UCL Université catholique de Louvain

LBIR1326A

2015-2016

Ecologie, physiologie et systématiques végétales: Partim A (Ecologie animale et végétale)

2.0 credits	22.5 h + 7.5 h	1q

Teacher(s) :	Lutts Stanley ; Jacquemart Anne-Laure ; Debier Cathy ;
Language :	Français
Place of the course	Louvain-la-Neuve
Prerequisites :	*The prerequisite(s) for this Teaching Unit (Unité d'enseignement – UE) for the programmes/courses that offer this Teaching Unit are specified at the end of this sheet.*
Main themes :	Module 1 (Q1: 15h -7.5) : Plant ecology. Principal plant strategies along their life cycles are described from germination to seed dispersal, through growth, survival and reproduction. Clonal strategy is compared to sexual reproduction. Seed dispersal, dormancy and soil seed bank arer overviewed. All these strategies are then compiled in practical context of plant invasions. One practical field demonstration is conducted at the Centre de Marbaix (experimental farm) to demonstrate the concepts of Agro-environemental schemes, eutrophication, water purification by plants ' Module 2 (Q2: 7.5 h) The 5 classical plant hormones, namely auxins, gibberellins, cytokinins, ethylene and abscissic acid, are studied in detail. The specific functions of other molecules involved in plant growth and development, but also in plant defence against biotic invaders, are viewed. The major role of photoperiodism in plant development is analysed in depth using the control of floral transition as an example. Basic concepts on photomorphogenesis and endogenous biological rhythms are overviewed as well as the biochemical and physiological basis of vernalization and bud dormancy. The mechanisms of resistance of plants to environmental constraints are schematically presented. Module 3 (Q3: 15h-7.5h) Principles, methods and history of plant systematics (Spermatophytes) are presented mainly in the light of the new development of plant taxonomy due to integrated methods in phylogeny (APG). Brief description of a selected choice of families and presentation in each case of a few typical species of interest for ecology, agriculture or horticulture are overviewed during theoretical courses. Morphology and organisation of the vegetative (leaves, stems, roots) and generative (flowers, inflorescences and fruits) apparatus are explained during practical courses and with a web application. Practical courses include exercises of plant determination with a flora and training with the help of a specially dedicated web site..
Aims :	1. To initiate students to plant ecology and the main plant strategies to growth, survive and reproduce worldwide in different environments and under constraints. They will be able to explain any plant strategy, to hypothesize about the invasive potential of a species according to its life history traits, to imagine experiments to determine some traits about the reproductive or clonal system. 2. To give students precise notions to apprehend the specificities of plant functioning and to master the complex problematics of processes governing growth, development and adaptation to the environment. To initiate students to methodologies used in physiology of the whole plant. 3. To initiate students to the systematics of angiosperms and to the observations of morphological characters allowing plant determination. Students will be able to determine with a flora and a dichotomic key any flowering temperate plant. They also be able to explain the main evolutionary ways in the Spermatophyte lineages. AA B1.2, B1.4, B2.4. Students will be able to Module 1 - Propose experimental protocols in plant reproduction - Evaluation the potential of plant invasion according to particular life history traits - Classify species according to their strategies (in growth, survival, pollination and dispersal) Module 3: - Determine a flowering species following a dichotomic key in a specific flora. - Describe a species using the adequate terms Compare evolutionary lineages or inventions in plant kingdom *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".*
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 Science and Management	ENVI2M	2	-	
Master [60] in Environmental Science and Management	ENVI2M1	2	-	
Bachelor in Bioengineering	BIR1BA	2	LBIO1341A	