

In view of the health context linked to the spread of the coronavirus, the methods of organisation and evaluation of the learning units could be adapted in different situations; these possible new methods have been - or will be - communicated by the teachers to the students.



4 credits

15.0 h + 30.0 h

Q2

Teacher(s)	Jacquemart Anne-Laure ;Ponette Quentin (coordinator) ;Vincke Caroline ;
Language :	French
Place of the course	Louvain-la-Neuve
Main themes	<ul style="list-style-type: none"> - techniques of vegetation analysis: concepts and principles of plant sociology, methods of vegetation surveys and multivariate analyses of vegetation relevés, influence of agro-forestry-pastoral ancestral practices on current vegetation; - determinants of plant assemblages and vegetation dynamics, vegetation mapping; - phytogeography, plant ecology and indicator value of species; - plant demography, reproduction, dispersal; - productivity and fluxes in forest ecosystems: energy, light, water, nutrients, carbon; - site assessment: risks, constraints and potentialities; - stability of forest ecosystems (case study): understanding of the issues, design of integrated protection strategies.
Aims	<i>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".</i>
Evaluation methods	<p>Due to the COVID-19 crisis, the information in this section is particularly likely to change.</p> <p>Evaluation:</p> <ul style="list-style-type: none"> - Part A: Preparation and oral presentation of a phytosociological table, oral exam focused on problem solving, synthetic analysis of a problem; - Part B: writing exam (short answers or answers based on a theoretical development)
Teaching methods	<p>Due to the COVID-19 crisis, the information in this section is particularly likely to change.</p> <ul style="list-style-type: none"> - lectures including practical examples and active learning mini activities; - seminars given by guest speakers (speakers from the socio-professional or scientific spheres); - field excursions including practical learning of vegetation survey, determination of the flora and of the type of vegetation; - supervised statistical analysis of the vegetation surveys in the computer room; - individual reading of a scientific paper and critical analysis in groups. <p>Miscellaneous : Modules 1 and 2 (15h + 22.5h) constitute a mandatory 4-credit course entitled 'Forest ecology and phytosociology, partim phytosociology' for students of option S5E (Land development) within the master in environmental bioengineering and students within the master in biology (BOE).</p>
Content	<p>A. Table of contents</p> <ol style="list-style-type: none"> 1. Site assessment <ul style="list-style-type: none"> - specificities of site assessment in forest ecosystems - objectives of the assessment - typology of current tools and approaches - indicators of fertility - examples of decision-support tools 2. Flow control in forest ecosystems <ul style="list-style-type: none"> - light and energy - water - carbon - nutrients 3. Risk management in forests: windstorms as an example 4. Phytosociology <ul style="list-style-type: none"> - phytogeography and vegetation history at the global and local scales - physiognomic approach to vegetation - phytosociological approach and techniques of analysis, including multivariate statistical analyses

	<p>- vegetation dynamics; intrinsic and extrinsic influences, including traditional agro-forestry-pastoral practices; progressive and regressive series</p> <p>- vegetation mapping</p> <p>- field surveys (4 one-day excursions) and determination of forest types.</p> <p>B. Additional informations</p> <p>This course includes two modules that can be combined to form two partims:</p> <p>- Module 1 (15h-22.5h): fundamentals of vegetation analysis and phytosociology - 7 2-hour sessions (theoretical courses and seminars on more applied themes); practical exercises in phytosociology - 4 one-day excursions (a last one is shared with the course 'Applied soil sciences' - BIRE2104), a lab (2 hours) devoted to statistical analysis of vegetation samples;</p> <p>- Module 2 (22h): site assessment, biogeochemistry of forested ecosystems, tree ecophysiology - 11 2-hour sessions.</p> <p>Part A (module 1) - Phytosociology ' is mandatory for students from the following masters: BIRF (all options), BIRE (5E option) and BOE (environmental management option);</p> <p>Part B (module 2) - Site assessment and biogeochemical cycles - is a required course for the master BIRF; it can be taken as electives by students from masters BIRA, BIRE and BOE.</p>
<p>Inline resources</p>	<p>Moodle</p>
<p>Bibliography</p>	<p>Support : Notes de cours, transparents, site icampus. Ouvrages recommandés : Barnes, B.V., Zak, D.R., Denton, S.R., Spurr, S.H., 1998. Forestecology. 4th ed. John Wiley & Sons, New York, USA, 774 p. Bazzaz, F.A. 1996. Plants in changing environments. Linking physiological, population, and community ecology. Cambridge University Press, Cambridge, UK, 320 p. Chapin III, F.S., Matson, P.A., Mooney, H.A. 2002. Principles of terrestrial ecosystem ecology. Springer, New York, USA, 436 p. Fisher, R.F., Binkley, D. 2000. Ecology and management of forest soils. 3rd ed. Wiley, New York, 489 p. Kimmins, J.-P., 1997. Forest ecology. A foundation for sustainable management. 2nd ed. Prentice Hall, Upper Saddle River, USA, 596 p. Lambers, H., Chapin III, F.S., Pons, T.L. 2000. Plant physiological ecology. Corrected 2nd printing. Springer, New York, 540 p. Larcher, W. 2003. Physiological plant ecology. Ecophysiology and stress physiology of functional groups. 4th ed. Springer, Berlin, 513 p. Encadrement : Enseignant et intervenants extérieurs pour le cours magistral ; enseignant, technicien et assistant pour les TP.</p>
<p>Other infos</p>	<p>This course can be given in English.</p>
<p>Faculty or entity in charge</p>	<p>AGRO</p>

Programmes containing this learning unit (UE)				
Program title	Acronym	Credits	Prerequisite	Aims
Master [120] in Biology of Organisms and Ecology	BOE2M	3		
Master [120] in Environmental Bioengineering	BIRE2M	4		
Master [60] in Biology	BIOL2M1	3		