

MODULE REPORT

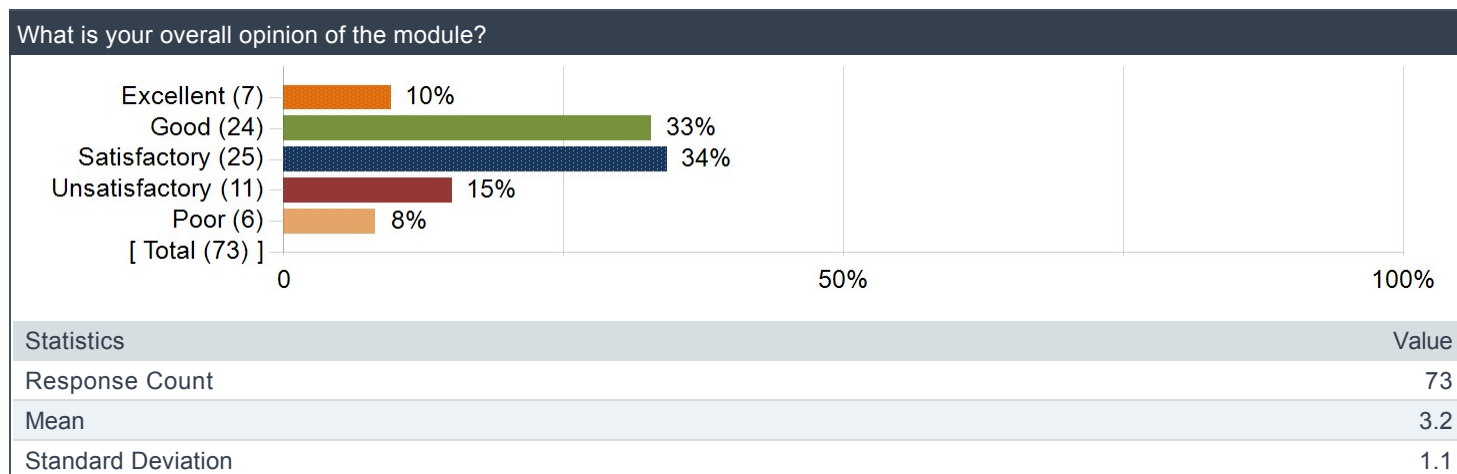
Module	CS3244 - MACHINE LEARNING
Academic Year/Sem	2019/2020 - Sem 1
Department	COMPUTER SCIENCE
Faculty	SCHOOL OF COMPUTING

Note: Class Size = Invited; Response Size = Responded; Response Rate = Response Ratio

