



From the academic year 2010-2011 up to and including the academic year 2011-2012

## Aquatic Ecology (C002754)

**Course size** (nominal values; actual values may depend on programme)

**Credits** 4.0      **Study time** 120.0 h      **Contact hrs** 54.5 h

### Course offerings and teaching methods in academic year 2011-2012

A (semester 2)	practicum	3.75 h
	lecture	30.0 h
	excursion	15.0 h
	seminar: coached exercises	2.5 h

### Lecturers in academic year 2011-2012

Vyverman, Wim	WE11	lecturer-in-charge
Vanreusel, Ann	WE11	co-lecturer
Verschuren, Dirk	WE11	co-lecturer

### Offered in the following programmes in 2011-2012

	crdts	offering
<a href="#">Bachelor of Science in Biology</a>	4	A
<a href="#">Master of Science in Biology</a>	4	A

### Teaching languages

English

### Keywords

Marine and freshwater habitats, physical and chemical environment, food webs, biological interactions, biogeography, biological cycling, management

### Level

introductory

### Position of the course

To acquire a sound understanding of principal abiotic and biotic characteristics of aquatic ecosystems, their function and the impact of human activities on marine and freshwater ecosystems.

### Contents

- Physical, chemical and geological characterization of marine and freshwater habitats (topics include origin of lakes and marine habitats, water properties, light, heat, stratification, movement of water, oxygen, oxidation-reduction, inorganic carbon, salinity, nitrogen, phosphorus, iron, eutrophication)
- Biological and biogeographical characterization of aquatic environments, with emphasis on life history strategies of selected groups of organisms
- Functioning of aquatic ecosystems (foodweb structure and key processes: primary production, secondary production, decomposition, interaction between aquatic and terrestrial environments)
- Applied issues (exploitation, introduction of exotic species, global change and large-scale impacts, management)

### Initial competences

General principles of ecology (population ecology, community and ecosystem ecology), biogeography and basic knowledge of aquatic biodiversity.

### Final competences

The student gain insight into the principal concepts of aquatic ecology, including both freshwater and marine environments. He knows the major types of freshwater and marine habitats, how they are formed and evolve, and understands their place in the hydrological and geochemical cycles. He understands the importance, measurement

and dynamics of principal physical and chemical aspects of aquatic environments. He knows the life history and trophic relationships of the principal groups of organisms inhabiting aquatic ecosystems. He has a basic knowledge of how to characterise the biological cycling of energy and materials in aquatic environments. He understands the major aquatic ecosystem management methods and models. This knowledge forms the basis for field work in limnology and marine biology in bachelor 3.

#### **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**

Excursion, lecture, practicum, seminar, self-reliant study activities, seminar: coached exercises

#### **Extra information on the teaching methods**

#### **Learning materials and price**

English handbook: Dobson M. & Frid, C. Ecology of Aquatic Systems. Longman, 1998. ISBN 0582298040, price approximately 35 Euro.

PPT presentations available via Minerva (~150 pp. = 10€); Cost: 45 EUR

#### **References**

Wetzel, R.G. (2000). Limnology. Lake and river ecosystems. Academic press.

Barnes, R. (1991). Fundamentals of aquatic ecology. Blackwell Science.

Barnes, R. (1999). An introduction to marine ecology. Blackwell Science.

Dodds, W. (2002). Freshwater ecology: concepts and environmental applications. Academic press.

#### **Course content-related study coaching**

During practical classes, assignments on selected topics are prepared and presented during group discussions. During these classes, students can pose general questions on the course's content.

#### **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

#### **Examination methods in case of periodic evaluation during the second examination period**

Written examination with open questions

#### **Examination methods in case of permanent evaluation**

Participation, skills test, report

#### **Possibilities of retake in case of permanent evaluation**

examination during the second examination period is possible in modified form

#### **Extra information on the examination methods**

Non-periodical evaluation: practical classes: performance and results of practicum and reports.

Periodical evaluation: written exam: questions testing knowledge and understanding of study material.

#### **Calculation of the examination mark**

Intermittent evaluation during practical classes and excursions (10%)

Final evaluation: written exam (90%)

If a student failed in the first examination period, he is offered a second chance for the non-periodical evaluation via a compensating individual task between the first and second exam period