GEOG-G302 Remote sensing 1

2. Course code

GEOG-G302

3. Course status: compulsory or optional

Compulsory for students specializing in geoinformatics, optional for students in other study lines of geography.

geography

GEOG-G300

The course is available to students from other degree programmes, but the number of students may be limited. Priority is given first to students specializing in geoinformatics, then geography and then students of other degree programmes.

4. Course level (first-, second-, third-cycle/EQF levels 6, 7 and 8)

Master's and PhD level, second- and third-cycle, EQF levels 7-8

advanced studies

5. Recommended time/stage of studies for completion

1. year of M.Sc. Studies.

6. Term/teaching period when the course will be offered

fall term, period 1

7. Scope of the course in credits

5 cr

8. Teacher coordinating the course

Petri Pellikka

9. Course learning outcomes

Remote Sensing 1 course provides the students: 1) understanding of the principles of remote sensing, including physical background and different sensors and their characteristics; 2) understanding of the role of remote sensing in different application areas and in society; 3) skills in searching data from remote sensing data repositories; 4) familiarity with the image processing and interpretation techniques in satellite remote sensing; 5) skills to apply basic classification techniques to acquire land cover information.

10. Course completion methods

The lectures (20 hours) of the course will take place intensively from week 37 to week 41 in the 1st period, two times a week. The practicals will start a week after the lectures consisting on 10 practical times (40 h). There is also a reading package and an exam.

11. Prerequisites

BSc level studies Geoinformatiikan menetelmät 1 and Geoinformatiikan menetelmät 1 or equivalent.

12. Recommended optional studies

Remote Sensing II, Imaging Spectroscopy.

13. Course content

The main goal of the course is to introduce the application of optical remote sensing data in geographical research, mainly in land cover studies. During the practicals image processing steps ending into land cover classification are presented and taught. During the course many examples about environmental remote sensing applications are presented. The course contents are 1. background of remote sensing, 2. physical principles of remote sensing, 3. different optical remote sensing data types, 4. radar and lidar remote sensing data types, 6. basics of remote sensing of vegetation, snow, water and land cover change, 7. land cover classification using various methods.

14. Recommended and required literature

A list of recommended literature is provided on the course Moodle.

15. Activities and teaching methods in support of learning

The course is organized in a lecture + exercise session format. The lectures and exercise sessions are organized weekly. The exercise sessions allow students to develop their remote sensing skills and receive help from course assistants.

There will be an exam at the end of the course about the lecture and literature content of the course. The students will make a final report of the course including description of each exercise and a final exercise which is carried out applying the knowledge gained during the course. Evaluation and feedback will follow within four weeks after receiving the final assignments.

16. Assessment practices and criteria, grading scale

The course is evaluated on the scale 1-5 for those passing the course. The evaluation of students will be based on their performance in the exam (50%) and the exercise report (50%).