

GEW-MF01 Earth Surface Dynamics		Number of credit points (LP): 12		
Module type (mandatory or elective module)	Advanced module			
Contents and qualification objectives of the module	<p>Contents</p> <p>This course deals with the dynamics of earth surface processes: erosion, transport and deposition on slopes, by rivers and glaciers. Physical and mathematical models describing these processes are presented and analyzed using available field observations. This module also provides an introduction to the field of active tectonics and the methods used to quantify active deformation of the Earth's crust on seismic to geologic time scales. In particular, modern geomorphological methods for assessing tectonic activity and quantifying its rates in areas of contractile, strike-slip, and extensional tectonics are studied. In addition, the course examines the couplings between tectonics and climate-driven surface processes in landscape evolution. Topics are explored in depth through the reading of scientific papers, followed by group discussion and presentation of research topics to groups of students. A field exercise in a tectonically active region allows theoretical concepts to be put into practice.</p> <p>Qualification goals</p> <p>Students</p> <ul style="list-style-type: none">- acquire an understanding of the processes that drive erosion and sediment transport at the surface of continents, as well as tectonically-controlled landscape development at plate margins and tectonically active regions within continents- become familiar with modern quantitative methods for observing and modeling Earth surface processes and their controlling factors, and quantifying deformation rates in different plate tectonic environments using landform analysis and paleoseismology- learn to analyze and synthesize modern research questions in active tectonics, surface processes, and their couplings through literature review, presentations, and group discussions			
Module examination (number, form, scope)	An examination of the following forms: Portfolio examination, report, 15-20 pages, and related presentation, 20-30 minutes. Oral exam, 30-45 minutes Written exam, 90-120 minutes			
Self-learning time (in time hours)	200			
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	
Seminar and exercise (seminar and exercise)	2S+2T	Exercises (80%)	-	-
Seminar and exercise (seminar and exercise)	2S+2T	-	-	-
Field exercise (exercise)	5 days	Report (10-15 pages)	-	-
Frequency		Winter semester and summer Semester (over two semesters, start Winter semester)		
Prerequisite for participation in the module		None		
Teaching unit(s)		Geosciences		