Raters	Student
Responded	73
Invited	174
Response Ratio	42%

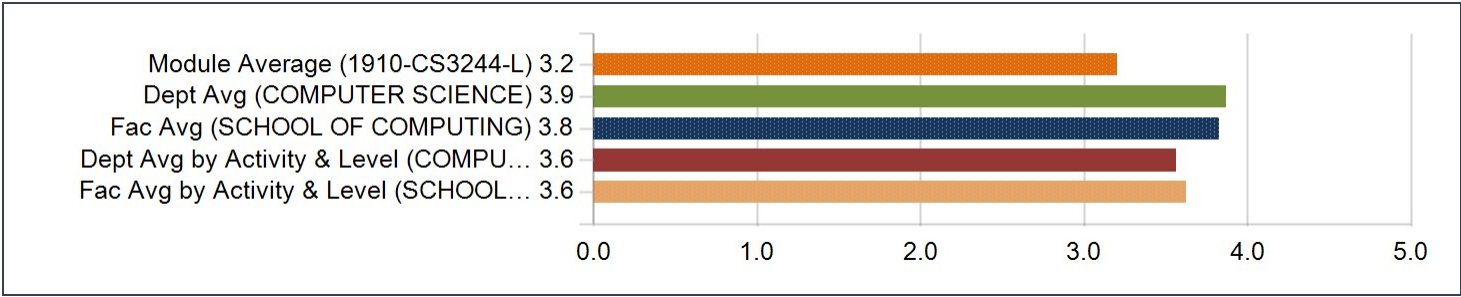
1. Overall opinion of the module

Distribution of Responses



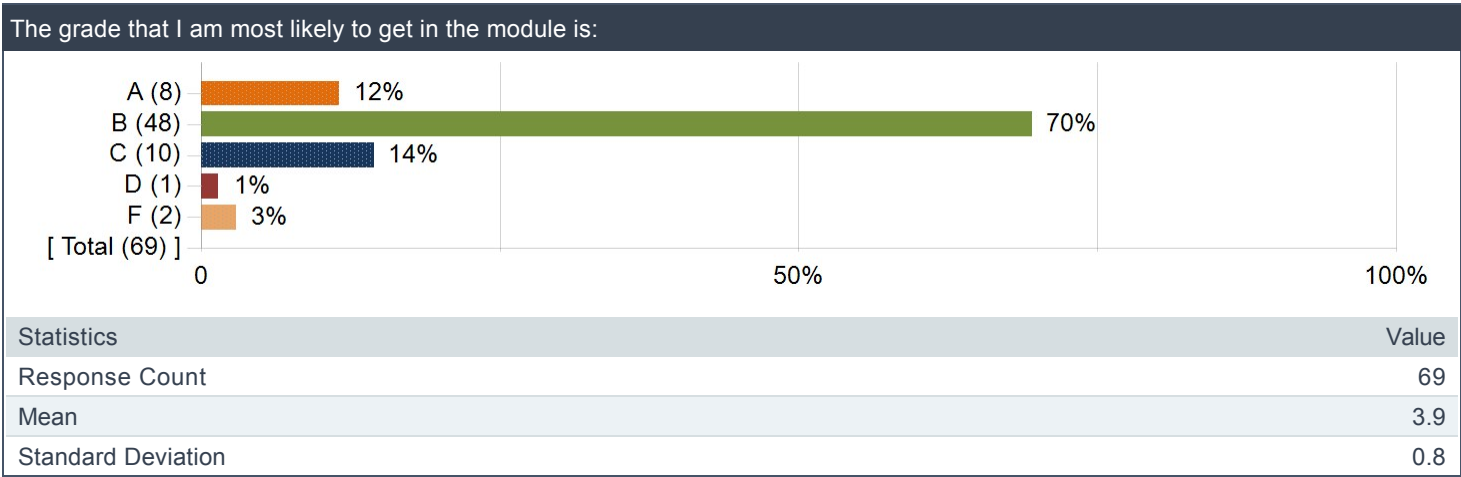
Rating Scores

Question	Module Average (1910-CS3244-L)		Dept Avg (COMPUTER SCIENCE)		Fac Avg (SCHOOL OF COMPUTING)		Dept Avg by Activity & Level (COMPUTER SCIENCE-LECTURE (Level 3000))		Fac Avg by Activity & Level (SCHOOL OF COMPUTING-LECTURE (Level 3000))	
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
What is your overall opinion of the module?	3.2	1.1	3.9	1.0	3.8	1.0	3.6	1.1	3.6	1.1



