutorial sheets, the tutorials themselves did not feel like they helped out a lot. In most cases, I was able to gain the same information just by reading through the provided solutions, as the tutorials rarely consisted of much more than just looking at these example solutions.
- it's good that there were classes by the lecturer recorded for the benefit of everyone.
- little to no added value
- tutorials are good, at least they explain better than the lecturer.
4. Algorithmic Game Theory and its Applications

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

- Easy to find content. I like that the tutorial is recorded
- Everything easily accessible on course page.
- Good to have all lecture slides and recommended reading well in advance. Some students prefer landscape vs portrait format so would have been good to make BOTH available so students can choose. Some recommended readings not available from the library (COVID closure)
- I liked the fact that all the lectures were available online from day 1. It meant we had a lot of flexibility in going through the course at our own pace.
- I think it was a bad decision to provide the slides on the course website and not in Learn. Even though the website was linked to Learn, it took more time and was less transparent.
- It would have been great to also have a non-presentation-slides version of every lecture like the ones provided for the lectures not covered this year (e.g. lecture 13), as they are much easier to work with when working on the coursework.
- Please, for the love of god, switch to Learn.
- Presenting a full mathematical proof in one slide of text is very hard to follow.
- The course needs a handbook. The course instructor needs to write a handbook, and the presentation should be a summary of the handbook. What the course instructor is doing at the moment is mashing together a poorly put together handbook (the slides) with a sub-part presentation (the slides which include too many ad-hoc mathematical definitions without enough motivation and context).

Here is how a quality Game Theory course is taught: https://ocw.mit.edu/courses/economics/14-126-game-theory-spring-2016/lecture-notes/

- The lectures are available from last year, but I noticed that the Q&A and lecture recording from this year disappear from the website, when there are 13+ recordings, and only the newest ones are accessible.
- This course worked very well online
- very good.
Reflecting on your experience of hybrid teaching and learning on this course, what has worked well for you?

- I think lecturer should give more examples to help us understand. The slides can also be organised more clearly. This course is a math course, but I think the material and courses at the school of Mathematics are better, since they give more clear examples.
- It was nice that tutorials with the lecturer were recorded.
- It was really nice that the tutorials were recorded and solution documents were provided. In addition, the answers on Piazza as well as the emails from the course organiser were very precise and useful.
- Option to attend live lectures or watch recordings worked well. Options for the lecturer writing on screen were limited and didn't work well.
- Prompt and very detailed responses from the lecturer on Piazza was really helpful.
- Recorded tutorial
- The lectures and coursework have worked quite well.
- The recorded lectures are better than live lectures, I want all future lectures to be recorded.
- The universal tutorials were a good idea, since it meant everyone in the class got to learn directly from Dr. Etessami.
- There was no hybrid teaching, everything was online. However, having live lectures instead of pre-recorded ones was very important and made it a lot easier to engage with the course.
- This course was taught online, it was not hybrid.
- Yes, lectures and tutorials ran smoothly
- nothing. keeping up with classes and assignments has been very tough.
7.2) 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?

- Don't lie to students.
- I don't understand why "completely online" is called "hybrid".
- It would be nicer in person :)
- Lecturers should be able to write on the screen clearly (using a tablet or similar), as writing was sometimes not visible and hard to read. Online content delivered clearly other than that.
- Live interactive classrooms work well- we clear our doubts and it is more to the pace.
- There were often issues with the board on Blackboard, so maybe the university could recommend better online boards to the instructors.
10. Thank you -

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

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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.

- please offer more examples and better lecture note