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/1Cq0VZY](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.
# Comments Report

1. Data Mining and Exploration

What did you find most valuable about the course?

- A clear understanding of PCA and MDS.
- General learning about data mining.
- I do not want to be aggressive, but I truly have no respects for this course. The most valuable about the course is that I met my teammates, so I made new friends during the isolations. However, regarding the course content, I have not found anything that they taught well. They taught you about how to do 1+1 in the lecture notes, and they ask you to do calculus in the exams. As the result, we got a median of 40% for the exam.
- I learned a lot from PCA and Dimension Reduction. The lecture and hand-out book are really useful and well-structured. Thanks.
- Introduces a wide range of useful techniques.
- Learning about the visualization tools was very interesting.
- Mini project.
- Project.
- Q&A sessions.
- Q&A sessions with dr. Gutmann.
- The dimensionality reduction methods seemed very important and useful when dealing with very high dimensional data.
- The lecture notes material is useful.
- The lecture notes.
- The mini-project is the most valuable portion of the class--would be more valuable if not in a group project though (difficult with covid and in multiple time-zones).
- The practical application of skills in the mini-project.
- The pre-recorded lectures from the previous years where easy to follow and very informative.
- The topics covered.
- This course deepened my understanding of data mining and the processing process.
- Very well organised. Good website.
- learned how to apply pca dimenstion reduction and EDA.
- pre-recorded lecture.
- the notes (except the part about prediction).
What improvements, if any, would you make to the course?

- Better and clearer communication
- Fairer and more reasonable grading
- Better communication about what's expected of us
- A more reasonable term-time work load

1. Explain things better
2. Better feedback on the report
3. Clearer feedback on the solutions
4. This is a 10 credit course, but it consists of weekly tasks, labs, an exam, one presentation and one mini-project, while they tend to give lower marks on the mini-project, making the exam so hard but unrelated to the things they taught!

A friendly interface of submitting courseworks.

Add workshops to practice applied exam questions. The notes are too mathematically heavy and in need of better explanations. For example, I still don't get the point of probabilistic PCA because it's just introduced without any motivation.

Change the name of the course to "Theoretical Dimensionality Reduction". Calling it data mining is false advertisement. Oh and maybe don't fail half of the class for an assignment next time. It reflects poorly on you.

Class test and lecture notes are poor representations of the data mining process (unnecessary focuses on the theoretical, PCA), a lot of mathematical theory rather than practical application. Labs were ok but not overall well put together. After reading class description, I thought this class would be something different. Maybe would be better to change the description of the class as to not mislead student. Out of my five classes this one has been my least favorite.

Don't lull into false sense of security with easy quizzes and then an impossible test.

Feedback on interim report was insufficient. The time-limited test only partially reflected the taught materials and past tests were not useful at all as a preparation for it. The fact that more than half the students failed should be a matter of concerned. I am disappointed that the amount of ownership over the mini-project was considerably cut down relatively to past years.

Give lectures! Recycling old lectures from a past year does not have the same effect and made me feel very disconnected with this course and the lecturers.

I think this year's exam is difficult than in previous years. It is not fair for us because we are being taught remotely and need to do a more challenging exam.

It takes us too much time on it while it is a 10 credits course, I think you should reduce some content of the course such as presentation.

None.

Record the lectures again.

The videos of the lectures were extremely dry. They were watching a professor writing on a piece of paper mathematical formula. Through searching elsewhere, I have found materials which are much more intuitive in gaining understanding of the principles and properties.

Make clear why the different approaches to PCA are required - perhaps some examples of different situations in which you would use each variant

Rename the course to "Linear Algebra Theory for Dimensionality Reduction". The current name is highly misleading.

Should provide more practice examples to prepare for the mid-term exam. This years mid-term was completely different to the past papers.

The class test was incredibly misleading, it was considerably harder than the practice papers and not enough was done to help prepare for it. A median of 44% suggests that the class test was harder than it should have been.

The course really seems to focus largely on theoretical underpinnings of PCA, and some content on eg hyperparameter tuning that students would already be comfortable with from IAML or MLPR. There seemed to be a consensus that there was much less data mining and application than we might have expected from the course title or description.

The idea of flipped classroom is not helpful, in addition to the online learning, I personally think this is not a good idea. Too many students are taking the course. Class test was too intellectually challenging - we had to understand all the materials faithfully in order to perform well, by week 6, which is not reasonable.

The knowledge required for the final project was not included in what was taught in the course, which made it very difficult for me to do it. I hope that the course can clarify this in the prerequisites.

The overall structure of the course was not ideal in my opinion. This module tried to cover too many different topics, which resulted in students not being able to understand well even a single one of them. I understand the difficulty of summarising the Data Mining and Exploration topic in fewer sections, but I am certain that most students would appreciate understanding few topics well, than trying to understand all of those topics included, with the very few details provided due to the limited lectures available. Furthermore, I honestly believe that the approach taken to adjust the module due to Covid 19, was anything but helpful to the students, as the open book exam was completely irrelevant with any of the material. It is truly unacceptable to create an exam that resulted in an average of 44 in the class, since this indicates that half the students were not able to even get a pass grade. Finally I would certainly suggest to give students the option to select their own papers to present (in a given prespecified topic) rather than randomly assigning papers from a list. The whole point was to study a paper of interest and expand the knowledge you have in that specific topic.
The teaching of the material was not fit for purpose. You cannot just provide a recording of the previous years and a Q&A and think that this is okay. I would get a higher quality teaching experience from a free online course. Also, you cannot give out an exam with no preparation at all and no questions/answers provided. There were no tutorials to help us out and the only material we got were the past exams which not only didn't have answers, they were not even closely representative with the actual exam's questions. Unacceptable and disappointing.

