



4.00 credits

22.5 h + 22.5 h

Q1

Teacher(s)	Agnan Yannick (coordinator) ;Delmelle Pierre (coordinator) ;Titeux Hugues (compensates Delmelle Pierre) ;
Language :	French > English-friendly
Place of the course	Louvain-la-Neuve
Prerequisites	- Introduction aux sciences de la Terre [LBIR1130] - Introduction à l'ingénierie de la biosphère [LBIR1230] - Sciences du sol et excursions intégrées [LBIR1336]
Main themes	- Soils as bio-physico-chemical reactors at the interface between the lithosphere, biosphere, hydrosphere, and atmosphere - Pedological processes governing soil formation and functioning - Physico-chemical reactions which underpin the response of soils to natural and anthropogenic perturbations
Learning outcomes	At the end of this learning unit, the student is able to : a. Contribution of the activity to the framework AA M1.1, M1.2, M1.3, M1.4, M1.5 M2.1, M2.2, M2.3, M2.4 M3.4 M6.2, M6.5 b. Expected learning outcomes 1 At the end of the activity, the student is able to: - Describe the pedological processes governing soil formation and functioning - Explain the physico-chemical reactions which underpin the response of soils to natural and anthropogenic perturbations - Determine the factors and processes responsible for the variability of soil properties - Assess the response of soil to natural and anthropogenic perturbations
Evaluation methods	- Group project report - Open book written exam
Teaching methods	- Face-to-face classes - Field group project - Field excursion - Applied problems
Content	1. Introduction 2. Soil acidity 3. Soil weathering and formation 4. Dynamics of soil organic matter 5. Sorption reactions 6. Redox reactions 7. Soil development 8. Case studies
Inline resources	Lecture notes and other teaching resources available on Moodle

Bibliography	<p>Blume H.-P., Brümmer G.W., Fleige H., Horn R., Kandeler E., Kögel-Knabner I., Kretzschmar R., Stahr K., Wilke B.-M. (2016). Scheffer/Schachtschabel soil science. Springer, Berlin. 618 p.</p> <p>Weil R.R., Brady N.C. (2017). The nature and properties of soils. Pearson, Harlow. 1104 p.</p> <p>Calvet R. (2013). Le sol. France Agricole, Paris. 678 p.</p> <p>Calvet R., Chenu C., Houot S. (2015). Les matières organiques des sols. France Agricole, Paris. 304 p.</p>
Other infos	This course can be given in English.
Faculty or entity in charge	AGRO

Programmes containing this learning unit (UE)				
Program title	Acronym	Credits	Prerequisite	Learning outcomes
Master [120] in Forests and Natural Areas Engineering	BIRF2M	4		
Master [120] in Environmental Bioengineering	BIRE2M	4		
Master [120] in Agriculture and Bio-industries	SAIV2M	5		