GEW-ME08 Monitoring Techniques and Data Analysis in Geosciences	Number of credit points (LP): 6
Module type (mandatory or elective module)	Elective module
Contents and qualification objectives of the module	**Contents** The world's population is at risk from natural hazards and is becoming increasingly vulnerable. These natural hazards include, for example, earthquakes, volcanic eruptions, floods, mass movements, the consequences of rapid climate change, and environmental damage. This module provides students with the opportunity to learn specific monitoring techniques and new developments in data analysis in the geosciences in detail for a particular area. Examples range from monitoring climate-related processes in permafrost regions to remote sensing in the context of earthquakes or volcanic eruptions and approaches in geothermal exploration to planetary remote sensing. **Qualification goals** Students - learn and apply in-depth methodological approaches and monitoring techniques in the geosciences - understand complex, interdisciplinary processes in the Earth system - can analyze, interpret and evaluate results within the framework of monitoring - deal with transport processes of matter on the earth's surface as well as in the earth's interior - can predict potential future changes and events to minimize risks - can investigate and deal with issues that affect and endanger the population such as natural hazards (e.g., earthquakes, volcanic eruptions, floods, mass movements, the consequences of rapid climate change, and environmental damage) - can understand climate-relevant processes and contribute, e.g., to the final storage problem of radioactive waste or to the long-term site security of infrastructure projects
Module examination (number, form, scope)	An examination of the following forms: Term paper, 8-12 pages Written exam, 90 minutes Oral exam, 30 minutes
Self-learning time (in time hours)	120

Events (teaching forms)	Contact time (in semester hours)	Secondary examination (number, form, scope)		Partial module examination accompanying the course (number, form, scope)
		For the completion of the module	For admission to the module examination	
Lecture and exercise (lecture and exercise)	2V+2T	-	-	-

Frequency	Winter semester
Prerequisite for participation in the module	None
Teaching unit(s)	Geosciences