



Faculty of Health, Science and Technology
Geo-Science

Syllabus

Geographical Informations Systems I

Course Code:	NGGA23
Course Title:	Geographical Informations Systems I <i>Geografiska informationssystem I</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:

MAT (Surveying and Mapping)

NGA (Physical Geography)

Course Approval

The syllabus was approved by the Faculty of Health, Science and Technology 2018-08-30, and is valid from the Spring semester 2019 at Karlstad University.

Prerequisites

General admission requirements plus Mathematics D (field-specific eligibility 8) or Mathematics 3c (field-specific eligibility A8), or attended course Introductory Mathematics 7.5 ECTS credits, or equivalent. At least 3 credits completed for Introduction to GIS and Cartography 5.5 ECTS credits, or equivalent.

Learning Outcomes

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

- demonstrate basic theoretical knowledge of geographic analysis,
- give an account of the infrastructure of geographic information in Sweden,
- describe what a geographic information system is,
- give an account of the concepts and definitions used in the field,
- use and process geographic data of all formats,
- describe the difference between vector and grid data,
- plan, carry out and present a minor GIS-project.

Content

The course includes both theoretical and practical components in the form of course reading and exercises. The course is divided into three parts: theory, exercises, and a project.

The course covers central concepts and definitions. Lectures and course reading is supplemented with an introduction to common GIS software, including introductory exercises designed to help students learn a particular software programme, deepen their knowledge, and apply their knowledge in practice. The course also covers functions and areas of use for advanced vector based GIS. In addition, the

course focuses on spatial information in databases as well as data quality with regard to accuracy and resolution. Students learn about the structure of geographic data in various formats, data editing, analyses, and how to present results. Students are also introduced to ongoing processes of development and standardisation in the field.

An important part of the course is that students develop understanding of the role of geographic information today and the infrastructure for geographic information available, such as:

- institutional legislations
- standards, specifications and guidelines for using geographic data
- regulations pertaining to the basic geographic data needed in society
- technological infrastructure
- research, development and education

The use of geographic information systems in different areas, such as the environment, physical planning, risk and safety, health care, is exemplified. An overview of how geographic information is regulated by EU directives is also provided.

Finally, students undertake a project in which they apply the theoretical knowledge acquired.

Reading List

See separate document.

Examination

Assessment is individual and based on a written exam, mandatory hand-in assignments, and a written project report. Course components containing computer application are mandatory.

Grades

One of the grades Pass with Distinction (5), Pass with Some Distinction (4), Pass (3), or Fail (U) 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 course NGGA23 cannot be included in the same degree programme as the course NGGAD1.

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