



HÖGSKOLAN I GÄVLE

Advanced Geospatial Data Visualization 5 cr

Avancerad geospatial datavisualisering 5 hp

Set by Faculty of Engineering and Sustainable Development

Version

Set at

Valid from

2/26/18

HT2018

Level	A1F
Education level	Second cycle
Course identifier	DVA305
Credits	5 cr
Main field of study	Geospatial Information Science, Computer Science
Subject group	Computer Technology
Disciplinary domain	Technology 100.0 %

Learning outcomes

After completion of the course the student shall be able to

1. describe and discuss specialized techniques for visualization of geospatial data
2. explain human's perceptual capacity in context of data visualization
3. conceptually design and implement a geovisualization in a given area
4. evaluate and assess visualizations from in regard to useability.

Course content

- Data abstraction and fundamental visual representations, including data types, attributes, domain, semantics, as well as visual variables
- Advanced techniques for visualization of 2D map and 3D geographical models, including e.g. superimposition, juxtaposition, view partitioning, multi-view, volumetric presentation
- Visualization of networks and acyclic graphs for representation of e.g. roads, telecommunication networks, electricity networks, drainage systems, etc.
- Visualization of time and space, including e.g. time-space cube, animation and frequency encoding techniques
- Advanced displays and interaction techniques for visualization of spatial data, including e.g. stereoscopic and autostereoscopic displays and 3D input devices
- Interaction concepts in visual data exploration, including e.g. selection, zooming, brushing, linked views, focus+context, filtering, viewpoint manipulation, distortion techniques
- Perceptual factors in visualization and experimental validation of visualizations

Teaching	Lectures, practicals, seminars, and supervision		
Prerequisites	English language proficiency equivalent to (the Swedish upper secondary school) English course 6/B. Completed courses of 30 credits in the Master Programme in Geospatial Information Science, including: Programming and scripting for GIS 5 credits, Methods Tool Course for Geospatial Information Science 5 credits, and GIScience seminar 5 credits, or equivalent		
Examination	Assignments, seminars, and written examination. How the learning outcomes are examined are stated in the course's grading criteria.		
Grade	A, B, C, D, E, Fx, F		
Other regulations	Degree criteria for final grade will be given by examiner or course responsible latest at the beginning of the course.		
Sustainable environment	It is possible to include content with sustainable development in this course in the future..		
Module			
	0010	Assignments	2.5 cr Grade: UG
	0020	Seminars	0.5 cr Grade: UG
	0030	Written examination	2 cr Grade: AF