Course Summary for GIS algorithms NGEN06/EXTQ05 ht 2022

Course coordinator: Lars Harrie

Teachers in the course: Lars Harrie, David Tenenbaum, Pengxiang Zhao, Rachid Ouceikh, Zheng Duan, Helen Elven-Eriksson

Number of students: 21

Grade distribution: 1 UK, 2 G, 7 VG + LTH grades

Evaluation

Summary of the course evaluation

Number of survey responses: 8, of which is 40 % of the students

Short summary of the evaluation responses: In general the students were satisfied with the course. The students were particularly satisfied with getting an overview of the algorithms used and the balance between theory and practice.

The programming exercises were earlier (until around 2020) in Matlab. They are now in Python, which have made the exercise more difficult. So, the main problem this year was that many students had problems with the Python exercises, especially the LTH students that have not coded in this programming language before. Some students argue that their struggles to understand the code have taken away from and limited their grasp of the algorithms themselves. Another comment from the students, which has been common during the last years, is that this period has a hard work load.

Most students like the project work in scientific writing and appreciate the opportunity to enhance and practice their writing skills. But, as usual, there are a couple of students that feel they have a good background in writing, and therefore think that the project is a waste of time. On the other hand, many students find that scientific writing is a skill that has to be constantly improved and therefore these types of exercises are essential.

Comments from the course representative

Overall, from reading the responses and from discussions held with the classmates it is clear that everyone was satisfied with the module. However, it is worth to note that some Geomatics master students that did not attend the exercises in person have not found the exercises as difficult as the students who attended them. This makes us believe that it is not the programming language that was the difficult part, but the way it was presented during the exercise time. Geomatics students have completed a 15 credit programming course in Python ahead of this module, so the language itself was very fresh in their minds. It is my belief that the LTH students had a harder time understanding the exercises because of the lack of Python (or any other programming language) knowledge, but the main problem was the description, structure, and presentation of the exercises.

Another common point raised throughout the course was the heavy workload, especially during late November and December. In some students' opinions, both Web GIS and the Algorithms in GIS should have 15 credits each.

When it comes to scientific writing, apart from one student, everyone I spoke to was satisfied with this exercise and found it useful.

Comments from the teaching team

Generally, there were more negative comments on the course than previous years. This may be a result of that the change of programming language have made the exercises more difficult.

We are aware of that some students do not like the scientific writing project. But most students do. And we have also seen that on a group level the ability to write has improved on the master thesis. This means that we will keep the project work as it is. But it is good to keep track of the student opinions here. When/if the students get a better background in writing, the direction of the project work should change.

Evaluation of changes implemented since the last time the course was given Between 2021 and 2022 no changes in the course was done.

Suggestions for changes to implement before the course is given the next time Until next year the following things will be updated in the course:

The course will be given in HT1 instead of HT2. Therefore, there will be some changes in the schedule. While changing the period we will go through the workload (with the parallel Web GIS course) to get a more even work load.

The part of the course dealing with 3D city models will move to the new "3D course". So will also the visit to the VR-lab.

The ethics in AI lecture will move to the new Geo-AI course.

New lectures and programming exercises will be added. Possible topics are algorithms in map labeling and map projections.

Perhaps a new guest lecture will be added.

An optional introduction exercise to Python will be added (especially for the LTH students).

More focus on the programming exercises to connect to the theory, and breaking down the exercises to smaller steps.