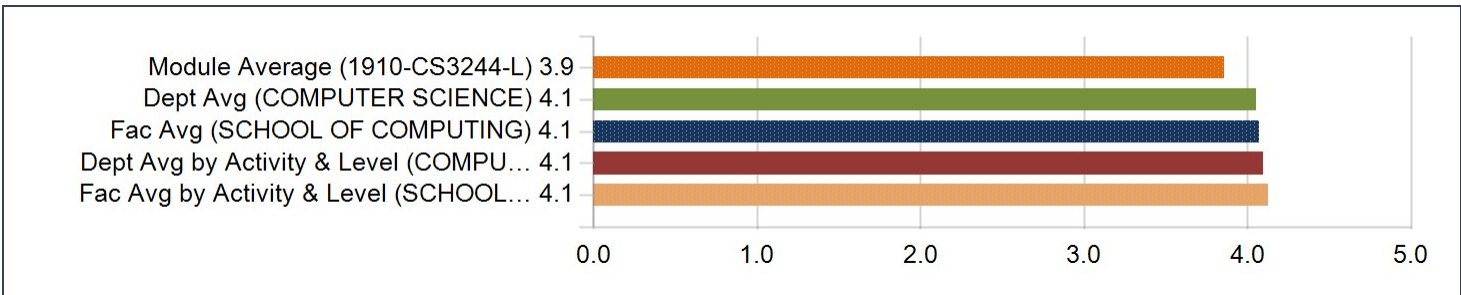
2. Expected Grade

Distribution of Responses



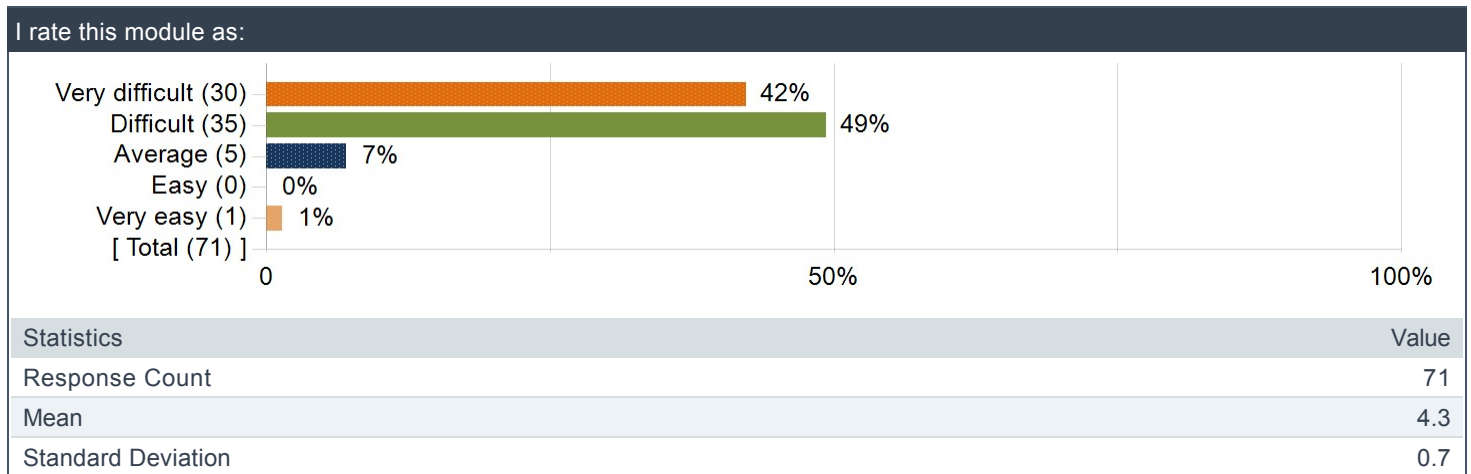
Rating Scores

Question	Module Average (1910-CS3244-L)		Dept Avg (COMPUTER SCIENCE)		Fac Avg (SCHOOL OF COMPUTING)		Dept Avg by Activity & Level (COMPUTER SCIENCE-LECTURE (Level 3000))		Fac Avg by Activity & Level (SCHOOL OF COMPUTING-LECTURE (Level 3000))	
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
The grade that I am most likely to get in the module is:	3.9	0.8	4.1	0.8	4.1	0.8	4.1	0.7	4.1	0.7



