UCLouvain

lboe2140

2023

Landscape ecology

4.00 credits	24.0 h + 24.0 h	Q1

Teacher(s)	Van Dyck Hans ;
Language :	English
Place of the course	Louvain-la-Neuve
Main themes	1. Definition and history of landscape ecology 2. Structural components of landscapes: spatial analysis 3. Habitat fragmentation: patterns and consequences 4. Movements by organisms: Structural versus functional connectivity of landscapes 5. Landscape ecology and conservation: ecological networks, corridors and de-fragmentation measures 6. Use of spatial software tools (GIS-applications) 7. Practical applications: bridging the gap between ecological science and policy making/landscape management
Learning outcomes	**At the end of this learning unit, the student is able to :** Landscape ecology addresses how to describe and quantify - and in particular how to understand - ecosystems at the landscape level by analyzing biotic, abiotic and human factors. In this course we particularly focus on the ecological functioning of landscapes within the frame of habitat fragmentation and the mobility of organisms. 1 Students need to know the key concepts of landscape ecology and need to understand in particular the difference between structural and functional landscape connectivity (in whatever application). Students should be familiar with the research methods used (empirical and modeling work). They should also be aware of the potential communication problems between ecologists and non-ecologists in practical multi-disciplinary projects.
Evaluation methods	There is a written exam on the theoretical part of the lectures with open questions (comprehension questions). For the practical course (TP-part of the course), the student has to prepare an individual report according to our guidelines. The theoretical exam counts for 60% of the final mark, the report for 40%. The student needs to get a sufficient score or mark (10/20 or more) for each part. It will not be tolerated to compensate an insufficient mark on one of the parts by a sufficient mark on the other.
Teaching methods	This teaching unit consists of two parts that require the presence of the students. There is a series of theoretical lectures, which make use of a number of PowerPoint presentations. These lectures are given in an interactive way (frequent discussions with students). The other part is a practical course in a computer room supervised by a teaching assistant (exercises in landscape ecology with a GIS-computer system). The presentations and all other relevant information (e.g. manual about the practical course) is available on the Moodle website of this course, as well as a number of scientific papers that are used. Lectures are given in english.
Content	This teaching unit focuses on the analysis and understanding of structural variation in landscapes in order to better grasp its functioning for biodiversity components. The topics covered in these lectures include : 1. Definition and history of landscape ecology; 2. Structural components of landscapes: spatial analysis; 3. Habitat fragmentation; 4. Urbanization; 5. Landscape ecology and conservation: ecological networks, corridors and de-fragmentation measures, structural vs functional connectivity of landscapes; 6. Use of spatial software tools (GIS-applications); and 7. Practical applications.
Inline resources	Moodle web site of this course with the PowerPoint presentations, the manual of the practical course and scientifc papers.
Other infos	Students need to have prior basic knowledge of a Geographic Information System (GIS/SIG, e.g. ArcGis), or have taken the course LGEO1342A to learn the basic skills of using such a computer program.

Faculty or entity in charge	BIOL

Programmes containing this learning unit (UE)

Program title	Acronym	Credits	Prerequisite	Learning outcomes
Master [120] in Biology of Organisms and Ecology	BOE2M	4		
Master [60] in Biology	BIOL2M1	4		
Master [120] in Geography : General	GEOG2M	4		