



## HÖGSKOLAN I GÄVLE

### Risk Modelling, Mapping and Geovisualisation 5 cr

*Riskmodellering, kartering och geovisualisering 5 hp*

Set by Faculty of Engineering and Sustainable Development

**Version**

**Set at**

**Valid from**

2/26/18

**HT2018**

<b>Level</b>	A1F
<b>Education level</b>	Second cycle
<b>Course identifier</b>	SBA325
<b>Credits</b>	5 cr
<b>Main field of study</b>	Geospatial Information Science, Geomatics, Geography
<b>Subject group</b>	Geographic Information Technology and Surveying
<b>Disciplinary domain</b>	Technology 100.0 %

**Learning outcomes**

After completion of the course the student shall be able to

1. determine data requirements needed to conduct hazard, vulnerability and risk assessment
2. apply advanced methods, in combination with GIS and numerical modelling software, to understand and estimate risks at a given scenario
3. analyse and evaluate model results, as well as their accuracy
4. give examples on usage of risk information in planning
5. communicate risks and uncertainties, in the forms of maps and other geovisualisation techniques.

**Course content**

The course will provide knowledge in risk modelling and assessment using GIS and numerical models. As part of the course, an introduction to different concepts, data requirements and modelling techniques applied for natural hazards will be given. Students shall also develop skills in presenting results through maps and geovisualisation models, when integrating them in risk management and spatial planning.

- Concepts related to hazard, vulnerability and risk
- Risk management framework
- Data needed for hazard, vulnerability and risk estimation: sources, availability and limitations

- Risk analysis and evaluation with GIS
- Methods for modelling and assessment of risks related to e.g. flood, earthquake, landslide and tsunami
- Sensitivity and uncertainty analysis
- Application of risk information in risk management and planning
- Mapping and geovisualisation of risks and uncertainties

<b>Teaching</b>	Lectures, practical exercises, seminars, and project		
<b>Prerequisites</b>	Completed courses of 30 hp in the Master Programme in Geospatial Information Science, including: Methods Tool Course for Geospatial Information Science, 5 credits, and Spatial Multicriteria Decision Analysis, 5 credits, or equivalent		
<b>Examination</b>	Assignments (practical exercises), seminars and project. How the learning outcomes are examined are stated in the course's grading criteria.		
<b>Grade</b>	A, B, C, D, E, Fx, F		
<b>Other regulations</b>	Degree criteria for final grade will be given by examiner or course responsible latest at the beginning of the course.		
<b>Sustainable environment</b>	A minor part of the course content deals with sustainable development.		
<b>Module</b>			
	0010	Assignments (practical exercises)	2 cr      Grade: UG
	0020	Seminars	0.5 cr      Grade: UG
	0030	Project	2.5 cr      Grade: AF