



P000141, An introduction to Geographic Information Systems (GIS), 4.5 Hp

Syllabus

Finalized by: Finalized by: Forskarskolan People, Society and Sustainability, 2025-03-04,
2025-03-04

Level within study regulation:

Third cycle

Grading scale:

Pass / Failed

Course language:

Swedish

Entry requirements:

Admittance to a PhD program.

Objectives:

Upon completion of the course, the student should:

- understand different kinds and uses of geographic information and cartographic principles;
- become familiar in the main uses of and important sources for vector and raster data;
- understand the basic principles of remote sensing in general, and, in particular, understand how NDVI is calculated and used;

- be able to produce different kinds of vector and raster maps, taking into account various potential sources of error and controlling for potential misrepresentation of the underlying geographic information;
- be able to critically read maps, and put them in context, so that one can uncover meanings, implications and politics from maps that are not always immediately evident.

Content:

This course is an introduction to Geographic Information Systems (GIS). As an introductory course there are no prerequisites, but the level of ambition in the course will be targeted to PhD students. Students will become familiar with the main uses of GIS in general.

More specifically, students will work with vector and raster data in hands-on exercises where students learn basic GIS skills, such as: manual vectorization; finding and processing different sources of geographic data, including satellite data; “wrangling” geodata so that it is suitable for geographic analysis; calculating Normalized Difference Vegetation Index (NDVI) based on satellite data; making different kinds of maps, in particular choropleth maps; making final, “print-ready” maps that convey useful information in aesthetically appropriate ways to map-users and that can be inserted into texts.

A critical dimension on GIS and cartography will also be presented and discussed in this course: i.e. that maps are not neutral – they simultaneously reflect and promote particular power relations and/or political agendas, even as they may conceal these commitments. In this sense, we will discuss in this course how maps can be read critically to uncover meanings, implications and politics that are not always evident from cursory inspection.

The forms of instruction include lectures in which the basic principles of cartography, GIS and remote sensing are presented and explained. Some of the lectures will be in a tutorial format where the teacher will present information, but where different aspects of GIS and map-making will be discussed actively by students as well, based in part on readings. Another important form of instruction are exercises where students will receive detailed instructions and the necessary data in advance, but also receive active help from the responsible teacher. Finally students will receive an assignment to make their own map(s), which should be connected to their own PhD research, and which will be presented, discussed and assessed in a seminar format at the end of the course.

Modes of assessment:

Seminar presentation of own map(s) explaining the purpose of the map, why it is important, and how it is connected to the student’s PhD research. The presentation should also include an account of the different steps taken to produce the map, and how potential sources of

error were avoided. - If a student has failed an examination, the examiner has the right to issue supplementary assignments. This applies if it is possible and there are grounds to do so.

- The examiner can provide an adapted assessment to students entitled to study support for students with disabilities following a decision by the university. Examiners may also issue an adapted examination or provide an alternative way for the students to take the exam.
- If this syllabus is withdrawn, SLU may introduce transitional provisions for examining students admitted based on this syllabus and who have not yet passed the course.
- For the assessment of an independent project (degree project), the examiner may also allow a student to add supplemental information after the deadline for submission. Read more in the Education Planning and Administration Handbook.

Organisation:

Department of Urban and Rural Development

Supplementary information

Other information:

- The right to participate in teaching and/or supervision only applies for the course instance the student was admitted to and registered on.
- If there are special reasons, students are entitled to participate in components with compulsory attendance when the course is given again. Read more in the Education Planning and Administration Handbook.