



# F1E5007 Physical Geodesy 7.5 credits

## Fysikalisk geodesi

This is a translation of the Swedish, legally binding, course syllabus.

If the course is discontinued, students may request to be examined during the following two academic years

## Establishment

Course syllabus for F1E5007 valid from Autumn 2016

## Grading scale

undefined

## Education cycle

Third cycle

## Specific prerequisites

Basic knowledge in physical geodesy at master level.

## Language of instruction

The language of instruction is specified in the course offering information in the course catalogue.

## Intended learning outcomes

After completing this course, students should

- have deep understanding of the mathematical and physical foundation for representation and determination of the earth's gravity field
- have acquired practical skills in performing relevant numerical investigations
- be familiar with different geoid determination methods, in particular methods developed at KTH.
- be able to relate the earth's gravity field to studies of the earth system including global climate change

## Course contents

- Potential theory. Geodetic boundary value problems
- Legendre functions and spherical harmonics
- Theory of Stokes, Molodenskii and Bjerhammar
- Least squares collocation
- Gravity reduction, isostasy and Moho surface
- Numerical computation of the geoid
- Dedicated satellite gravity missions
- Least squares modification of Stokes' formula by combining with global gravitational models

## Course literature

Heiskanen and Moritz (1967). Physical geodesy

Moritz (1980). Advanced physical geodesy.

Sjöberg (2011). The KTH approach to modelling the geoid.

## Examination

Based on recommendation from KTH's coordinator for disabilities, the examiner will decide how to adapt an examination for students with documented disability.

The examiner may apply another examination format when re-examining individual students.

## Other requirements for final grade

Written examination (TEN1), 7,5 credits.

## Ethical approach

- All members of a group are responsible for the group's work.
- In any assessment, every student shall honestly disclose any help received and sources used.
- In an oral assessment, every student shall be able to present and answer questions about the entire assignment and solution.