

Report - DD2421 - 2024-08-07

Respondents: 1
Answer Count: 1
Answer Frequency: 100.00%

Please note that there is only one respondent to this form: the person that performs the course analysis.

Course analysis carried out by (name, e-mail):

Atsuto Maki (atsuto@kth.se)

DESCRIPTION OF THE COURSE EVALUATION PROCESS

Describe the course evaluation process. Describe how all students have been given the possibility to give their opinions on the course. Describe how aspects regarding gender, and disabled students are investigated.

The students were given an opportunity to complete a course evaluation, the standard process using the format, without any exceptions.

DESCRIPTION OF MEETINGS WITH STUDENTS

Describe which meetings that has been arranged with students during the course and after its completion. (The outcomes of these meetings should be reported under 7, below.)

During the preparation period for each of the three labs, we arranged Q&A time slots when students can directly meet a TA one-to-one, in addition to the drop-in hours. During Lecture 12 (the final lecture) we spent some time for Q&A (after the mini-lectures). The course also had a communication channel with the students course committee (kursnämnden).

COURSE DESIGN

Briefly describe the course design (learning activities, examinations) and any changes that have been implemented since the last course offering.

HT23 (P1) was the 13th course round of DD2421 preceded by the one in VT23 (P3).

The course provides an overview of the field of machine learning and describes a number of learning paradigms, algorithms, theoretical results and applications. It also covers some basic concepts of statistics, artificial intelligence and information theory relevant to machine learning.

Lectures were given by three teachers (6 by Atsuto Maki, 3 by Bob Sturm, 2 by Joÿg Conrad, and the last lecture consisting of mini-lectures on topics for studying machine learning beyond the scope of the course.

The materials are mainly based on James et al. [1], Prince [2], and Rojas [3] for supplementary reading, all available online.

[1] An Introduction to Statistical Learning (2nd edition), G. James, D. Witten, T. Hastie, R. Tibshirani, and J. Taylor (Springer, 2023).

[2] Computer Vision: Models, Learning, and Inference, Simon J.D. Prince (Cambridge University Press, 2012).

[3] Neural Networks – a Systematic Introduction, R. Rojas (Springer-Verlag, 1996).

We made the lecture slides available on Canvas, as well as recordings made from the previous course rounds during pandemic.

Three lab assignments orally examined by a group of TAs: 1. Decision Trees, 2. Support Vector Machines, and 3. Boosting.

Written exam consisted of questions corresponding to a learning outcome (full point 42). The score from the programming challenge (full point 18) was added, making the total up to 60 points. It was graded in the range of A-F.

The number of students was 247, some 30+ students increased from HT22 (was 211).

NB. In HT23 we used the 2nd edition of [1] for the recommended reading.

THE STUDENTS' WORKLOAD

Does the students' workload correspond to the expected level (40 hours/1.5 credits)? If there is a significant deviation from the expected, what can be the reason?

All in all the distribution of students' workload appears to correspond to the expected level.

Some comments: "The workload is balanced", "It required a reasonable amount of time", "The workload was in line with what would be expected from a course of this extent". They sounded to reflect that it is reasonable on average.

THE STUDENTS' RESULTS

How well have the students succeeded on the course? If there are significant differences compared to previous course offerings, what can be the reason?

The highest number of students received 'C', 51, followed by 'B', 'D', and then 'A' by 28 students. The number of students that failed was 22.

This is a very similar distribution to that of the previous course round, VT23.

STUDENTS' ANSWERS TO OPEN QUESTIONS

What does students say in response to the open questions?

Some positive comments included: "Great introduction to machine learning", "I like the focus on applications", "It covered many interesting areas and had good mix of overview and details", "How the professors seemed to be up to date with everything new coming in the field", whereas some others suggested to "Include exercise sessions", "have practiced the math behind the concepts more", and to improve the logistics of the popular programming challenge. That is, just this time after many course rounds there were some opinions on it, e.g. to avoid scheduling it before the exam. (However a window of one week is there with reasons, not to collide with labs, and for the sake of flexibility, whereas it is not expected to take one week. We will see if those are just one time feedback, or reappear in the next course rounds.)

SUMMARY OF STUDENTS' OPINIONS

Summarize the outcome of the questionnaire, as well as opinions emerging at meetings with students.

Largely well accepted as a nice course, as in the previous course rounds. (A possible misunderstanding was that one requested the recorded materials from the pandemic time to be uploaded before the lectures - it had been made clear that those were only supplementary I although the materials themselves were well received.)

OVERALL IMPRESSION

Summarize the teachers' overall impressions of the course offering in relation to students' results and their evaluation of the course, as well as in relation to the changes implemented since last course offering.

The shape of the polar diagram looked very similar to HT22, mostly balanced but with exceptions of lower scores in two items as is always the case with this course: 5. I felt togetherness with others on the course, and especially 20. I had opportunities to influence the course activities. Those can be seen natural considering the large number of participants, yet those scores have slightly improved ca. 0.5 points.

ANALYSIS

Is it possible to identify stronger and weaker areas in the learning environment based on the information you have gathered during the evaluation and analysis process? What can the reason for these be? Are there significant difference in experience between:

- students identifying as female and male?
- international and national students?
- students with or without disabilities?

Due to the low number of answers analyses not available this time.

PRIORITIZED COURSE DEVELOPMENT

What aspects of the course should be developed primarily? How can these aspects be developed in short and long term?

This was the 13th course round as stated above, and the course appears to be well established through revisions of contents. According to students' feedback we keep some aspects for further improvements in the medium/long term:

- written exercises in some form / adding extra study sessions (though it would require more resources),
 - adding another lab
-

OTHER INFORMATION

Is there anything else you would like to add?

The programming challenge designed and coordinated by Bob Sturm. The team of TAs headed by Alex Kozlov. Gratefully acknowledged.
