UCL Université catholique de Louvain

LBIRE2104

2012-2013

Applied soil sciences

5.0 credits	30.0 h + 22.5 h	2q

Teacher(s) :	Titeux Hugues (compensates Delvaux Bruno) ; Delvaux Bruno ;
Language :	Français
Place of the course	Louvain-la-Neuve
Main themes :	Three topics will be discussed: 1 soil forming processes and current pedological processes: alteration, formation of secondary minerals, organo-mineral interactions, transfer of materials and types of major processes of weathering and pedogenesis, diagnosis of the current processes, acidification and net alcanilisation, soil evoluation. 2 Geography of major soil types: recognition of land in the international WRB system, study the functioning of major soil types in their natural ecosystems and in ecosystems modified by man. 3 R"Lateral" relations: functioning of the soil cover throughout a toposequence and catchment, dynamic evolution of a toposequence; skills station.
Aims :	The aim of this course is to understand the principles of soil functioning, based on the relationships between factors processes and properties. Knowledge: - Integrated knowledge of soil formation processes and current pedological processes, (1) considering the soil as natural object (2) framing the processes within the broad bio-climatic ensembles, (3) situating the soil at the local, toposequence and catchment scales, (4) by apprehending the human impact on the process. Know-how: - Ability to integrate the basic disciplines (1) to analyze and diagnose soil processes and the functioning of soils, (2) understand the impact of man on them. - Ability to integrate the principles of soil functioning to understand the soil in the landscape and ecosystem. *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".*
Content :	Part I: The process of soil formation and current pedological processes. Constitution of the weathering complex, construction and use of phase diagrams (stability, solubility); estimating proton balance; application to current processes. Part II: The Geography of sols. Identification of soils in the international WRB system, study the functioning of major soil types in their natural ecosystems and in ecosystems modified by man; interpretation of morphological data and analytical profiles. Part III: Lateral relations and toposéquences : Compréhension of "lateral" phenomena in the soil toposequence; interpretation of morphological data and analytical profiles, field work, excursions. Part IV: Regional pedology. Application of the concepts developed in the previous three parts: reading of the Belgian soil map, interpretation of morphological data and analytical profiles, making of a detailed soil map.
Other infos :	Prerequisites : Soil Sciences Evaluation : Exam; assessment of the reports of the practical work Support Book : "Major Soils of the World", lecture notes Supervision : 1 teacher, 1 assistant
Cycle and year of study :	> Master [120] in Agricultural Bioengineering > Master [120] in Environmental Bioengineering > Master [120] in Forests and Natural Areas Engineering
Faculty or entity in charge:	AGRO