

Algae Culture (I000086)

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

Studiepunten 3.0 **Studietijd 75 u**

Aanbodsessies en werkvormen in academiejaar 2024-2025

A (semester 2)	Engels	Gent	hoorcollege practicum
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Lesgevers in academiejaar 2024-2025

Han, Taejun	LA22	Verantwoordelijk lesgever
De Clerck, Olivier	WE11	Medelesgever

Aangeboden in onderstaande opleidingen in 2024-2025

	stptn	aanbodsessie
Master of Science in Aquaculture	3	A
Uitwisselingsprogramma bio-ingenieurswetenschappen: landbouwkunde (niveau master-na-bachelor)	3	A

Onderwijstalen

Engels

Trefwoorden

Aquaculture, microalgae, macroalgae, seaweeds, culture techniques, applications.

Situering

This course aims at providing an overview of the procedures which are used for the cultivation of microalgae and macroalgae (seaweed). Microalgae are needed as live food in aquaculture of shellfish, crustaceans and zooplankton or are considered as candidate biofuels. Cultivation techniques and life cycle control of macroalgae (seaweed) is also addressed. Seaweed are used as food but also as bioresource from which numerous products are extracted. Seaweeds are also considered as important components of integrated multitrophic aquaculture.

Inhoud

1. Microalgae
 - 1.1. Importance and uses of microalgae
 - 1.2. Characteristics of microalgae, species cultured
 - 1.3. Culture requirements: physical, chemical
 - 1.4. Types of cultures and growth dynamics (autotrophic versus heterotrophic)
 - 1.5. Culture systems and procedures (including highly intensive microalgal cultures for biofuel)
 - 1.6. Problems and constraints: nutritional, technical, economical
 - 1.7. Practical classes on the maintenance and quality analysis of microalgal cultures

2. Macroalgae
 - 2.1. Origin and importance of macroalgae
 - 2.2. Characteristics of macroalgae, species cultured
 - 2.3. Life cycle control of commercial seaweed species
 - 2.4. Culture systems and procedures for green, brown and red algae

Begincompetenties

General biology, chemistry, biochemistry and basic knowledge on aquaculture.

Eindcompetenties

- 1 the student knows the different procedures, which are used for the cultivation of

- microalgae and macroalgae.
- 2 The student is able to describe how environmental parameters limit algal growth (including application in intensive cultures).
 - 3 The student understands and can apply algal growth dynamics.
 - 4 The student understands the advantages and disadvantages of autotrophic versus heterotrophic growth.
 - 5 The student has experienced basic techniques of microalgal culturing, has taken samples and has done quality checks.

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, Practicum

Toelichtingen bij de didactische werkvormen

Theory lectures: lectures based on powerpoint presentations.

Practical classes: microalgae culturing experiments in small groups.

Studiemateriaal

Type: Slides

Naam: Algal Culturing - Partim De Clerck
Richtprijs: Gratis of betaald door opleiding
Optioneel: nee
Taal : Engels
Aantal slides : 160
Oudst bruikbare editie : nvt
Beschikbaar op Ufora : Ja
Online beschikbaar : Nee
Beschikbaar in de bibliotheek : Nee
Beschikbaar via studentenvereniging : Nee

Referenties

J.E.Bardach, J.H. Ryther & W.O.McLarney. *Aquaculture. The Farming and Husbandry of Freshwater and Marine Organisms*. Wiley-Interscience. (1972). 868 pp.

M. Borowitzka & L. Borowitzka (eds): *Micro-Algal Biotechnology*. Cambridge University Press (1988)

Hatchery operation: culture of algae

FAO manuel on the production and use of life food in aquaculture (FAO 361)

Vakinhoudelijke studiebegeleiding

Study guidance upon request by email or on appointment.

Evaluatiemomenten

periodegebonden en niet-periodegebonden evaluatie

Evaluatievormen bij periodegebonden evaluatie in de eerste examenperiode

Schriftelijke evaluatie met open vragen

Evaluatievormen bij periodegebonden evaluatie in de tweede examenperiode

Schriftelijke evaluatie met open vragen

Evaluatievormen bij niet-periodegebonden evaluatie

Participatie, Schriftelijke evaluatie

Tweede examenkans in geval van niet-periodegebonden evaluatie

Examen in de tweede examenperiode is mogelijk

Toelichtingen bij de evaluatievormen

Period aligned evaluation: theory: written closed book exam.

Non-period aligned evaluation: practical classes: participation and written closed book exam.

Eindscoreberekening

Out of 20:

15 points attributed to written exam

5 attributed to written exam on practical classes

Students who eschew period aligned and/or non-period aligned evaluations for this course unit may be failed by the examiner.

Students that do not attend the practical course without a valid reason, should retake the course the next academic year.