UCLouvain

lgeo2120

2026

Applied geomorphology

4.00 credits	30.0 h + 30.0 h	Q1

This biannual learning unit is not being organized in 2026-2027 !

Teacher(s)	Molina Verdugo Armando ;
Language :	English
Place of the course	Louvain-la-Neuve
Main themes	The course will provide an overview of the fundamental principles of pedogenesis and hillslope processes. The primary focus will be on the terrestrial surface, where the soil is influenced by chemical processes, conditioned by biological activities, and affected by water and anthropogenic disturbances. Finally, the course will address the management of the soil-landscape, with a focus on approaches working with nature.
Learning outcomes	**At the end of this learning unit, the student is able to :** • understand how soil systems develop and change over time • analyse how land use and management influence soil health, • select and apply field and laboratory techniques to assess soil health • evaluate soil degradation problems accelerated by human activities 1 This advanced course in physical geography aims to provide the students a comprehensive understanding of soil as a pivotal component of the physical environment. Furthermore, through this course, the students will learn and apply field and laboratory techniques that are used to monitor soil health.
Evaluation methods	The final grade is based on a written exam (50%) and continuous evaluation (50%). The continuous evaluation will take place during term and consists of an evaluation of a report of the laboratory work (20%), presentation and report on the soil and water conservation project (20%), and report of field work (10%). The participation to the practical exercises and field excursion is mandatory. These are organized only once during an academic year. It is impossible to redo them in the second session. If generative AI was used for the redaction of the report, this needs to be declared upfront, and the sections where generative AI was used need to be marked as such. The student is responsible for the content of the report, and needs to cite the original bibliographic sources following the bibliographic standards.
Teaching methods	The teaching activities include 10 lectures with active participation of the students, four sessions with practical exercises in the classroom, four sessions in the soil laboratory, and a full day of field activities.
Content	The course is divided into three sections. The first section covers the fundamentals of soil development and evolution, the factors that influence soil formation, and the historical context of the impact of humans on soils and landscapes. The second section examines how agricultural practices and changes in forest cover impact the soil landscape. It also explores how nature-based solutions can be used to restore degraded land and improve ecosystem health. The final section examines soil-water-vegetation interactions in natural and managed ecosystems, as well as the impact of global change on soil system functioning.
Faculty or entity in charge	GEOG

Programmes containing this learning unit (UE)

Program title	Acronym	Credits	Prerequisite	Learning outcomes
Interdisciplinary Advanced Master in Science and Management of the Environment and Sustainable Development	ENVI2MC	5		
Master [120] in Agriculture and Bio-industries	SAIV2M	5		
Master [120] in Geography : General	GEOG2M	4		
Master [120] of Education, Section 4 : Geography	GEOG2M4	4		