LBRES2203

2015-2016

Soil management and planning in warm regions

3.0 credits	22.5 h + 7.5 h	1q

Teacher(s) :	Bielders Charles (coordinator) ; Delvaux Bruno ;
Language :	Français
Place of the course	Louvain-la-Neuve
Inline resources:	iCampus
Main themes :	1 Soil forming processes and pedological processes in tropical regions (inter-tropical and Mediterranean areas): alterationcomplex and major constituents, identification of major soil types and their constituents (WRB system). 2 Relations between constituents and properties: analysis of surface properties and charge through the study of permanent and variable charge models; implications for physical and physico-chemical soil properties. 3 Diagnosis of major soil constraints in warm regions: mineral reserves, humus stocks, acidity, salinity, nutrient depletion,mass recovery, compaction, erosion, water availability: derive constraints from the knowledge of constituents-propertiesrelationships. 4 Remediation and management techniques, viewed through some major cropping systems and soil types.
Aims :	a. Contribution de l'activité au référentiel AA (AA du programme) M1.2 ; M1.4 ; M2.2 ; M2.4 ; M6.5 b. Formulation spécifique pour cette activité des AA du programme : At the end of the course, , on the basis of case studies, students should be able to: - Integrate morphological, mineralogical and physico-chemical properties of soils, in order to diagnose the functioning of soils of warm regions and to identify constraints - Establish appropriate soil management and remediation practices adapted to soil, climate and socio-economic conditions *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 :	Written exam : theoretical questions and analysis of case study
Teaching methods :	- Classes, illustrated by case studies - Case study analyses
Content :	Four topics will be adressed : Part I ' Soil forming processes and pedological processes in warm regions : use of phase diagrams (stability, solubility), recognition of major soil types via the interpretation of morphological and analytical data of typical soil profiles. Part II - Relations between constituents and properties: studyof permanent and variable charge models, isoelectric point and point of zero charge, retention of cations and anions, phosphate adsorption, carbon storage, micro-aggregation, implications for physical and physicochemical properties of the soils . Part III - Diagnosis of major soils in tropical regions: determinants of fertility, estimates of stocks of humus and nutrients, diagnosis of constraints (nutrient depletion, acidity, salinity') and physical degradation (hard setting, compaction, erosion) based on morphological and analytical data. Part IV - Techniques of remediation and management viewed through some major cropping systems and soil types (case studies)
Bibliography :	Reference book : 'Soils of the tropics' de A. Van Wambeke
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 Environmental Bioengineering	BIRE2M	3	-	
Master [120] in Forests and Natural Areas Engineering	BIRF2M	3	-	
Master [120] in Agricultural Bioengineering	BIRA2M	3	-	