Faculty of Science

NGEN22, Physical Geography: Geographical Databases, 7.5 credits

Naturgeografi: Geografiska databaser, 7,5 högskolepoäng

Second Cycle / Avancerad nivå

Details of approval

The syllabus was approved by Study programmes board, Faculty of Science on 2022-02-14 to be valid from 2022-02-14, spring semester 2023.

General Information

The course is an elective course at second cycle level for a Degree of Master of Science (120 credits) in GIS and remote sensing and for a Degree of Master of Science (120 credits) in physical geography and ecosystem science, all specialisations.

Language of instruction: English

Main field of studies	*Depth of study relative to the degree requirements*
Geomatics	A1N, Second cycle, has only first-cycle course/s as entry requirements
Physical Geography and Ecosystem Science	A1N, Second cycle, has only first-cycle course/s as entry requirements

Learning outcomes

The goal of the course is that the student should acquire theoretical understanding of how a geographic database is built-up and how it can be used. The course also has focus that the student should have acquired practical ability to model, create and use a geographic database in a correct way after completion of the course.

Knowledge and understanding

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

- explain how query languages can be used to create an advanced relational database and how it is used for advanced data selection

- describe how geographic data are stored in a searchable way in a database
- analyse advantages and disadvantages to store geographic data in a database compared with to store them in a file structure
- give an account of basic concepts in object oriented modelling and explain how object oriented modelling can be used to describe the structure for a geographic database.

Competence and skills

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

- independently create an object oriented model for the structure of a geographic database by means of a standard tool for database modelling
- communicate with a database developed for geographic data.

Judgement and approach

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

- critically review and compare different structures and storing models for geographic data.

Course content

The course content includes key concepts for handling geographic databases with special focus on spatial databases, object oriented modelling of the contents of geographic databases, the query language SQL (and spatial development of this) and indexing of spatial data. The concepts of open source code for geographic databases and so called "Volunteered Geographic Information" (VGI) are also included in the course.

Course design

The teaching consists of theoretical lectures and practical exercises. The practical exercises are connected to the theoretical concepts and highlight these with data from relevant applications. The course also contains a final compulsory group work project presented in a written report. Participation in exercises and projects and associated components is compulsory.

Assessment

Examination on the course is done by a written exam at the end of the course, via a project work that is presented at the end of the course and exercise submissions during the course.

Students who do not pass the regular exam will have an additional opportunity to re-sit the exam 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, Pass with distinction.
To pass the course, approved exam, passed exercise submissions and passed project work is required. The grading for the written exam is Fail, Pass, Pass with distinction, while the grading of projects and exercise submissions is Failed, Pass. Final grade is determined by the result on the written exam.

Entry requirements

Admission to the course requires at least 90 credits in natural sciences or technology of which at least 15 credits should be in Geographic information science equivalent to NGEA11 geographic information systems. English 6/English B.

Further information

The course cannot be included in a degree together with NGEN12 Geographic databases 7.5 credits, NGEU26, Geographic databases, 7.5 credits or GISN06 Geographic databases 7.5 credits.

Subcourses in NGEN22, Physical Geography: Geographical Databases

Applies from V23

2301 Written exam, 5,0 hp
Grading scale: Fail, Pass, Pass with distinction
Written exam at the end of the course

2302 Project and exercises, 2,5 hp
Grading scale: Fail, Pass
Project and exercises