UCL Université catholique de Louvain

LBIR1336

2015-2016

Sciences du sol

5.0 credits	30.0 h + 30.0 h	2q

Teacher(s) :	Delmelle Pierre (coordinator) ; Delvaux Bruno ;
Language :	Français
Place of the course	Louvain-la-Neuve
Inline resources:	Handouts available on iCampus
Prerequisites :	' Chimie minérale et analytique ' Introduction aux sciences de la terre ' Introduction à l'ingénierie de la biosphere *The prerequisite(s) for this Teaching Unit (Unité d'enseignement – UE) for the programmes/courses that offer this Teaching Unit are specified at the end of this sheet.*
Main themes :	The module explores in detail the nature and the physical, chemical and biological properties of soils and how they work. It uses core discipline concepts (chemistry, biology and physics) and applt these to the soil scale. The module is articulated around four main themes: (i) soil constituents, (ii) spatial organisation of soil constituents and processes that underpin it, (iii) soil functioning and the role of soils in the major biogeochemical cycles, and (iv) soil formation and classification. The objective of the module is to provide students with the information they need to build a comprehensive understanding of the fundamental properties and processes which govern the functioning and dynamics of soils, i.e., an entity which interacts directly with the biosphere, atmosphere and hydrosphere, and with the contaminants that may be found within them.
Aims :	a. Contribution de l'activité au référentiel AA (AA du programme) 1.3, 1.4 2.1, 2.2 3.5, 3.7 4.3 6.2, 6.5 b. Formulation spécifique pour cette activité des AA du programme At the end of this activity, students will be able: · to provide a detailed description of the soil constituents and their main interactions by using the theoretical concepts presented in class; · to discriminate qualitatively the main factors and processes that explain soil diversity by integrating the theoretical concepts presented in class and illustrated in practicals; · to discuss qualitatively the role of soils in the main element biogeochemical cycles by referring to examples presented in class; · to apply a set of simple equations to characterize water and nutrient fluxes in soils; · to identify the horizons of a real soil profile and to give their main characteristics as illustrated during the field trips; · to determine the basic physico-chemical properties by applying efficiently the tools and techniques taught in the lab practicals; · to interpret soil analyses and to produce a rigorous and critical scientific report that integrates adequately the concepts discussed in class and used in lab practicals and field trips. *The contribution of this Teaching Unit to the development and command of the skills and learning outcomes of the programme(s) can be accessed at the end of this sheet, in the section entitled "Programmes/courses offering this Teaching Unit".*
Evaluation methods :	' Formative tests ' Individual lab reports ' Closed written exam
Teaching methods :	The teaching is delivered through lectures supplemented by practical sessions and field trips.
Content :	The module will explore the following subjects : · Soil mineral constituents · Soil organic constituents · Soil liquid and gaseous phases · Transfer phenomena in soil · Soil physical-chemistry · Soil biology · Biopedologic cycles · Soil structure · Soil morphology

	· Pedogenesis · Soil classification · Soil cartography
Bibliography :	· Syllabus 'Sciences du sol' (compulsory) · Handouts available on iCampus · Suggested reading list available on iCampus
Other infos :	Handouts are in English. The lectures are given in French and in English.
Faculty or entity in charge:	AGRO

Programmes / formations proposant cette unité d'enseignement (UE)

Intitulé du programme	Sigle	Credits	Prerequis	Acquis d'apprentissage
Master [120] in History of Art and Archaeology : General	ARKE2M	5	-	
Master [120] in Civil Engineering	GCE2M	5	-	
Master [120] in Biology of Organisms and Ecology	BOE2M	5	-	
Minor in Scientific Culture	LCUSC100I	5	-	
Bachelor in Bioengineering	BIR1BA	5	LCHM1111 **and** LBIR1130 **and** LBIR1230	