

Course Summary for NGEN08 Satellite Remote Sensing vt 2020

Course coordinator: Lars Eklundh

Teachers in the course:

- *Jonas Ardö, professor (JA)*
- *Lars Eklundh, professor (LE)*
- *Sofia Junttila, PhD candidate (SJ)*
- *Per-Ola Olsson, postdoctoral researcher, (PO)*
- *Vaughan Phillips, senior lecturer (VP)*
- *Tetiana Svystun (doktorand) (TS)*
- *Torbern Tagesson, postdoctoral researcher (TT)*
- *David Tenenbaum, senior lecturer (DT)*
- *Feng Tian, post-doctoral researcher (FT)*

Number of students: 27 registered students

Grade distribution: G (pass), VG (pass with distinction).

Evaluation

Summary of the course evaluation

Number of survey responses: 23, which is 85 % of the registered students. *Short summary of the evaluation responses:* The result for 2020 was very good, particularly considering the rapid switch-over to on-line teaching to deal with the closing of the premises due to the Corona virus. The overall course grade was 4.1 (on a scale 1-5), and fulfilment of objectives in the course curriculum of 4.3. This is slightly lower compared to the 2019 grades (4.5 and 4.9 respectively). The students were satisfied with most of the lectures, exercises, and training in communication. As usual, students noted that the course is at times demanding, and there were some complaints that the load was uneven in time. This calls for some further adjustments and reallocation of time devoted for some of the exercises.

A general dissatisfaction was noted for the time-series exercise, which received many negative comments that it is very complex and stressful. Clearly it was one of the exercises that suffered a lot from being run remotely rather than on-campus.

Corona-related comments: Overall, lecturing over the Internet was well received (grade 4.3 of 5), particularly when lectures were recorded as videos that the student could review when studying for the exam. Exercises sometimes did not work too well over the internet (grade 3.7), particularly discussions in groups. It was pointed out by the students that it is necessary to have on-line support, not only e-mail. Discussion in group may need some other type of organization if the course is carried out on-line in the future. Discussion forums could be a solution, and generally students felt that Canvas was a useful platform. It was noted by

many of the teachers that it is difficult to reach out to some of the students over the Internet. The level of student-student and student-teacher interaction was clearly lower than during normal circumstances. Unfortunately, the field-data component had to be cancelled which was very unfortunate.

Conclusion: The 2020 version of the course was not without negative comments for particular course components. The distance learning situation induced more stress than usual. However, overall, the course remains popular and is perceived among students as having high quality. Some particularly encouraging comments were:

I loved it and glad i took the course. Very practical and skill-oriented. It also boosted my confidence in using or applying remote sensing techniques. A big thank you to all the teachers.

A really nice and well taught course, all things considered. I am surprised how well the shift to online learning worked. I feel like I have learned a lot, thanks!

The distance part is quite hard, such as using distance control to lab computer and download data. Also the communication with classmates are much harder by screen

Nothing is perfect but this was not that far from it ! :)

Comments from the teaching team

The teachers have been given opportunity to comment, and one teacher suggested to remove one exercise (literature essay) to give more time to the time-series exercise.

Evaluation of changes implemented since the last time the course was given Since 2019 we added two exercises (Big data processing with Google Earth Engine, and Ethics applications) and made some schedule changes to make place more space for the two heaviest exercises. Although these new exercises were well received it coincided with the Corona outbreak which meant extra stress for the students. The Ethics exercise is there to stay, but it may be better to incorporate the Big data aspects into other components.

Suggestions for changes to implement before the course is given the next time Next year, it is high priority to modify the time-series analysis and add more supervision time for it. It will probably be necessary to remove one of the exercises (Essay or Big data). It is also an ambition to upgrade the machine-learning aspects of the course to make the classification exercise more up-to-date. The course critique also highlighted the need to add the requirement of introductory GIS as a prerequisite, although this need was mostly alleviated by introduction of some raster GIS before starting the remote sensing exercises.

2020-06-23, this summary was made by Lars Eklundh