Faculty of Science

GISA22, 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 2012-05-24 to be valid from 2013-01-01, spring semester 2013.

General Information

Compulsory for Masters' degree in Geographical Information Systems (LUMA-GIS)

Language of instruction: English

Main field of studies	*Depth of study relative to the degree requirements*
Geographical Information Science	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 student should 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 calculation methods within advanced spatial analysis
- Explain basic logics of computer programming and describe how programming can be used with geographic data and problems

- Account for effects of data accuracy in geographic analysis and modelling
- Account for geographic data infrastructure in society
- Describe at a general level which laws that concern the use of geographic data
- Illustrate advanced using GIS within environment and society

Skills and ability

On completion of the course, the student should 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 issues and to carry out these with GIS
- Present results of GIS analysis in writing and as maps for specialists and laymen in the subject
- Collect knowledge in the area in an independent way

Judgement and approach

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

- Compile, evaluate and discuss choice of analytical method to solve a given geographic problem
- Review and discuss the reliability of analyses with GIS critically
- Describe and evaluate using GIS in the society

Course content

The course contains a number of parts that are based on advanced use of existing software for database development, analysis and presentation of geographic information. The student develops the 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. 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.
To pass the entire course, passed written assignments and reports are required.

Entry requirements

For admission to the course, general entry requirements are required, English B and 15 credits completed courses in GIS.

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

GIS502 Geographic information systems, advanced course, 6.7 credits

NGE559 Geographic information systems, advanced, 5 credits

NGEA14 Geographic information systems, advanced, 10 credits

NGE602 Geographic information systems I, 10 credits

NGEA12 Geographic information systems, advanced course, 15 credits

NGE608 Geographic information systems II, 10 credits

NGEA12 Geographic information systems, advanced course, 15 credits

GEG451 Geographic information processing, 20 credits

SGE501 Geographic information systems 1-20 credits,

SGEG11 Geographic information systems (GIS) with broad application, 30 credits

SGE502 Geographic information systems 1-10 credits

SGEG01 Geographic information systems (GIS), broad introduction with exercises, 15 högskolepoäng

TEK270 Geomatics AK 13, 7 credits,

or other course with equivalent contents.

Subcourses in GISA22, GIS: Geographical Information Systems - Advanced
Course

Applies from V13

1201   Geographical Information Systems - Advanced Course, 15,0 hp
       Grading scale: Fail, Pass