



LUND
UNIVERSITY

Faculty of Science

GISU23, GIS: Geographical Information Systems - Advanced Course, 15 credits

*GIS: Geografiska informationssystem - avancerad kurs, 15
högskolepoäng*
First Cycle / Grundnivå

Details of approval

The syllabus was approved by Study programmes board, Faculty of Science on 2022-11-07 to be valid from 2022-11-07, spring semester 2023.

General Information

The course is offered as a commissioned education.

The course is given as a speciali version of GISA22. The course is given completely at distance, but physical meetings.

Language of instruction: English

Main field of studies

Geographical Information Science

Depth of study relative to the degree requirements

G1F, First cycle, has less than 60 credits in first-cycle course/s as entry requirements

Learning outcomes

The aim of the course is to give advanced theoretical and practical knowledge within spatial analysis and geographic information processing.

Knowledge and understanding

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

- explain basic methods and conceptual models of the contents of a geographic database
- explain the principles of transformation between different geodesic reference system
- explain concepts and computation methods within advanced spatial analysis
- Explain basic logics of computer programming and describe how programming can be used with geographic data and problems

This is a translation of the course
syllabus approved in Swedish

- account for effects of data inaccuracy in geographic analysis and modelling
- account for the infrastructure of geographic data in society
- describe at a general level which laws that concern the use of geographic data
- Illustrate advanced use of GIS within environment and society

Competence and skills

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

- carry out interpolation with geographic data
- carry out and present simple statistical evaluations of interpolated spatial data
- Independently suggest procedure and methods to solve complex geographic problems and to carry out these with a GIS
- Present results of GIS analysis in writing and as maps for specialists and the general public
- Independantly collect further knowledge in GIS

Judgement and approach

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

- compile, evaluate and discuss choice of analytical method to solve a given geographic problem
- Critically review and discuss the reliability of analyses with GIS
- Describe and evaluate the use of GIS in the society

Course content

The course contains a number of modules that are based on advanced use of existing software for database development, analysis and presentation of geographic information. The student develops ability to structure and solve complex problems.

The course consists of the following parts:

- Advanced visualisation
- Data collection and format
- Database development
- Spatial autocorrelation
- Data quality and sources of errors
- Programming

Course design

The course is a distance course and is distributed on the internet. The student is anticipated to have access to the internet. All course material and necessary computer programs are downloaded from the department. The course has a flexinle design to allow students to carry out the course work in a full-time or half-time study tempo. The teaching consists of theoretical components in the form of lectures and theoretical and practical individual written assignments. All written assignments are compulsory.

Assessment

The assessment is based on 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.

To pass the entire course, approved written assignments are required.

Entry requirements

For admission to the course, general entry requirements are required, English B and 15 credits completed courses in GIS. The course turns to all that intend to get advanced knowledge in the subject.

Further information

The course may not be included in a higher education qualification together with:

GISA02 Geographic information systems, advanced course, 10 credits

GISA11 Applied handling of geographic data, 10 credits

NGEA12 Geographic information systems, advanced course, 15 credits

or other course with equivalent contents.

The course is given at the Department of Physical Geography and Ecosystem Science and Lund University.

Subcourses in GISU23, GIS: Geographical Information Systems - Advanced Course

Applies from V23

2301 Exercises, 15,0 hp
Grading scale: Fail, Pass