

# Syllabus

for course at advanced level

**Advanced Remote Sensing**

**Avancerad fjärranalys**

**15.0 Higher Education**

**Credits**

**15.0 ECTS credits**

<b>Course code:</b>	GE8028
<b>Valid from:</b>	Autumn 2017
<b>Date of approval:</b>	2016-11-21
<b>Department</b>	Department of Physical Geography
<b>Main field:</b>	Physical Geography and Quaternary Geology
<b>Specialisation:</b>	A1F - Second cycle, has second-cycle course/s as entry requirements

## Decision

This syllabus has been approved by the Board of Science at Stockholm University 2016-11-21.

## Prerequisites and special admittance requirements

Admission to the course requires knowledge equivalent to at least 90 ECTS credits within biology-earth sciences, Earth sciences, geography, or equivalent science or civil engineering competence and that must include the course Applied Remote Sensing and GIS for Landscape Analysis, 15 ECTS credits (GE7062). Also required is knowledge equivalent to Swedish upper secondary school course English 6/English B.

## Course structure

Examination code	Name	Higher Education Credits
TEOR	Theory and practice	8
PROJ	Project	7

## Course content

a. The course addresses the processing of remote sensing data for applied environment monitoring and analysis. Included in the course material is enhanced theory regarding remote sensing's physical basis, data calibration and correction, image processing algorithms and data quality issues including validation.

b. The course consists of the following course units:

1. Theory and Practice (Teori och praktik), 8 credits
2. Project (Projekt), 7 credits

## Learning outcomes

Upon completion of the course, students are expected to be able to:

- Explain the principles of calibration and image processing for satellite and airborne sensors (Course unit 1)
- Evaluate and analyse image data from satellites using advanced image processing methods (Course units 1 and 2)
- Evaluate data quality in remote sensing products (Course units 1 and 2)

## Education

Instruction consists of seminars, exercises and project work.

Participation in seminars, exercises and project work and any associated integrated instruction is compulsory. In the event of special circumstances, the examiner may, after consultation with the teacher concerned, grant a student exemption from the obligation to participate in certain compulsory instruction.

Instructions are in English.

### **Forms of examination**

a. The course is examined as follows: Knowledge assessment takes the form of:

- Written examination
- Written and oral presentations of exercises and project work.

Examination is in English.

b. Grades will be set according to a seven-point scale related to the learning objectives of the course:

A = Excellent

B = Very good

C = Good

D = Satisfactory

E = Adequate

Fx = Fail, some additional work required

F = Fail, much additional work required

c. The grading criteria will be distributed at the beginning of the course.

d. To be awarded a pass, the minimum grade E is required and

- Participate in all mandatory instruction
- Approved written examination and oral presentations of group instructions.

e. Students who receive a failing grade on a regular examination are allowed to retake the examination as long as the course is still provided. The number of examination opportunities is not limited. Other mandatory course elements are equated with examinations. A student who has received a passing grade on an examination may not retake the examination to attain a higher grade. A student who has failed the same examination twice is entitled to have another examiner appointed, unless there are special reasons to the contrary. Such requests should be made to the department board.

The course includes at least two examination opportunities per year when the course is given. At least one examination opportunity will be offered during a year when the course is not given.

f. Students awarded the grade Fx are given the opportunity to improve their grade to E. The examiner decides the supplementary assignments to be performed and the pass mark criteria. The supplementary assignments will take place before the next examination session.

### **Interim**

Students may request that the examination be conducted in accordance with this course plan even after it has ceased to be valid. However, this may not take place more than three times over a two year period after course instruction has ended. Requests must be made to the departmental board. The provision also applies in the case of revisions to the course plan and the revisions of the course literature.

### **Limitations**

The course may not be included in examinations in combination with courses Geographic Data Collection and Processing in Remote Sensing, Advanced Course (NK3670), Positioning, Map Projections, Digital Photogrammetry and Remote Sensing (GE7019), Remote Sensing and Digital Image Processing (GE7031) or equivalent.

### **Misc**

The course is part of Master's Programme in Geomatics with Remote Sensing and GIS but can also be read as a separate course.

### **Required reading**

The course literature is decided by the department board and published on the Department of Physical Geography's website at least two months before the start of the course.