

**NGEA19, Physical Geography: Geographical Information
Systems - an Introduction for teachers, 15 credits**
*Naturgeografi: Geografiska Informationssystem - en introduktion
för lärare, 15 högskolepoäng*
First Cycle / Grundnivå

Details of approval

The syllabus was approved by Study programmes board, Faculty of Science on 2014-03-25 to be valid from 2014-03-25, autumn semester 2014.

General Information

Freestanding course

Language of instruction: Swedish

Main field of studies

Physical Geography and Ecosystem
Analysis

*Depth of study relative to the degree
requirements*

G2F, First cycle, has at least 60 credits in
first-cycle course/s as entry requirements

Learning outcomes

The course targets teachers, both active and under education. The aim of the course is to give basic knowledge about concepts and methods within treatment and analysis of geographic data with geographic information systems (GIS) and an introduction to cartography and geodesy. The course also intends to give the student understanding of how geographic data and analytical methods can be used in teaching on mainly upper-secondary level.

Knowledge and understanding

On completion of the course, the student should be able to:

- describe different conceptual models of spatial phenomena
- describe different data models of digital spatial data (raster and vector models) and know how these can be stored in computers

- account for basic spatial analytical methods
- account for basic cartographic methods
- explain principles of map projections, geodesic reference systems and coordinate systems
- explain principles of simple interpolation methods
- describe basic structure for relational databases

Competence and skills

On completion of the course, the student should be able to:

- organise and handle geographic data with computer
- carry out basic analyses of geographic data in different format by means of standard software for GIS
- plan and present procedure and results of collection and analysis of geographic data in an appropriate manner (particularly maps) for specialists and laymen
- carry out and present simple evaluations of interpolated spatial data
- use simple database management including SQL
- understand the principle for and be able to use GPS
- correct and prepare existing spatial data to fit for usage in teaching on primary and secondary schools
- have tested some different softwares for handling of geographic data and assess their suitability for different applications at a general level
- independently be able to search, quality assess and order/download public data from larger national and international databases

Judgement and approach

On completion of the course, the student should be able to:

- be aware about the importance of and have self-confidence to use geographic information and analysis within different application fields
- have self-confidence to be able to assess the suitability of different GIS software in different teaching situations
- had achieved a critical approach to geographic data, geographic analytical methods and analysis results

Course content

Course gives a broad theoretical and practical ground for further development of working abilities with digital geographic data. Understanding of representation and analysis of spatial elements are emphasised. The course also highlights general geographic problems through practical applications within e.g. environment and society. Examples are brought from both Swedish and international conditions and vary in scale from local to regional. The course is divided into thematic parts that include theory and practice most often in the form of practical exercises but also theoretical assignments connected to parts of the course occur. Strong emphasis is placed on didactic aspects and learning processes. The course contains both less and more extensive parts that include production of course materials and proposal of both theoretical and practical course modules based on relevant course syllabi (mainly primary and secondary school levels)

Course design

The course is a distance course and is distributed on the Internet. The study tempo is flexible and the course can be carried out on full, half or part-time.

Examination takes place through written take-home examination at the end of the course and via written assignments during the course.

Assessment

To pass the course, passed written assignments and passed results of examination are required.

A re-sit is offered in close connection to the regular examination

Subcourses that are part of this course can be found in an appendix at the end of this document.

Grades

Marking scale: Fail, Pass.

Entry requirements

General entry requirements, at least 60 credits academic studies and that the applicant carries out teacher education or has gone through teacher education.

Further information

May not be included in a degree together with the courses NGEA13 and NGEA14. The course can not be included in a higher education qualification together other courses of the same type independently of at which higher education institution these been studied. Examples of courses at Lund's university are

GISA21 GIS: Geographical Information System- Introduction, 15 credits

NGA05 GIS and remote sensing in environmental science, 15 credits

NGEA11 Geographic Information systems- Basic course, 15 credits

NGEA18 Geographic information systems- an introduction, 15 credits

SGEG10 Geographic Information systems for social scientist- introduction with applications 30 credits

Subcourses in NGEA19, Physical Geography: Geographical Information Systems - an Introduction for teachers

Applies from H14

1401 Geographical Inf Systems - an Introduction for Teachers, 15,0 hp
Grading scale: Fail, Pass