Report - DD2421 - 2022-09-23

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):
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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.

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.
Lecture 12 (the final lecture) was given on site, following the 11 Zoom lectures, where we spent some time for Q&A (after three mini-lectures).

COURSE DESIGN
Briefly describe the course design (learning activities, examinations) and any changes that have been implemented since the last course offering.
VT22 (P3) was the 10th course round of DD2421 (4th with Zoom lectures) preceded by the one in HT21 (P1). Students were free to choose one of the two course rounds, and hence the two were meant to be similar.

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. The course design was basically kept the same as in HT21 in terms of lectures, labs, and the format of written exams as well as the programming challenge.

Lectures were given by three teachers (6 by Atsuto Maki, 3 by Bob Sturm, 2 by Jörg Conradt, and the last lecture consisting of three mini-lectures by all 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, G. James, D. Witten, T. Hastie and R. Tibshirani (Springer, 2013).
[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 and recordings available on Canvas.

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

Open-book online written exam consisted of ten questions corresponding to a learning outcome (full point 42). The given duration was 24h to avoid clashes with other courses' exams. 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 280, more or less the same as in VT21.

THE STUDENTS' WORKLOAD
Does the students' workload correspond to the expected level (40 hours/1.5 credits)? If these is a significant deviation from the expected, what can be the reason?
The distribution of students' workload seems to correspond to the expected level, similar to that in VT21 (comparison to P3 rather than P1 assuming that the background of students are similar).
Some comments: "perfect","reasonable","I think I spent roughly the time needed for the course according to the points it was given", but one said "pretty light". The average appears to have decreased a little, but it's hard to compare given that only 20 students answered the survey this time (was 45 in VT21),

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 overall tendency remained the same as in VT21 with the highest number of students receiving 'B'. Fewer students received 'D' and 'A' however whereas more received 'C', which made the performance look more homogeneous in this course round.

STUDENTS´ANSWERS TO OPEN QUESTIONS
What does students say in response to the open questions?
Labs and the programming challenge positively referred to by multiple students, including "I think the labs were great, no need for improvement there". Also mentioned was to add another lab, and to give context on the programming challenge.

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.

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 polar diagram looked similar to VT21, mostly balanced as expected, with scores largely around 6 and exceptions in two items: 5. I felt togetherness with others on the course, and 20. I had opportunities to influence the course activities, where the scores were around 4.5. Those can be seen natural considering the large number of participants. There was also a specific comment on 5, "Because of the online format" (My response was: -2).

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?

Analyses not available this time due to the low number of answers, but a comment was given by an international student - "All teachers had good knowledge of English, so everything was great!"

PRIORITIZED COURSE DEVELOPMENT
What aspects of the course should be developed primaily? How can these aspects be developed in short and long term?

This was the 10th 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:
• adding another lab,
• written exercises in some form / adding extra study sessions (though it would require more resources),
• introductions of latest applications of introduced machine learning methods.

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.