




**This biannual learning is being organized in 2026-2027**

Teacher(s)	Vanacker Veerle ;
Language :	English
Place of the course	Louvain-la-Neuve
Prerequisites	This advanced course in earth sciences can be taken by students who are already familiar with geomorphology, physical geography and earth history, and have successfully passed the courses LGEO1231, LGEO1331 and LGEO1251 or equivalent courses.
Main themes	<p>The analysis of landscape morphology results from the study of internal and external processes that govern the formation and the evolution of relief. In the course, concepts of the dynamics and evolution of the relief are discussed through the analysis of tectonic, climatic and anthropic processes that have an influence on material transfer at the Earth surface.</p> <p>This course presents recent advances in the field of earth surface processes and evolution, and reviews the fundamentals of the subject including geomorphic markers, geochronology, and landform evolution at the short and intermediate time scale.</p>
Learning outcomes	<p><b>At the end of this learning unit, the student is able to :</b></p> <ol style="list-style-type: none"> <li>(i) understand the fundamentals of commonly used dating methods,</li> <li>1 (ii) interpret dates and rates of geomorphologic processes in terms of long-term landscape evolution, and</li> <li>(iii) read independently scientific literature on earth surface processes and evolution.</li> </ol>
Evaluation methods	<p>This course will be evaluated during the semester based on</p> <ul style="list-style-type: none"> <li>• Open-book examen of material of Block 1 (25%)</li> <li>• Presentation of literature review (15%)</li> <li>• Presentation and report of research project (25%)</li> <li>• Report of fieldwork (10%)</li> </ul> <p>The final examination (written exam with open questions) counts for 25% of your final grade. Active and in-person participation in the exercise sessions and fieldwork is mandatory. Your final report of the research project will be due on 20/12. One pdf containing all information has to be sent by email to the teacher before 12h. 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.</p>
Teaching methods	<p>The course is based on</p> <ul style="list-style-type: none"> <li>• 10 Class lectures with active participation of the students</li> <li>• 10 Practical sessions on the tectonic geomorphology of Belgium using GIS and high-resolution topography</li> <li>• Field work with characterization of the fluvio-morphology of a river in the Ardennes</li> <li>• Group work on the (tectonic) geomorphology of a region in Belgium</li> </ul>
Content	<p>The course is organized in three blocks. The aim of the first block is to teach the fundamentals of the subject, and present the theoretical concepts related to geomorphic markers, geochronology, denudation, and geodesy. The 2nd block includes the application of these concepts to interpret landscape evolution at the Holocene, Intermediate and Cenozoic timescale; and reading of scientific literature. The 3rd block applies these concepts to a case-study in Belgium, and includes GIS operations to characterize landscape metrics.</p>
Inline resources	Materials available on Moodle
Bibliography	<p>disponible en BST (version électronique et version papier): Burbank, D.W.; Anderson, R.S. 2011. <b>Tectonic Geomorphology</b>. Wiley-Blackwell; 2nd Edition.</p>
Other infos	<p>To follow this course, the student should have a basic knowledge of earth surface processes, geology and earth sciences such as taught in LGEO1251, LGEO1331 and LBIR1130.</p> <p>Active participation is mandatory. The practical sessions and fieldwork are organised once per academic year, and cannot be repeated in the 2nd session.</p>

Faculty or entity in charge	GEOG
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<b>Programmes containing this learning unit (UE)</b>				
Program title	Acronym	Credits	Prerequisite	Learning outcomes
Master [120] in Geography : Climatology	CLIM2M	5		
Master [60] in Geography : General	GEOG2M1	5		
Master [120] in Geography : General	GEOG2M	5		
Master [120] of Education, Section 4 : Geography	GEOG2M4	5		