



Faculty of Health, Science and Technology
Geo-Science

Syllabus

Geographic Information Systems - raster

Course Code:	NGGB45
Course Title:	Geographic Information Systems - raster <i>RasterGIS</i>
Credits:	7.5
Degree Level:	Undergraduate level
Progressive Specialisation:	First cycle, has less than 60 credits in first-cycle course/s as entry requirements (G1F)

Major Field of Study:
NGA (Physical Geography)

Course Approval

The syllabus was approved by the Faculty of Health, Science and Technology 2022-08-29, and is valid from the Spring semester 2023 at Karlstad University.

Prerequisites

Geographical Information Systems I, 7.5 ECTS credits, and 2.5 ECTS credits completed in Physical Geography and GIS (7.5 ECTS credits), or equivalent

Learning Outcomes

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

- describe applications of raster-based Geographical Information Systems (GIS) within a specified focus area,
- independently identify, formulate, and handle issues pertaining to GIS,
- carry out a group project with attention to questions of sustainability and based on their own time plan,
- critically review and assess their own work and that of others,
- model, simulate, and evaluate the processes of geographical analysis,
- give written and oral accounts of and discuss information, problems, and solutions in

dialogue with different groups

- explain and use methods for spatial analysis and modeling using raster-based data in GIS, and
- search for relevant information in reports, articles, and so on.

Content

The course covers methods in the treatment of geographic information in raster format by means of GIS software. The main focus is on data layers in vector and raster format as well as spatial analysis of the collected data.

Students work independently on a GIS project, including project planning, data collection, analysis, and presentation of results. The course includes a series of lectures, and students collect their own background information about the area in which the analyses are carried out and compile their results in a project report to be presented in a seminar.

In the course, students use GIS raster analysis to assess the risk of flooding in a geographically delimited area which can be affected by high flows in a watershed. Floods occur sometimes and can have an impact on human health, the economy, the environment, and the cultural heritage. Methods are needed to predict and assess the consequences of floods. This is the kind of method that will be developed in the course, and the results could be used in flood prevention and as operational support in the event of a flood.

Reading List

See separate document.

Examination

Assessment is based on individual written hand-in assignments, a group project presented orally and in writing, and peer review of the project of another group. Submissions for assessment must clearly indicate individual contributions.

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.