




4.00 credits

22.5 h + 22.5 h

Q1

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| 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 |

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| 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) | | | | |
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| 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 | |  |