UNIVERSITEIT GENT

Studiefiche

Vanaf academiejaar 2017-2018

Environmental Ecology (I001349)

Cursusomvang (nominale waarden; effectieve waarden kunnen verschillen per opleiding)

Studiepunten	7.0	Studietijd	202 u	Contacturen	90.0 u

Aanbodsessies en werkvormen in academiejaar 2018-2019

A (semester 1)	Engels	practicum	20.0 u
		excursie	25.0 u
		hoorcollege	45.0 u

Lesgevers in academiejaar 2018-2019

Goethals, Peter	LA22	Verantwoordelijk lesgever
Janssen, Colin	LA22	Medelesgever
Verbeeck, Hans	LA20	Medelesgever

Aangeboden in onderstaande opleidingen in 2018-2019	stptn	aanbodsessie
Master of Science in Environmental Sanitation	7	A
Uitwisselingsprogramma bio-ingenieurswetenschappen: land- en bosbeheer (niveau master-na-bachelor)	7	A

Onderwijstalen

Engels

Trefwoorden

Freshwater ecology, aquatic ecology, limnology, hydrobiology, materials budget, marine ecology, oceanography, systematics, pelagic environment, benthic environment, productivity, zonation, terrestrial ecology, ecosystem characteristics, plant-environment interactions, carbon budget, water budget, energy budget, antropogenic impact, experimental set-up

Situering

Part 1: Freshwater ecology
This introductory course aims at providing the students with the basic knowledge of the structure and the functioning of freshwater ecosystems. The abiotic (physical and chemical)characteristics of lakes and rivers, as well as the qualitative and quantitative composition of the different biological communities are reviewed. Major attention is paid to the materials budget of the inland waters and on the interactions between the living and non-living components. The practical training includes qualitative and quantitative microscopial analysis of the major biological communities living in freshwater ecosystems (phyto- and zooplankton, periphyton, macrobenthos).

Part 2: Marine ecology
This course aims at describing and illustrating the fundamental concepts and general processes governing marine ecosystems. In the theoretical course, the interactions between the abiotic factors and the structure and function of marine ecosystems are reviewed in detail. The practicals on the other hand are focussing on the systematics and auto- and synecology of the different groups of marine organisms. The practical exercises are supported by field excursions and case studies. The integration of the theoretical and practical aspects of marine ecology give the student an in-depth, experience-oriented knowledge of this scientific field.

Part 3: Terrestrial ecology
The course discusses exchange processes between living organisms (mainly plants) and their terrestrial environment. The main terrestrial ecosystems and their characteristics are reviewed. Special attention is paid to plant-radiation interactions and the micro-climates in vegetations and soils. The carbon, water and energy budgets of

ecosystems are discussed in detail. Actual antropogenic impact on terrestrial ecosystems (e.g. climatic change, disturbance) are also focussed on.

Inhoud

Part 1: Freshwater ecology
1. Distribution, age and genesis of inland waters
2. Structure and physical properties of water
3. Physical relationships in natural water bodies
3.1. Radiation climate
3.2. Heat balance of water bodies
3.3. Water movement and exchange in natural waters
4. Chemical properties of water
4.1. Dissolved gases and solids
4.2. Organic solutes in natural waters
5. Associations of living organisms in inland waters
5.1. Lakes, ponds, bogs
5.2. Flowing waters
6. Materials budget of inland waters
6.1. Production
6.2. Consumption
6.3. Destruction and the role of bacteria
6.4. Materials transport and energy flux in aquatic ecosystems

Part 2: Marine ecology
1. General characteristics of the marine environment
2. Zonations in the marine environment
3. Physical factors
4. Chemical factors
5. Systematics of marine organisms
6. Ecology of pelagic communities
7. Ecology of benthic communities
8. Synecology of the benthos
9. Productivity of marine systems
10. Explotation of marine systems - fisheries and aquaculture

Part 3: Terrestrial ecology
1. Introduction
2. Overview of terrestrial ecosystems
3. Physical environment of terrestrial ecosystems
4. Carbon budget of terrestrial ecosystems
5. Water budget of terrestrial ecosystems
7. Antropogenic impacts on ecosystems (e.g. energy and climate issues, carbon management,...)

Begincompetenties

General biology, general ecology

Eindcompetenties

1 Understanding the main theoretical processes driving ecosystem dynamics in aquatic and terrestrial ecosystems.
2 Based on the theoretical knowledge the student should be able to estimate possible consequences of human interactions in the different aquatic ecosystems of the world.
3 The course contributes to the basic knowledge of non-polluted environments as is necessary to study the different aspects related to environmental pollution.Based on the theoretical knowledge the student should be able to estimate possible consequences of human interactions in the different terresterial ecosystems of the world.

Creditcontractvoorwaarde

Toelating tot dit opleidingsonderdeel via creditcontract is mogelijk mits gunstige beoordeling van de competenties

Examencontractvoorwaarde

Dit opleidingsonderdeel kan niet via examencontract gevolgd worden

Didactische werkvormen

Excursie, hoorcollege, practicum

Leermateriaal

Part 1: Freshwater ecology handbook (see ref.1) and syllabus available
Part 2: Marine ecology syllabus available; for recommended literature see references
Part 3: Terrestrial ecology syllabus available
Geraamde totaalprijs: 25 EUR

Referenties

Part 1: Freshwater ecology
J. Schwoerbel - Handbook of limnology. Ellis Horwood Ltd. Chichester (1984). 228p
R.G. Wetzel - Limnology. Saunders College Publishing. Forth Worth (1983). 767p
Part 2: Marine ecology
R. Barnes, Invertebrate Zoology, Saunders College Publishing (1986)
J.W. Day et al, Estuarine Ecology, John Wiley and Sons (1989)
H. Thurman and H. Weber, Marine Biology, Merill Publ. Comp. (1984)
Part 3: Terrestrial ecology
Principles of Terrestrial Ecosystem Ecology F Chapin, P Matson and H Mooney, 436 pages,Springer-Verlag.

Vakinhoudelijke studiebegeleiding

Oral presentations, discussions in groups (of different sizes), forums in Minerva, guided excercises, contact hours for individual guidance upon request

Evaluatiemomenten

periodegebonden en niet-periodegebonden evaluatie

Evaluatievormen bij periodegebonden evaluatie in de eerste examenperiode

Schriftelijk examen met open vragen, schriftelijk examen met meerkeuzevragen

Evaluatievormen bij periodegebonden evaluatie in de tweede examenperiode

Schriftelijk examen met open vragen, schriftelijk examen met meerkeuzevragen

Evaluatievormen bij niet-periodegebonden evaluatie

Werkstuk, verslag

Tweede examenkans in geval van niet-periodegebonden evaluatie

Examen in de tweede examenperiode is enkel mogelijk in gewijzigde vorm

Eindscoreberekening

Elk deel draagt bij tot 33,3 % van de totale score. De examinator kan de student die zich onttrekt aan periodegebonden en/of niet-periodegebonden evaluaties voor dit opleidingsonderdeel niet-geslaagd verklaren.