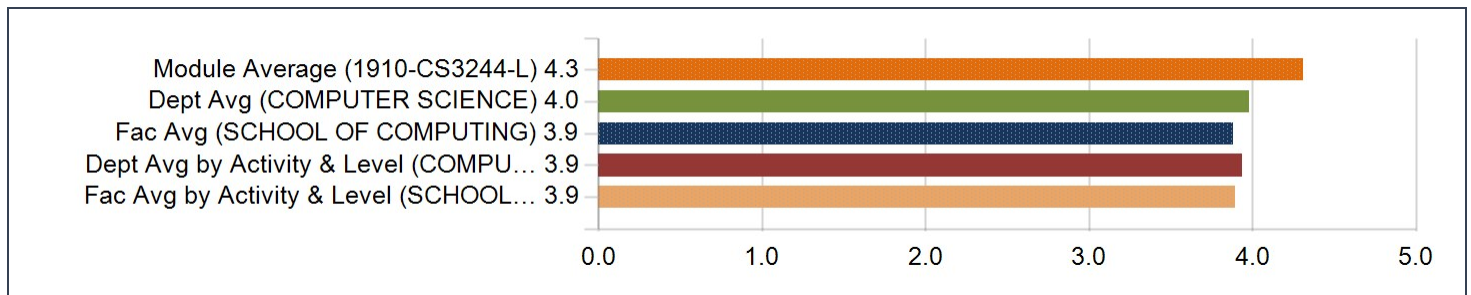
3. Difficulty Level of the module

Distribution of Responses



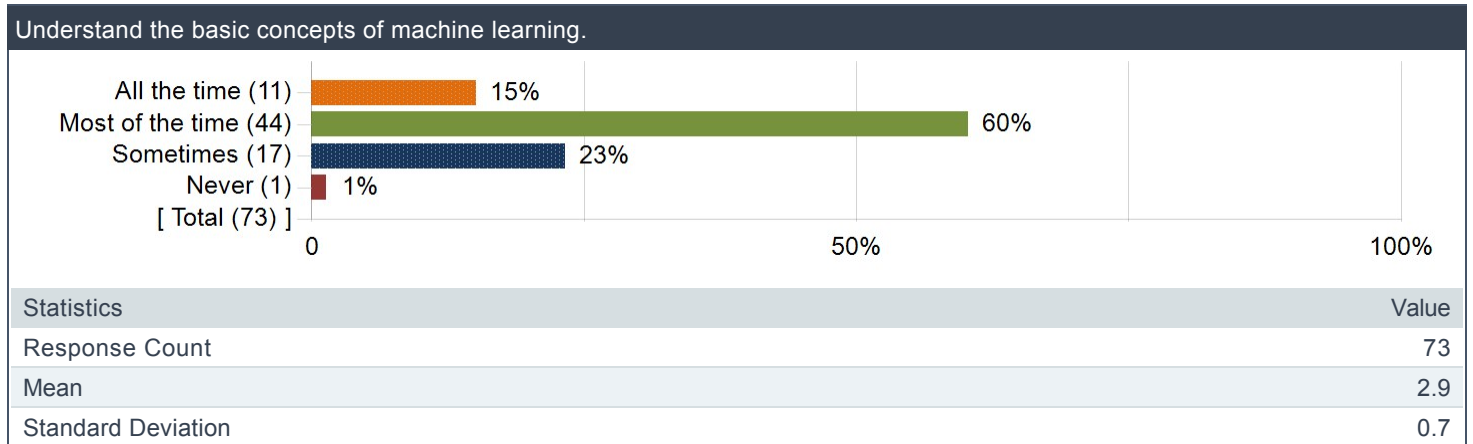
Rating Scores

Question	Module Average (1910-CS3244-L)		Dept Avg (COMPUTER SCIENCE)		Fac Avg (SCHOOL OF COMPUTING)		Dept Avg by Activity & Level (COMPUTER SCIENCE-LECTURE (Level 3000))		Fac Avg by Activity & Level (SCHOOL OF COMPUTING-LECTURE (Level 3000))	
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
I rate this module as:	4.3	0.7	4.0	0.8	3.9	0.8	3.9	0.8	3.9	0.8

