






4.00 credits

30.0 h + 24.0 h

Q2

Teacher(s)	Nieberding Caroline ;Wesselingh Renate ;
Language :	French
Place of the course	Louvain-la-Neuve
Prerequisites	<i>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.</i>
Main themes	Knowledge of ecology is essential in understanding species distributions, and the first part of the course (A) teaches elementary ecology for those students who do not have this knowledge yet. The second part of the course (B) looks at both historical and ecological explanations for present-day distributions, and the practical work aims to illustrate the diversity in species composition in different biogeographical zones in Belgium.
Learning outcomes	<p>At the end of this learning unit, the student is able to :</p> <p>1 The aim is to learn what the historical and ecological reasons are behind the geographical distributions of living organisms and their communities, and the dynamic nature of these distributions.</p>
Evaluation methods	<p>Theoretical part: written exam with open questions, a separate series of questions for each teacher. The average of the two scores will be calculated to give the final score for the theoretical part.</p> <p>Practical work: each student should participate in at least one excursion and a single report should be written for all excursions where the student was present. The report should be handed in before a set date and it will be evaluated.</p> <p>For the whole course, the final note is calculated as follows: 0.80 * theoretical part + 0.20 * practical report.</p> <p>Partial dispensation can be obtained for successfully completed parts (10/20 or more) between exam sessions of the same academic year, after a written request by email and validation by return email from the course holders.</p>
Teaching methods	The theoretical parts consist of lectures. The practicals are field excursions of a full day each, at the end of the semester (on Fridays in week 10, 11 and 12).
Content	<p>Theoretical course (30 h, all students):</p> <p>Historical biogeography (15 h, Caroline Nieberding)</p> <p>Historical factors that influence present-day distributions: continental drift, climate change, mass extinctions; global distribution of diversity at higher taxonomic levels; phytogeographical kingdoms and zoogeographical provinces; centres of origin; vicariance; long-distance dispersal; ice ages; Quaternary phylogeography; glacial refugia; diversification.</p> <p>Ecological biogeography (15 h, Renate Wesselingh)</p> <p>Patterns of biodiversity: counting species, gradients of biodiversity, hotspots, diversity in time (succession, climax), richness and diversity.</p> <p>Patterns of distribution: geographical range, methods to represent distribution ranges on maps, effects of scale, limits to distributions, overcoming the barriers, types of connections, relictual distributions, endemism, dispersal, invasions, migration, the ecological niche, niche overlap, fundamental and realized niche.</p> <p>Communities and ecosystems: community richness, alpha, beta, gamma, and delta richness, diversity index, closed and open communities, plant growth forms, plant formations, biomes, zonal vegetations, arid regions, interzonal vegetations, predictive models.</p> <p>Island biogeography : types of islands, arriving on an island, species-area relationships, surviving on an island, the Theory of Island Biogeography, evolution and speciation on islands, adaptive radiation, insularity syndromes.</p> <p>The practical work (24 h = 3 field excursions to visit different biogeographical regions in Belgium) is for geography students and other non-biology students only. Biology students are advised to take the course Practical work in ecology and biogeography (LBIO1357) on the biogeography of Belgium.</p>
Inline resources	Moodle website for LGEO1332
Bibliography	Cox, C.B. & P. D. Moore (2005). Biogeography, an ecological and evolutionary approach (7th edition). Blackwell Publishing
Other infos	A basic knowledge of ecology (for instance LBIO1117) is required.

Faculty or entity in charge	GEOG
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Programmes containing this learning unit (UE)				
Program title	Acronym	Credits	Prerequisite	Learning outcomes
Master [120] in Geography : General	GEOG2M	5		
Master [120] in Geography : Climatology	CLIM2M	5		
Minor in Scientific Culture	MINCULTS	4		
Bachelor in Geography : General	GEOG1BA	4	LBIR1130 AND LBIO1110 AND LBIO1117	
Minor in Geography	MINGEOG	4		
Minor in Development and Environment	MINDENV	4		