

Algae Culture (I000086)

Wegens Covid19 kan mogelijk afgeweken worden van de onderwijs- en evaluatievormen. Dergelijke afwijkingen zullen via Ufora worden gecommuniceerd.

Cursusomvang *(nominale waarden; effectieve waarden kunnen verschillen per opleiding)*
Studiepunten 3.0 **Studietijd** 75 u **Contacturen** 30.0 u

Aanbodsessies en werkvormen in academiejaar 2022-2023

A (semester 2)	Engels	Gent	practicum hoorcollege	15.0 u 15.0 u
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Lesgevers in academiejaar 2022-2023

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

Aangeboden in onderstaande opleidingen in 2022-2023

	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, needed as live food in aquaculture of shellfish, crustaceans and zooplankton or which are widely considered as candidate biofuels, as well as the cultivation of macroalgae (seaweeds) of which numerous useful products are extracted and which are considered as important components of integrated multitrophic aquaculture.

The practical training involves the maintenance of microalgae cultures and quality analysis.

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. Importance and uses of macroalgae
 - 2.2. Characteristics of macroalgae, species cultured
 - 2.3. Culture requirements: physical, chemical
 - 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.

Leermateriaal

Printouts of the powerpoint presentation will be available during all classes.

Estimated cost of the printouts: 10 euro (included in fee that is paid in the beginning of the academical year).

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

Schriftelijk examen

Evaluatievormen bij periodegebonden evaluatie in de tweede examenperiode

Schriftelijk examen

Evaluatievormen bij niet-periodegebonden evaluatie

Schriftelijk examen, participatie

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.