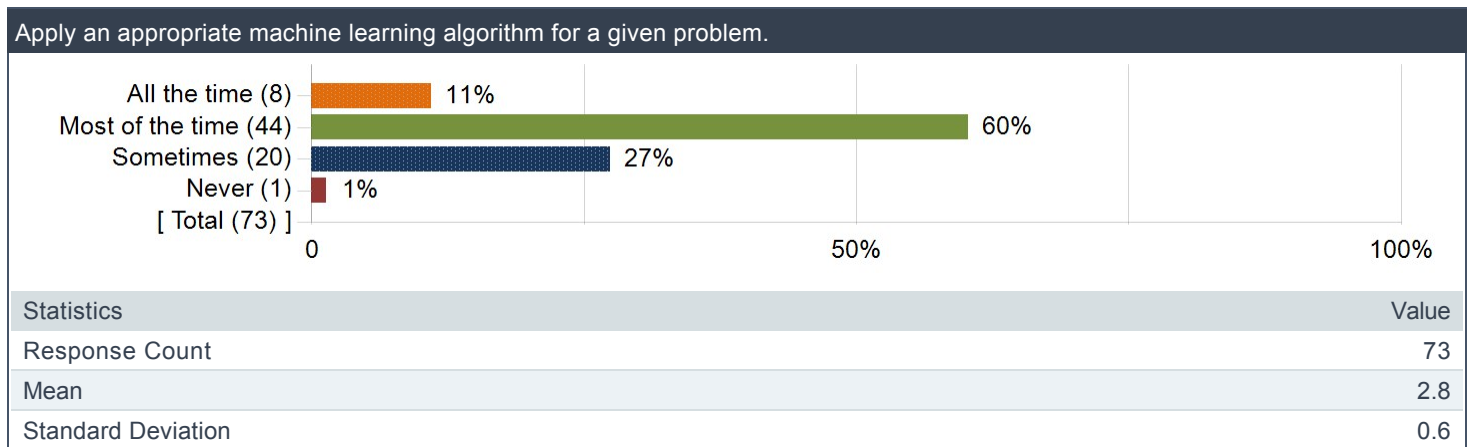


MODULE LEARNING OUTCOMES

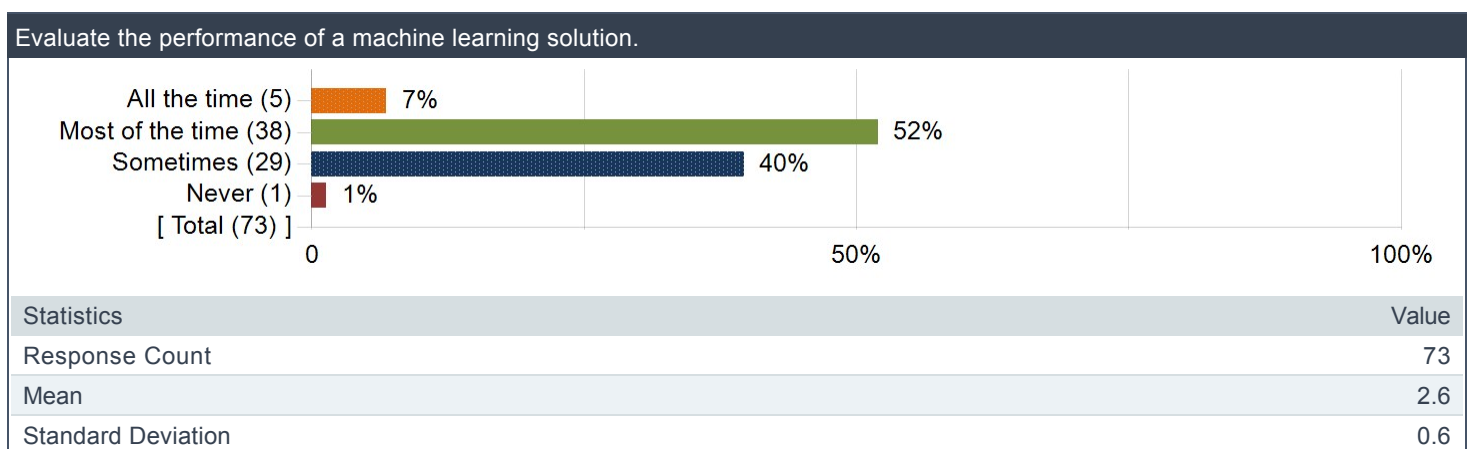
1. Understand the basic concepts of machine learning.



