



Faculty of Science

NGEU23, Physical Geography: Geographical Information Systems - Advanced Course, 15 credits

*Naturgeografi: Geografiska informationssystem - fortsättningskurs,
15 högskolepoäng
First Cycle / Grundnivå*

Details of approval

The syllabus was approved by Study programmes board, Faculty of Science on 2019-12-04 to be valid from 2019-12-04, autumn semester 2019.

General Information

The course is offered as a commissioned education.

The course is an elective course for second-cycle studies and is given within the programs for Master's degree (120 credits) in physical geography and ecosystem analysis and Master's degree (120 credits) in geomatics.

Language of instruction: English

Main field of studies

Geomatics

Physical Geography and Ecosystem Science

Depth of study relative to the degree requirements

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

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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 systems,
- explain concepts and calculation methods within interpolation and advanced spatial analysis,
- explain basic logic within computer programming and describe how programming can be used with geographic data and problems
- account for the effect of error propagation in geographic modelling
- give an account of how the infrastructure in society for geographic data is organised, and at a general level describe which laws that concern the use of geographic data
- illustrate advanced use of GIS in environmental applications and in society in general.

Competence and skills

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

- build and handle databases with geographic data of different geometric origin and in different formats
- transform data between common geodesic reference systems
- independent and in groups suggest procedures and methods to solve complex geographic issues and to carry out these with GIS
- present results of GIS analysis orally, in writing and as maps for specialists and laymen
- collect knowledge within the field of GIS independently

Judgement and approach

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

- compile, evaluate and discuss choice of data and analytical method to solve a given geographic problem
- critically review, evaluate 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 the ability to structure and solve complex problems. A part of own programming is included as training in logical problem-solving and as preparation for higher studies and the working life. A project assignment at the end of the course gives training to work independently with GIS. Applications are chosen from current and relevant physical geography and ecosystem science problem areas.

Course design

The teaching consists of lectures, laboratory exercises, field exercises, seminars, group exercises and project work. Participation in laboratory sessions, field exercises, seminars, group work and project work and thereby integrated other teaching is compulsory.

Assessment

The examination consists of a written examination at the end of the course and of grading of oral and written reports on exercises and project work during the course. For students not passing the regular exam, an additional exam event is offered in close proximity.

In consultation with Disability Support Services, the exam may deviate from the regular form of examination in order to provide a permanently disabled student with a form of examination equal 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, Pass with distinction.

To pass the whole course, approved examination, approved laboratory reports, written assignments and project reports and participation in all compulsory components are required. The final grade is decided through a weighting of the results of the parts that is included in the examination.

Entry requirements

General entry requirements and 75 credits scientific studies including NGEA11, Physical geography: Geographic information systems - 15 credits or the equivalent.

Further information

The course may not be included in a degree together with GISA22, GIS: Geographic information systems - advanced course, 15 credits, or NGEA12, Physical geography: Geographic information systems advanced course, 15 credits.

Subcourses in NGEU23, Physical Geography: Geographical Information Systems - Advanced Course

Applies from H21

- 2101 Exam, 7,5 hp
Grading scale: Fail, Pass, Pass with distinction
- 2102 Project, 3,5 hp
Grading scale: Fail, Pass
- 2103 Exercises, 4,0 hp
Grading scale: Fail, Pass

Applies from H19

- 1901 Exam, 7,5 hp
Grading scale: Fail, Pass, Pass with distinction
- 1902 Project, 3,5 hp
Grading scale: Fail, Pass
- 1903 Exercises, 4,0 hp
Grading scale: Fail, Pass