



**LUND**  
UNIVERSITY

Faculty of Science

## **GISN21, GIS: GIS and Statistical Analysis, 5 credits**

*GIS: GIS och statistisk analys, 5 högskolepoäng*

Second Cycle / Avancerad nivå

---

### **Details of approval**

The syllabus was approved by Study programmes board, Faculty of Science on 2012-11-29 to be valid from 2012-11-30, spring semester 2013.

### **General Information**

The course is an elective course for second-cycle studies for a Degree of Master of Science (120 credits) in geographic information science.

*Language of instruction:* English

*Main field of studies*

Geographical Information Science

*Depth of study relative to the degree requirements*

A1N, Second cycle, has only first-cycle course/s as entry requirements

### **Learning outcomes**

The course intends to give detailed knowledge within basic statistical methods with special specialisation on geographic data. The course treats distributions, populations, statistical analysis and error propagation.

*Knowledge and understanding*

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

- interpret and discuss geographic data from a statistical perspective thoroughly
- understand correlation and regression analysis
- explain hypothesis test with geographic data,
- describe the error propagation that can arise in a geographic analysis at a general level
- understand spatial autocorrelation
- illustrate occasions for the use of regional variable theories.

### *Skills and ability*

On completion of the course, the student is expected to be able to:

- use and explain statistical measures,
- independently carry out analyses and interpret results from correlation and regression analyses,
- understand and to apply special spatial methods on applicable data
- plan and carry out a hypothesis test
- carry out a geostatistical analysis by applying regional variable theory.

### *Judgement and approach*

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

- independently evaluate and interpret both spatial and common statistical measures and methods,
- evaluate the reliability in analyses implemented with different statistical methods.

## **Course content**

The course consists of 10 subparts

- Descriptive statistics
- Amounts of data and populations
- Correlation analysis
- Simple linear regression
- Multiple regression analysis and trend surfaces
- Spatial regression
- Spatial distributions and clusters
- Hypothesis test
- Regional variable theory

## **Course design**

The course is a distance course and is distributed on the Internet. It is flexible designed which facilitate for the student to carry out the course on full-, half-, or part-time.

## **Assessment**

Examination takes place through approval of written assignments during the course.

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

## **Grades**

Marking scale: Fail, Pass, Pass with distinction.

To pass the entire course, approved examination, passed written assignments and passed project reports are required.

## **Entry requirements**

For admission to the course, general entry requirements are required, English B and 90 credits completed courses including 30 credits courses in GIS. Equivalent knowledge acquired in a different way also give admission to the course.

## **Further information**

The course may not be included in a higher education qualification together with GISN02, GIS and geostatics, 7.5 credits, NGEN07 or physical geography theory and methodology, 15 credits.

## Subcourses in GISN21, GIS: GIS and Statistical Analysis

Applies from V13

1201 GIS and Statistical Analysis, 5,0 hp  
Grading scale: Fail, Pass, Pass with distinction