GEOG-324 Imaging spectroscopy

2. Course code

GEOG-324

3. Course status: compulsory or optional

Optional for students specializing in geoinformatics and those in the geography degree programme.

geography

GEOG-300

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 level, PhD level, EQF levels 7 and 8

advanced studies

5. Recommended time/stage of studies for completion

2. year of M.Sc. Studies

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

spring term, period 4.

7. Scope of the course in credits

5 cr

8. Teacher coordinating the course

Matti Mõttus (Petri Pellikka)

9. Course learning outcomes

After the course, 1) the student recognizes the role of imaging spectroscopy in environmental monitoring tasks; 2) the student understands the basic physical quantities and processes related to imaging spectroscopy; 3) the student is able to process real imaging spectroscopy data to produce maps of environmental variables.

10. Course completion methods

Contact teaching (lectures and practicals), practicals compulsory; all reports and assignments have to be handed in.

11. Prerequisites

Basic knowledge of passive optical remote sensing and GIS is required. Prerequisite courses Remote Sensing 1, Introduction to advanced geoinformatics.

12. Recommended optional studies

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13. Course content

The aim of the course is to give a more detailed overview of imaging spectroscopy concentrating on environmental applications. Lectures will cover the basics of IS instrumentation, processing tools and algorithms. Practical work will be carried out with the ENVI software package and tools specifically designed for preprocessing airborne imaging spectroscopy data. During the course, students will get hands-on experience with preprocessing and analyzing both air- and satellite-borne imaging spectroscopy data. The airborne data has been collected by the AISA Eagle instrument owned and operated by the Department of Geosciences and Geography.

Note: to obtain a personal temporary license for the ENVI software package, students are asked to give their contact information to Harris Geospatial (www.harrisgeospatial.com)

14. Recommended and required literature

Lecture notes and (research) articles available in Moodle.

15. Activities and teaching methods in support of learning

The course is organized in an intensive lecture + exercise/discussion session format.

16. Assessment practices and criteria, grading scale

The grade is based on reports of the assignments, evaluated on scale 0-5.