20220209

Evaluation of NGEN06/EXTQ05 HT-21

This course has been running for more than a decade. This year around 15 students most were science students, but there were also three LTH students. Six of the students conducted the written course evaluation and they were generally satisfied with the course.

Most of the course was given on campus. Some lectures and exercises were given online due to the pandemic situation. Since the course was given online previous year prerecorded lectures were added to Canvas (with similar content as the campus lecture). In the evaluation the students were asked their opinion concerning prerecorded and campus lectures. Several students have used the prerecorded lectures. e.g. as a preparation for the exam, an option to study from home, and effective material to understand the tricky part. But they also remarked that the prerecorded lectures cannot replace the campus lectures, because two-way communication is important during the study. Several suggested a combination of both types of lectures should be provided, learning basic knowledge by prerecorded lectures while talking about further questions in campus lectures.

The exam was given on campus. Generally, the result on the exam was good.

The programming exercises are a central part of this course and several of the students exemplify this when asked about what they like most in the course. Students appreciated the reasonable difficulty of the exercises, which are challenging but doable. The material provided appropriate hints and guided students to think about the solutions, most of the students felt the fun of coding the algorithms. This attractive way stimulated the students to learn the basic algorithms in GIS, they found the algorithms were quite interesting and could be applied in a wider field. Sufficient programming exercises consolidated the programming ability of Python or Matlab and led students to think about the basic GIS algorithms from a programming perspective.

Some students argued that the part of the course about 3D GIS (City models and GeoBIM) and one tutorial type of exercise (in CityEngine) did not really fit well into the course, and the course coordinator fully agrees on this. However, currently there is no better course to place the 3D GIS part (which is quite central, and several students conducted their master thesis related to this topic). The plan is to move the 3D GIS part to a new course that will be given first time autumn 2023. Until then the plan is to keep it as it is, even though the placement of 3DGIS is not optimal.

In the answer about the missing parts in this course, several students mentioned that they would like to go through it in-depth and learn about the current trend of the applications of the GIS algorithms but they have limited time. Other students gave suggestions to introduce the current trend in campus lectures. Because it already has prerecorded lectures which provide pretty good background knowledge about how the basic algorithms work. The time of campus lectures could be saved for the current trend. Students also talked about the exercises about CityEngine, which only show how to create 3D model in CityEngine. But
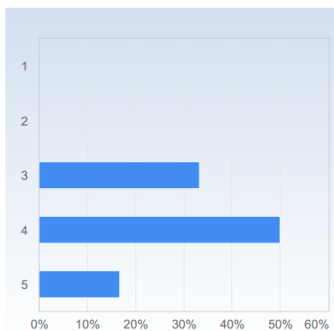
after finishing this exercise they can neither grasp the mechanism nor deal with 3D data structure. As the 3D part will be a new course 2023, these problems would be solved.

The scientific writing project worked well this year, and most students appreciated this part. Several have noted that the project is useful for the master thesis writing and literature search. The teacher asked about the evaluation in the final session. Since the students in this course are either the first year or the second year masters, those in their second year hope this course to be opened earlier. Writing and literature searching skills are not only useful in the master thesis, but also in the submissions of other courses, and these skills would help students in the whole program. Several students argued about the timeline of project submissions. The first draft would be given to the teacher and a peer to review, so it should be clear enough to make others understand. The students considered the first draft means 70-80% of the final report and need more time to be prepared. They hope to postpone the deadline to December.

The second part of the autumn year two (Web GIS and Algorithms GIS) is regarded as the hardest part in the Geomatics program (in terms of time spent for the students). This was also indicated in the course evaluation this year, see figure below. More than half of the students thought the workload is more difficult than 7.5 ECTS, especially for the ambitious students that want to get a high grade. There is a suggestion from course evaluation that starts the algorithm course with python and finishes it with web GIS. Although the exercises of algorithms require background knowledge of programming, we can do some of them during the python course. For example, the Dijkstra algorithm can be solved after learning the list, dictionary, and loop; the raster algorithm can be done by array and function.

How was the workload in this course in relation to to the ECTS credits? (1=too easy - 5=too difficult) (7.5 ECTS=5 weeks 100%)

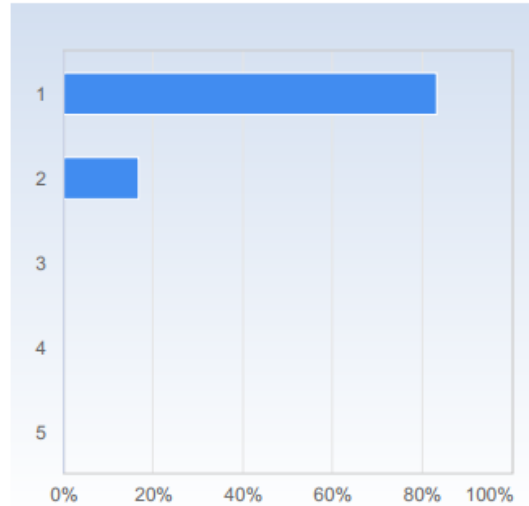| How was the workload in this course in relation to to the ECTS credits? (1=too easy - 5=too difficult) (7.5 ECTS=5 weeks 100%)	Number of responses
1	0 (0,0%)
2	0 (0,0%)
3	2 (33,3%)
4	3 (50,0%)
5	1 (16,7%)
Total	6 (100,0%)

The student feel that this course is beneficial for their continuing studies and working life, which is of course a min point of this a course. The algorithms referred to in this course guide the students to understand how the algorithm works, while the project provides an opportunity to learn an interesting algorithm independently. After these, the students will gain the ability to learn an unfamiliar algorithm from scratch. And the programming skill can also be improved in this course, which is super helpful even students will not continue in the GIS field.

I judge that through this course I have developed valuable knowledge / skills for my continuing studies and working life.
(1=I agree strongly - 5=I totally disagree)

I judge that through this course I have developed valuable knowledge / skills for my continuing studies and working life. (1=I agree strongly - 5=I totally disagree)	Number of responses
1	5 (83,3%)
2	1 (16,7%)
3	0 (0,0%)
4	0 (0,0%)
5	0 (0,0%)
Total	6 (100,0%)

Lars Harrie
Course coordinator

Wenjing Liu
Student representative