2. Apply an appropriate machine learning algorithm for a given problem.

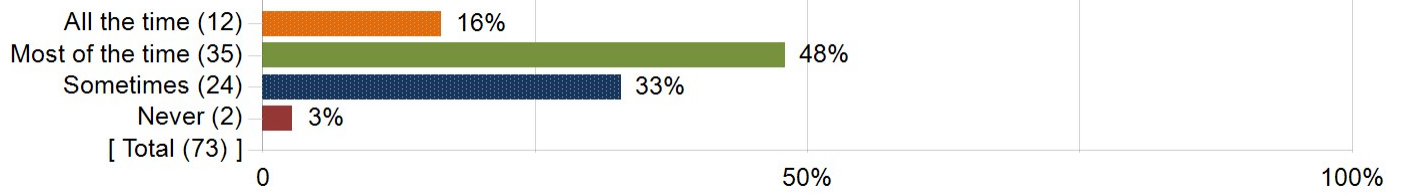


3. Evaluate the performance of a machine learning solution.



4. Use a machine learning tool to carry out machine learning experiments.

Use a machine learning tool to carry out machine learning experiments.



Statistics	Value
Response Count	73
Mean	2.8
Standard Deviation	0.7

WHAT I LIKE / DISLIKE ABOUT THE MODULE

What I liked about the module:

Comments
Cool introduction to machine learning and provides a nice assortment of starting tools to prepare us for using ML in real-world applications. Nice hands-on in the notebooks and project. Emphasis on ethics in ML and datascience which I feel is important and responsible.
Interesting introduction to the subject matter
Learning about machine learning
nil
-
The colab notebooks are particularly helpful.
The sincere effort by Prof Min.
-
Can tell that effort was put into preparing materials as they are quite extensive, content was also interesting
Compared to past versions of CS3244, i can say that the module has improved greatly. The module is finally touching on the concepts that are relevant to practical machine learning, and i really understand the ways the different algorithms work.
i really like the colab notebooks and i feel that i has effectively enabled me to learn well.
In my opinion, the tutorials are also very good because it is through tutorials that i think i am understanding the concepts in depth.
Project allowed deeper insights and understanding of relevant sub-topics.
As recommended by a friend, probably better than Bryan Low's material
:/
the project is p nice
The content and the weekly collab notebooks that aids my understanding.
This course has (more than) satisfied my initial curiosity for ML, provided me with substantial knowledge of basic ML algorithms and techniques. A good theoretical preview for getting our hands into ML.
Learning through practice
The hands on project
Intro to ML. Alot of content to absorb.
Nothing.
The content is interesting.
Well-structured to have a wide overview of machine learning, without going too in-depth.
Interesting topics and concepts.
A really good start to machine learning
Flipped and coursmology
it is flexible in its time management because most of the course work is online
Flipped classroom is good but can be significantly improved.
It is a gentle introduction to machine learning.
NA
help sessions

What I did not like about the module:

Comments
Machine learning is a very big field and this module tries to squeeze all the basics and some of the advanced stuff inside a very tight schedule. Hence, everything feels very rushed, and with a lack of linkage between different topics, it's very hard to develop a full understanding and appreciation of all the topics. At the end of the day, it does not feel like I know a lot more than the person who

Comments

simply learnt how to write code with machine learning libraries. I think it would be better if we took stuff like unsupervised learning and reinforcement learning out and create a new module for these topics, these topics should be big enough to warrant their own module. Also I think having weekly submissions is quite brutal, extending the deadlines for pre and post assessments by a week or so would be better.

