Faculty of Science

GISN31, GIS: GIS and Statistical Analysis, 5 credits

GIS: GIS och statistisk analys, 5 högskolepoäng

Second Cycle / Avancerad nivå

Details of approval

The syllabus is an old version, approved by Study programmes board, Faculty of Science on 2021-05-05 and was valid from 2021-05-05 , spring semester 2022.

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.

Main field of studies	*Depth of study relative to the degree requirements*
Geographical Information Science	A1N, Second cycle, has only first-cycle course/s as entry requirements

Learning outcomes

The general aim of the course is that the student should have acquired detailed knowledge in basic statistical methods with special focus on geographic data when the course is completed. The course deals with distributions, populations, statistical analysis and error propagation.

Knowledge and understanding

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

- explain correlation and regression analysis
- explain hypothesis testing on geographical data,
- at a general level, describe the error propagation that can occur in geographic analysis
- explain spatial autocorrelation
- give examples when to use regional variable theories.

Competence and skills

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

- interpret and discuss geographic data from a statistical perspective thoroughly
- use and explain statistical measures,
- independently carry out analyses and interpret results from correlation and regression analyses,
- 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 shall 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 treats:

- Descriptive statistics
- Data and populations
- Correlation analysis
- Simple linear regression
- Multiple regression analysis and trend surfaces
- Spatial regression
- Spatial distributions and clusters
- Hypothesis test
- Regional variable teory

Course design

The course is a distance course and is distributed on the Internet. It is flexibly designed giving the student options to to carry out the course at full time or half time study tempo.

Assessment

Examination is done by written assignments and through a project conducted during the course.

Students who do not pass an assessment will be offered another opportunity for assessment soon thereafter.

The examiner, in consultation with Disability Support Services, may deviate from the regular form of examination in order to provide a permanently disabled student with a form of examination equivalent to that of a student without a disability.

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

Grades

Marking scale: Fail, Pass.
To pass the whole course, passed written assignments and passed project work are required.

Entry requirements

Entry to the course requires general entry requirements, English B/6 and 90 credits scientific studies, including 30 credits in GIS. Equivalent knowledge acquired in a different way, also gives admission to the course.

Further information

The course cannot be included in qualification together with GISN02, GIS and statistical analysis 5 credits or GISN21, GIS and statistical analysis.

Subcourses in GISN31, GIS: GIS and Statistical Analysis

Applies from V22

2201 Exercises and project, 5,0 hp
Grading scale: Fail, Pass