



Faculty of Health, Science and Technology
Geo-Science

Syllabus

Geospatial technology with open source

Course Code:	NGGB49
Course Title:	Geospatial technology with open source <i>Geografisk informationsteknik med open source</i>
Credits:	7.5
Degree Level:	Undergraduate level
Progressive Specialisation:	First cycle, has at least 60 credits in first-cycle course/s as entry requirements (G2F)

Major Field of Study:

Course Approval

The syllabus was approved by the Faculty of Health, Science and Technology 2024-08-26, and is valid from the Spring semester 2025 at Karlstad University.

Prerequisites

60 ECTS credits completed in the Bachelor programme in Engineering, Surveying technology and geographical IT, or 60 ECTS credits completed in the Study programme in surveying and mapping, including Geographic information systems I, 7.5 ECTS credits, Databases, 7.5 ECTS credits, or Elementary database design, 7.5 ECTS credits, or equivalent

Learning Outcomes

Upon completion of the course, students should be able to:

- manage and process geodata in an OS GIS (open source),
- choose appropriate geospatial analysis methods for processing geodata based on known conditions,
- evaluate geographic analysis processes in an OS GIS,
- implement a functional digital server solution for geodata, and
- present spatial analysis results via their own web service.

Content

The course includes exercises, assignments, and a project where all geodata management is done using open source software. A solution is created where geodata will be stored in a database via open source software for geodata management. The software and solutions to be used in the course are introduced through exercises. A server solution is used to create geodata services for web visualisation via map services. Geodata analyses and processing are carried out in a project focusing on climate adaptation of some kind or on non-fossil energy sources.

The project proposals that will be available are:

- to create a model where suitable areas for wetland restoration are identified using geographic analysis methods,
- to create a model where urban environments at risk of high temperatures are identified and analysed (environments where more green spaces would be needed),
- to create a model to identify suitable areas for wind farms, and
- to create a model to identify rooftops suitable for solar panels.

Reading List

See separate document.

Examination

Assessment is based on individual hand-in assignments, an individual project presented orally and in writing, and a group project presented orally.

If students have a decision from Karlstad University entitling them to Targeted Study Support due to a documented disability, the examiner has the right to give such students an adapted examination or to examine them in a different manner.

Grades

One of the grades 5 (Pass with Distinction), 4 (Pass with Some Distinction), 3 (Pass), or U (Fail) is awarded in the examination of the course.

Quality Assurance

Follow-up relating to learning conditions and goal-fulfilment takes place both during and upon completion of the course in order to ensure continuous improvement. Course evaluation is partly based on student views and experiences obtained in accordance with current regulations and partly on other data and documentation. Students will be informed of the result of the evaluation and of any measures to be taken.

Course Certificate

A course certificate will be provided upon request.

Additional information

The local regulations for studies at the Bachelor and Master levels at Karlstad University stipulate the obligations and rights of students and staff.