



5.00 credits

60.0 h

Q2

Teacher(s)	Baret Philippe (coordinator) ;Defourny Pierre ;Delmelle Pierre ;Hardy Briec (compensates Delmelle Pierre) ;
Language :	French
Place of the course	Louvain-la-Neuve
Main themes	The course proceeds from actual stakes related to the biological, agronomical and environmental engineering and will approach the following themes: - the bio-geochemical cycles of the biosphere (water, carbon, nitrogen); energetic flows. - notions of bio-climatology, classification of climates, climatic indicators. - basic notions of ecosystems (biotopes and biocenoses, trophic chains); food chains; production and productivity. - sustainable development; notions of equilibrium and imbalance; notions of vulnerability; biodiversity and the conservation problematic; pollution and tracability problems. - role of the soil as a reactor in the functioning of ecosystems: water and mineral elements storage, alteration and acidification; notions of resilience, mobility of biogenous elements and bio-pedological cycles; storage and mobility of contaminants. - impact of the human being on the functioning of the ecosystems and on the soil.
Learning outcomes	<p><b>At the end of this learning unit, the student is able to :</b></p> <p>This course aims the initiation of the students to the important stakes related to the biological, agronomical and environmental engineering; to discern the role of the futur bio-engineer and to acquire the basic concepts essential to the analysis and management of ecosystems. It should bring the students to:</p> <p>1 - understand the technical and scientific acts of a bio-engineer in a framework of wich's dimentions go beyond those of the engineer sensu stricto. - acquire the basic concepts of the analysis of the air-water-soil interactions and of the global functioning of ecosystems. - understand the bio-geochemical cycles (water, carbon, nitrogen) and the global funtioning of their compartments, especially the soil.</p>
Content	The basic principles will be taught by means of concrete examples related to the biosphere engineering. For example: starting from the human nutrition seen globally, different concepts will be taught: trophic and food chains, energetic flows, productivity, bio-geochemical cycles (xater, carbon, nitrogen), functions of the soil compartment such as storage, mineral supply... The learning process will be based on a problem-approach, where the basic concepts are acquired through an analysis of the stakes and a perspective view of the concepts.
Faculty or entity in charge	AGRO

<b>Programmes containing this learning unit (UE)</b>				
Program title	Acronym	Credits	Prerequisite	Learning outcomes
Minor in Scientific Culture	<a href="#">MINCULTS</a>	5		
Additional module in Geography	<a href="#">APPGEOG</a>	5		
Bachelor in Bioengineering	<a href="#">BIR1BA</a>	5		