




**This biannual learning is being organized in 2021-2022**

Teacher(s)	Van Oost Kristof ;Vanacker Veerle ;
Language :	English
Place of the course	Louvain-la-Neuve
Main themes	Several major scientific debates in the field of physical geography will be presented, such as: - The role of steep, mountainous watersheds in the sediment flux from the continents to the ocean - Human impacts on biogeochemical cycles - The effect of soil erosion on primary productivity - Deforestation and soil erosion: an ecological disaster in the tropics? - Deforestation and historical erosion: lessons for the future? The students will form different groups that will address one of these predefined topics. The course is organized around three modules: i) Lectures, presentation of the basic concepts and scientific background of the major scientific debates. ii) Seminars, each group will communicate a geographical analyses of his topic based on the reading of scientific papers. iii) Group work, each group will use different techniques for the spatial analyses of the interaction between deforestation, soil erosion, global sediment fluxes and impacts on biogeochemical cycles. Each group will present a report of ca. 4000 words.
Learning outcomes	<p><b>At the end of this learning unit, the student is able to :</b></p> <p>The main objective of this course is to develop a basic knowledge of recent developments in environmental sciences that are relevant to physical geography research. Furthermore, this course will also serve as a platform to work with a range of methods and techniques for spatial analysis which are frequently used in Earth Sciences. Practical/Knowledge skills: - An awareness of the diversity of approaches and contemporary debates in the field of physical geography - An ability to identify research questions and develop a coherent scientific strategy to analyse research problems in the field of physical geography - An ability to develop a scientific reasoning based on the theoretical background presented in the course - An ability to communicate a geographical analysis using the appropriate scientific language Personal skills: - to stimulate an aptitude for scientific debate in relation to the main scientific challenges and technologies used in Earth Sciences - An ability to analyse scientific publications rigorously and critically - An awareness of the contemporary research questions in physical geography and their general, local and regional context</p>
Evaluation methods	<p>At the end of this course, the student should be able:</p> <ul style="list-style-type: none"> <li>- To illustrate and compare the diversity of approaches and contemporary research questions in the field of physical geography</li> <li>- To analyse scientific publications rigorously and critically</li> <li>- To develop a scientific reasoning based a geographical analysis and the theoretical background acquired during the curriculum</li> <li>- To communicate a scientific study (both written and oral)</li> <li>- To describe and understand the contemporary research questions in physical geography and their general, local and regional context</li> </ul> <p>The evaluation will be based on the scientific communications (2 oral presentations and 1 report, 80% of total score). The course aims to stimulate critical thinking and participation in the debates will account for 20% of the total score.</p> <p>The evaluation criteria will be based on the competences mentioned above. The students will receive continuous feedback (both personal and in group) during this course.</p>
Teaching methods	The course is organised into five learning activities: (1) introduction lectures, (2) reading assignments, (3) research exercise, (4) seminars and (5) feedback including practical and methodological support.
Content	<p><b>A selection of significant scientific questions related to physical geography</b> will be discussed, such as:</p> <ul style="list-style-type: none"> <li>- Ecosystem services: a conceptual framework to valorize natural capital?</li> <li>- Geo-engineering climate change: are Biochars the new hope for global warming?</li> <li>- Human activities and sediment fluxes: are we eroding the global carbon cycle?</li> <li>- The role of forests and plantations in the hydrological cycle</li> </ul> <p>These topics will be used to define and apply the principles of scientific research/communication/debate and will serve as a showcase to illustrate the diversity of geographical research</p> <p>The <b>main objectives</b> of this course are:</p> <ul style="list-style-type: none"> <li>• To introduce current scientific debates in Earth System Science that are relevant to physical geography research</li> <li>• To develop an integrated vision on physical geography that links the different sub-disciplines</li> </ul>

	<ul style="list-style-type: none"><li>• To develop a coherent scientific strategy to analyze research problems in the field of physical geography and to communicate the results</li><li>• To stimulate an aptitude for scientific debate in relation to the main scientific challenges and technologies used in Earth Sciences</li></ul>
Inline resources	<a href="https://moodleucl.uclouvain.be/user/view.php?id=452905&amp;course=9080">https://moodleucl.uclouvain.be/user/view.php?id=452905&amp;course=9080</a>
Bibliography	Les articles scientifiques qui seront discutés lors de ce cours sont disponibles via DIAL et le site moodle du cours.
Other infos	Requirements: GEO1342 - Geographical Information Systems GEO1331 - Géomorphologie
Faculty or entity in charge	GEOG

<b>Programmes containing this learning unit (UE)</b>				
Program title	Acronym	Credits	Prerequisite	Learning outcomes
Master [120] in Geography : General	<a href="#">GEOG2M</a>	5		
Master [120] in Geography : Climatology	<a href="#">CLIM2M</a>	5		
Master [120] in Biology of Organisms and Ecology	<a href="#">BOE2M</a>	5		
Master [60] in Geography : General	<a href="#">GEOG2M1</a>	5		