Everything

nil

The project was challenging for those who were new to machine learning, and it was difficult to coordinate between so many people. I also felt that it might be easier to have one combined quiz per week instead of two.

Last minute schedules

Instructions given were unclear, sometimes inconsistent. Hard to follow the content in flipped lecture.

Please remove the flipped classroom implementation and have normal lectures instead of online videos. Please also provide more information and guidance about the data structures of the data and variables used in the colab notebooks.

Not enough tutorial questions.

The eLearning and badly set midterms.

-

There were inconsistencies between the lecture videos, lecture slides, and colab notebooks, which caused confusion and hampered learning. There were differences in terminology/phrasing, and sometimes the notebooks felt disconnected from the lectures. There was often no transition between different topics in the same week's lecture. The slides (esp diagrams) often differed from the videos with no explanation.

The midterms were not well set, and much of the content seemed to be only tangentially related / was not the focus of what we had been thought. Some concepts were similar to class content but different in the details, without this difference really being explicitly addressed. E.g. the perceptron trace question with a learning rate (which we had not been exposed to before), and with a different way of iterating through the points than the algorithm we learned.

I presume that the intention was to test our fundamental concepts and not have questions too similar to tutorials. That would have been fine, but the time given was really insufficient for us to understand the questions.

Some of the courseology assessment questions had vague phrasing, and we would really have benefited from model answers for all the open ended questions / feedback on whether our answers were acceptable.

The module and administrative content was a bit scattered on various platforms/mediums and could have been organized better. The release schedule for the weekly content was also inconsistent.

Overall:

The module contains very heavy content that relies a lot on the student's prior knowledge to understand. Although it does not have a lot of proofs, it actually also requires quite a bit of mathematical knowledge, and all these are not being clarified well. In the end, exams test on these as well.

Lectures: The notes felt very "messy", and it is really confusing as to what are the main ideas that one should take away from the slides. The content from the slides are not delivered well, with a lot of machine learning jargons, and most of the concepts are just described generally, without going in depth, which leads to a lot of confusion as online webcast progress.

I don't really like the flipped classroom approach in this module. Most of the weeks I have to spend ~2 days to watch the videos and do the colab assignments. It is very difficult and time consuming to grasp the concepts especially when we could only post questions in the forum and get delayed feedbacks on the questions we have. I went to the Thursday help session and it did help me a lot.

I felt like the workload of the module is really heavy and I spend most of my time struggling to understand the concepts in the videos and trying to finish the assignments on time. When it came to the second half of the semester, I am really lost and could not understand most of the slides and could barely catch up on the assignments and projects.

Workload is too much.

Way too time consuming. Each week there is a lecture + colab notebook + tutorial + project work to do. Sometimes the colab notebook can take very long to do, longer than the tutorial. Very high amount of material.

The course is rather high on the workload. In addition, while it is good that the course tries to be ambitious in getting students to learn, I thought that it was rather poorly executed, for a few reasons.

1) As I write this response, there is 12 hours left to submit the final project report, and the submission link is not even released yet.
2) I felt that the midterms was terribly set. The questions seemed very inconsistent across – I understand that it was set by the TAs instead of the lecturer, and it was a matter of each TA setting individual questions and stacking them up together to form a paper. I don't think that is a good idea. In addition, the time for midterms is too short. It feels like the teaching staff did not try the paper for

Comments

themselves to gauge how long it will take. Using MRQ instead of MCQ effectively doubles the time taken for each question.

3) Overall the workload is very heavy. In particular, the weekly colab notebooks are too heavy for 5%, in my opinion.

Nonetheless, I think the ambition is going in the right direction, just that it needs more refinement.

