

# Syllabus

for course at advanced level

**Advanced Remote Sensing**  
**Avancerad fjärranalys**

**15.0 Higher Education  
Credits**  
**15.0 ECTS credits**

<b>Course code:</b>	GE7090
<b>Valid from:</b>	Spring 2022
<b>Date of approval:</b>	2021-04-29
<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 course syllabus was approved by the Board of Science at Stockholm University on 29/04/2021.

## Prerequisites and special admittance requirements

For admission to the course, knowledge is required equivalent to 120 ECTS credits of completed courses, of which 90 ECTS credits has to be in one of the following subjects: biology-earth sciences, geography, geology, Earth sciences, environmental sciences, physical geography, or urban and regional planning. Or 120 ECTS credits completed courses, of which 90 ECTS credits in biology including at least 15 ECTS credits in ecology. Alternatively 30 ECTS credits from one of the Master Programmes at the Department of Physical Geography at Stockholm University.

In addition, it is required to have knowledge corresponding to the course Applied Remote Sensing and GIS for landscape analysis 15 credits (GE7088) or at least a 7.5 credits in Remote Sensing. English 6 or equivalent.

## Course structure

Examination code	Name	Higher Education Credits
DEL1	Theory and Practice	8
DEL2	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 (module 1)
- evaluate and analyse image data from satellites using advanced image processing methods (module 1, module 2)

- evaluate data quality in remote sensing products (module 1, module 2)

### **Education**

Instruction consists of seminars, exercises and project work.

The course is offered in English.

### **Forms of examination**

a. The course is examined in the following manner:

Assessment of module 1 takes place through written exams

Assessment of module 2 takes place through written and oral exams of individual project work.

The examiner can decide on adapted or alternative examination formats for students with disabilities.

Late submission of the individual project work has consequences for the final grade of the course. These consequences are described in detail in the grading criteria of the course.

The examination will be conducted in English.

b. A passing final grade requires participation in seminars. If special reasons exist, following consultation with the teacher involved, the examiner may grant the student exemption from the obligation to participate in certain compulsory instruction.

c. Grading: The course's final grade is set according to a seven-point criterion-referenced scale:

A = Excellent

B = Very good

C = Good

D = Satisfactory

E = Adequate

Fx = Failed, some additional work is required

F = Failed, much additional work is required

Grades of module 1 and module 2 will be set according to a seven-point criterion-referenced scale.

A passing final grade requires passing grades on all included parts.

The final grade of the course is determined by weighing the grades from all course modules, where each grade is weighed in relation to the scope of the course modules.

d. The course's grading criteria are handed out at the start of the course.

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 three examination opportunities per academic year the course is offered. For the academic years that the course is not offered, at least one examination opportunity is offered

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

### **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 the course was discontinued. Requests must be made to the departmental board. The provision also applies in the case of revisions of the course syllabus and revisions of the required reading.

### **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),

Advanced Remote Sensing (GE8028) or equivalent.

**Misc**

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

**Required reading**

The required reading is decided by the department board and published on the course catalog at least 2 months before the start of the course.