Topic not extensive. Mid semester exam is difficult and not fully covered in the syllabus.

in the tutorial they just explain the syntax of the python packages. Why not explain how to analyze a dataset?

it is a waste of time to prepare for the class test. we were told that the class test is based on the past exam paper, but it is so not true. I put a lot of time into the past exam paper and solved all questions for the previous four years but the questions are not closely related to past exam paper.
2. Data Mining and Exploration -

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

- Be prepared to do a lot of maths.
- Do not expect you will learn something practical about data mining. Also do not expect any data exploration. The only thing you explore is linear algebra theory.
- Do not take this course for god's sake if they do not change the organisations.
- Ensure you have strong linear algebra. Hopefully will have read up on PCA beforehand.
- I would not recommend this course
- I wouldn't recommend it based on my experience this year.
- It is a good course if you want to understand how the mathematical aspects of PCA and data exploration tasks work.
- It's a great course, but requires for mathematics backgrounds.
- Need to have a background in Data Science - I felt quite unprepared going into the group project at the end of this. We don't have long, and nor do we have a contact on the course to have meetings and check in with regarding progress. This is unlike other courses where I have had projects.
- Not much, I think we were the unlucky batch which got this course during a pandemic and yet, nothing was changed to adapt.
- Take it when there's no pandemic.
- The assignments in this class require a reliable team, which means you need to be a good team player.
- This course is badly organized and probably does not deliver what you think this course is about. Look through the material and choose wisely
- To be aware that it's very mathematically dense to start with, and the more interesting studies later on with the mini-project (and to some extent the presentation) are largely disconnected from the first half of the semester
- Unfortunately, I would recommend them not to take this course
- With the current structure of the course it is a highly unpredictable module, that you cannot know whether you are actually understanding the material or not, due to the so much details that are omitted and the very fast transitions from topic to topic. Please ensure that you are happy with the structure provided at the time that you are selecting the module before making a decision.
- do not take it. the course statistics are not reliable. the class test is very difficult. do not take it! if you like math, then you could consider pmr.
- maybe for the lock down, but this year this course has a lot of coursework. sadly, I did not learn so much...so the worst combination
3.2) Please add any other comments you have about workshops, tutorials or labs on this course

- Apart from the last lab, most of it was relatively basic implementations that prerequisite courses would have covered anyway
- Didn't find the labs super helpful
- I have known how to implement most of the algorithms before the tutorials.
- I only attended one, the added value is negligible
- None.
- The labs were good and enjoyable.
- The tutorials were just the tutor reading out the example solution. Zero interactivity and no added value over me reading the solutions by myself.
- There were no tutorials - but there should be. The labs were not helpful at all.
- Why aren't there workshops for examination prep? We can't be expected to answer mathematical questions on the theory heavy notes without any practice. This is highlighted by the median of 44 in the class test.
- not attended them
4. Data Mining and Exploration

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

- Deadlines were hidden within the course website and not made clear on learn. For example, presentation pre-engagement and post-engagement forms

- It's okay. Would prefer live and not pre-recorded lectures.

- Materials were ok to find.

- Materials were very accessible

- None.

- The course website is nice.

- The course workbook was helpful.

  The lecture videos were of no help whatsoever. I went elsewhere for further explanation

- The recorded lectures and Q/A lectures were both brilliant. The recorded lectures gave a good description of the mathematical aspects with step-by-step working so that even a non-mathematical background student could easily follow.

- There was no presentation of materials online, just the recordings from previous years.
7. Data Mining and Exploration -

7.1) Reflecting on your experience of hybrid teaching and learning on this course, what has worked well for you?

- Having a book of the course material was very helpful.
- Hybrid teaching (which is 100% online in reality), is not a problem in this course
- I like how it lets you go through the lectures at your own pace. I think the Q&A could have been improved by going over practice questions live - specifically questions of similar difficulty level to the class test.
- Not hybrid at all
- Not much, the course organisers did not try to adapt to a hybrid teaching mode at all.
- Only the Q&A sessions. I felt very disconnected to this course. It wasn't hybrid, it was mostly watching old pre-recorded lectures.
- Remote uni has been very useful, should stay like this for one more year - until the end of 2022.
- The courseware in Labs is very good, and I can always review my notes to help me recall the code.
- The learning was great, with the hybrid approach, the pre-recorded lectures were clear enough to help understand the subject material, and the Q/A sessions were handled very nicely by the faculty, with detailed explanations and clarifications of our doubts
- What hybrid? It's online. Coursera is a better option.
- Yes
- oh yes ... what has worked well for me? nothing... i give you an advice: forget this hybrid teaching
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?

- Do not call it hybrid, when it's 100% online
- Don't fail half of the class next time. Don't make the course entirely about dimensionality reduction.
- Just do something next time.
- Live lectures should have happened
- None.
- Not hybrid at all

- The class meetings were unhelpful as they were very large groups and it was uncomfortable asking questions.
  The piazza forum as well was intimidating to ask questions and wasn't as active as other class forums I've been in. The only questions asked seemed to be very hard material.
- The hybrid online exam was not executed well. Far too many people failed, it was unlike other past papers, and despite spending time revising I did not feel able to show off what I had learnt from the course.
- There was nothing hybrid about this. It's a lie
- yes, we can do everything in live and 0 remote learning ;)


11. 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.

- I regret the choice of this course...
- None.
- Sid was rather passive aggressive in my interaction with him. I don't get why you feel the need to show your superiority towards students but I hope you don't act like that with other people.
  Additionally, Michael literally said on a Piazza post that he was almost forced to teach this course. Maybe next time just be a bit more passionate? I know you probably have better work to do...
- if the class test could be scaled to meet the previous years marks, ensuring a larger overall number of individuals do not fail this course.