Course Specifications
Valid in the academic year 2017-2018

Landscape Ecology (C001032)

Course size
(nominal values; actual values may depend on programme)
Credits 5.0  Study time 150 h  Contact hrs 50.0 h

Course offerings and teaching methods in academic year 2017-2018
A (semester 2)  English  lecture 20.0 h
demonstration 5.0 h
fieldwork 15.0 h
seminar: practical PC room classes 10.0 h

Lecturers in academic year 2017-2018
Van Eetvelde, Veerle  WE12  lecturer-in-charge
Engler, Jan Oliver  WE11  co-lecturer

Offered in the following programmes in 2017-2018
Master of Science in Geography  5  A
Exchange programme in Geography (master's level)  5  A

Teaching languages
English

Keywords
Landscape ecology, spatial pattern, ecological processes, population dynamics, landscape metrics

Position of the course
Landscape ecology as a transdisciplinary approach of landscape structure and dynamics with an interaction between spatial pattern and processes.

Contents
Theory:
1 Situation of the discipline, meaning of landscape in landscape ecology, basic concepts and paradigm, model for landscape analysis, inter and transdisciplinary approach development of landscape ecology and relations to other disciplines of landscape research Meaning of scale, holism and hierarchy; landscape as a system; interaction of spatial pattern and processes and dynamics. Contribution of spatial planning, landscape management and nature conservation (fragmentation, biodiversity). Ecosystems and landscape services.
2 Ecological concepts (interaction species-environment), physical conditions and natural resources, climate and geographical distribution of species, biotopes, population dynamics, disturbance and competition, habitat, succession diversity and ecological functioning, species richness, heterogeneity, organisms and landscape patterns, percolation theory, island biogeography, meta-population theory, source-risk metapopulations, ecological neighbourhoods (core-edge), population viability analysis (PVA) en modelling; ecotones
3 Quantifying spatial patterns (composition and configuration), landscape metrics and indices, use of ArcGIS and FRAGSTATS, transect analysis, autocorrelation, temporal aspects, landscape change analysis, historical ecology

Field trips:
Day excursion to illustrate landscape ecological aspects on an integrated and holistic approach by case studies in the field.

Initial competences
Insights in ecological processes and landscape research from courses: Biosphere-plants (Ba-1), Introduction to Ecology (Ba-2), Introduction to landscape science (Ba-2)
and landscape science (Ba-3), basic competences of GIS and spatial analysis.

Final competences
1. To describe and analyse landscapes, the functions and spatial patterns using the terminology and concepts from landscape ecology.
2. To situate the discipline of landscape ecology as interdisciplinary science in a broad social context.

Conditions for credit contract
Access to this course unit via a credit contract is determined after successful competences assessment

Conditions for exam contract
This course unit cannot be taken via an exam contract

Teaching methods
Demonstration, lecture, fieldwork, seminar: practical PC room classes

Extra information on the teaching methods
Exercises: guided and individual project work (VORTEX and Fragstats)

Learning materials and price
Lecture notes, handbook (Antrop 2007), hand-outs lectures, excursion guides
Books, articles, journals available in library of the Geography department
Fee for excursion: 5€ for full day, 3€ for 1/2 day

References
In the library of the Geography department:

Course content-related study coaching
Coaching by AAP and via Minerva and Geoweb

Evaluation methods
end-of-term evaluation and continuous assessment

Examination methods in case of periodic evaluation during the first examination period
Written examination with open questions, oral examination

Examination methods in case of periodic evaluation during the second examination period
Written examination with open questions, oral examination

Examination methods in case of permanent evaluation
Assignment
Possibilities of retake in case of permanent evaluation
examination during the second examination period is possible

(Approved)
Extra information on the examination methods

To participate the examine of the course, the student needs to hand in the exercise and to participate the field excursions en oefeningen. In the second examine term; there will be a compensating activity for students who failed the exercise.

Calculation of the examination mark

Permanent evaluation for exercises (10%)
Periodical evaluation for theory and field excursions (90%)
To pass this course or to get a delibratable grade, the student must have participated in all the teaching parts (theory + excursions + exercises).