Aquatic Microbial Ecology (C002476)

Studiefiche
Vanaf academiejaar 2017-2018

Lesgevers in academiejaar 2017-2018
Vyverman, Wim
Lima Mendez, Gipsi
Sabbe, Koen
Verleyen, Elie
Willems, Anne

Aanbodssessies en werkvormen in academiejaar 2017-2018
A (semester 1)
zelfstandig werk 20.0 u
hoorcollege 30.0 u

Aangeboden in onderstaande opleidingen in  2017-2018
stptn aanbodsessie
Master of Science in Marine and Lacustrine Science and Management 6 A
Master of Science in Aquaculture 6 A

Onderwijstalen
Engels

Trefwoorden
microbial biodiversity and ecology, viruses, prokaryotes, protozoa, micro-algae, marine and lake ecosystems, metagenomics

Situering
The aim of this course unit is to provide general insights in the biodiversity and ecology of micro-organisms in natural aquatic ecosystems. Special attention will be given to the increasing use of molecular tools, including the latest developments in the ‘omics’ area, to study aquatic microbial diversity and ecology. In addition to lecture sessions, students will have the opportunity to study specific topics in the field of Aquatic Microbiology through one or more literature assignments and practical sessions involving data analysis and interpretation.

Inhoud
This course unit will cover the microbial biodiversity occurring in natural marine ecosystems with emphasis on eubacteria, archaeabacteria, cyanobacteria, micro-algae and protozoa that play a crucial role in the microbial balance of seas and oceans. Next to general overviews on microbial diversity, natural interactions and importance for ecosystem functioning, a number of lectures will be specifically dedicated to methodological aspects of microbial sampling, isolation, enumeration and identification. The following lectures or lecture series are scheduled in this course unit:

PROKARYOTES
• General introduction to the taxonomic and functional diversity of aquatic prokaryotes
• Sampling, isolation and identification of aquatic prokaryotes
• Molecular diversity and dynamics of bacterial populations in seas and oceans

PROTOZOA AND MICRO-ALGAE
• General overview of the biodiversity of aquatic micro-algae and protozoa
• Sampling, culturing and identification of aquatic micro-algae and protozoa
• Functional diversity of aquatic micro-algae and protozoa
• Biodiversity patterns of aquatic eukaryotic micro-organisms (e.g. seasonality, biogeographical aspects)
• Harmful Algal Blooms (HABs)

GENERAL
• Microbial interactions in marine ecosystems

In addition to the scheduled lectures, students will receive one or more literature assignments. In this way, students have the opportunity to analyze and summarize the experimental design and major findings of published studies in the field of Marine Microbiology, and to present their own views before fellow students by means of an oral Powerpoint presentation.

Begincompetenties
Basic knowledge of molecular biology, biochemistry and of the physical and chemical ecology of aquatic ecosystems

Eindcompetenties
1 Understanding functional microbial diversity in aquatic environments.
2 Understanding and explaining microbial interactions in aquatic ecosystems.
3 Deciding on methodological aspects for isolation and identification of aquatic microorganisms.
4 Summarizing and discussing published literature data.

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
Hoorcollege, zelfstandig werk

Toelichtingen bij de didactische werkvormen
Oral lectures, group sessions and individual assignments

Leermateriaal
Powerpoint presentations of each oral lecture will be made available in pdf format via Minerva.

Referenties

Vakhoudelijke studiebegeleiding
Interactive support via Minerva. Personal contact with lecturers is possible after electronic appointment.

Evaluatiemomenten
periodegebonden evaluatie

Evaluatievormen bij periodegebonden evaluatie in de eerste examenperiode
Schriftelijk examen

Evaluatievormen bij periodegebonden evaluatie in de tweede examenperiode
Schriftelijk examen

Evaluatievormen bij niet-periodegebonden evaluatie

Tweede examenkans in geval van niet-periodegebonden evaluatie
Niet van toepassing

Toelichtingen bij de evaluatievormen
- Bioinformatics exercises
- Literature assignment
- Written examination with knowledge and interpretive questions

Eindscoreberekening
• Exercises: 20%
• Literature assignment: 20%
• Written examination: 60%