1)the way things are explained; some parts are so briefly explained and some parts werent even explained

2) the notations. cant we follow the notations in stats textbooks and use beta instead of theta. we should use notations from ISLR

The content of the module is not very sufficient to be able to do the project, for someone with no background.

The difficulty of the project was quite high, given that there are students who have not touched machine learning prior to this module. The scope of the project should also be narrowed. I felt that more hands-on exercises that are actually on the same difficulty level as the project could be given so that students would have a rough sense of how to process data / develop a model.

More practice questions that are relevant (ie, same standard of difficulty and format) to the midterms and finals should be given. Currently, I feel like I do not get enough useful practice material. If machine learning models need 80% of the data for training and 20% for testing, we should also be given the same ratio of practice:test materials to sufficiently train ourselves!

It feels like pure dumping of information. There is simply too much content to absorb. With this breadth and considering some attempt at depth, I wonder if this module should actually be split into two, with one focusing more on traditional/supervised ML, and the second about unsupervised/advanced techniques. Also, not a fan of the flipped classroom.

Weekly load towards the end too heavy

Too much theory

Too theoretical

Very abstract at times.

– Lecture delivery was severely hindered by the flipped lectures. Somehow in comparison with Caltech's flipped lecture, the lecturer did not have the ability to make students understand and stay engaged like the lecturer who did the Caltech lectures. I used to believe in flipped lectures but this module has proven me wrong completely and I hope future iterations will STOP using the flipped lecture format.

– The lecture videos were uploaded late sometimes and I really don't understand why this problem cannot be resolved at all since the module teaching staff likely could plan ahead. The consistency and relevance of the materials also presents a huge problem since the content materials were always changing and the videos did not reflect the changes. If this was the case, then telling students, who are already struggling with the content, to change/refer to other notation than what the video shows really poses a huge challenge to the learning process than to help.

– I completely understand that the Midterm MCQ options had to be randomised to prevent copying in the LT. But the scoring and process to de-randomise was sort of a disaster since so many mistakes were made and recalculation of the scores had to be done. As a result my scores changed so many times that the teaching team could lose some credibility for it. For matters like scores, either treat it seriously and ensure the random scoring works well, or just get an MPSH to simplify the process. Again, I am not so sure why this happens, so I will give the team the benefit of the doubt that the latter is difficult to achieve.

– The project was a huge difficulty for students since such a high standard was set for the project and the first half of the module almost did nothing to prepare students for projects. I found the project to be an activity that made me learn new things off the internet than to apply what was learnt in the module (at least up to the point of the project execution).

Too many things are happening at once. The content is as it is not simple and the admin makes it more complex. For e.g. I don't get the point of Pre and Post videos since the tutorial for the week covers everything anyway. Would be much better if the videos were just combined into Week X videos and there was one quiz.

I feel a more effective way of learning ML would be by application. For e.g. biweekly labs (coding assignments) where we get to use the algorithms taught in the previous weeks – maybe apply on the same dataset throughout the course or something. Colab notebooks are a good step but don't really help that much.

Weekly video lectures and assessments are too time-consuming. Lectures and notebooks/tutorials are inconsistent.

Too much content, the exam questions are hard.

not enough resources. don't know what's going on for the mathematical part.

Workload a bit too much. Project group should have peer review

Nil

the notes are not clear about the concept, introducing the symbols are they go along. Maybe we can add another slide after the recap to explain all the symbols that is going to be used. It would greatly help revision efforts that are otherwise spent on going through older notes to hunt down certain notations to understand their meanings

The colabs assignments are much harder than expected and doesn't serve to be complementary to the flipped classroom videos (i.e. there is a big gap between the videos and the colab).

Comments

There were too many components. The project itself took up a lot of time but did not hold a high enough weight. Also, the breakdown of percentage for each component was not clearly communicated to the students.

Syllabus are quite abstract for people new to machine learning

flipped classroom videos