GHENT UNIVERSITY

Course Specifications

Valid as from the academic year 2024-2025

Frontiers in Animal Health (I002869)

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

Credits 6.0 **Study time 168 h**

Course offerings in academic year 2025-2026

A (semester 2) English Gent

Lecturers in academic year 2025-2026

Forlenza, Maria	WAGENI01	lecturer-in-charge
Wiegertjes, Geert F	WAGENI01	co-lecturer

Offered in the following programmes in 2025-2026	**crdts**	**offering**
International Master of Science in Health Management in Aquaculture	6	A

Teaching languages

English

Keywords

Position of the course

The expertise level is such that it prepares for an Internship or a MSc thesis supervised by the Aquaculture and Fisheries Group or the Adaptation Physiology Group or Host-Microbe Interactomics Group of the Department of Animal Sciences.

Contents

Considering the fast growth of the aquaculture sector as well as the worldwide intensive livestock farming, it is important to guarantee the health and welfare of these farmed animals. These animals, even when kept under controlled farming conditions, are continuously exposed to a myriad of infectious agents, some of which can also be transmitted between animal species or to humans (zoonosis). Therefore, to prevent disease outbreaks under farming conditions, understanding the defence system of farmed animals and how we can stimulate it, is of utmost importance. Immunostimulation through e.g. feed aims at potentiating the early defence system of animals but generally relies on innate immune responses. Vaccination however, which relies on adaptive immune memory responses, is without doubts the most specific and effective disease prevention strategy currently available. Effective vaccines take into account not only the nature of the pathogen, but also the immune system of the host. But when it comes to farmed animals (fishes, birds, mammals), the variety among species can be extremely high. Therefore, it is only by being aware of the specific features of the immune system of fish and other farmed animals that we can design the best disease-prevention strategies tailored to the animal species. Yet, there are also many communalities to learn from.

Initial competences

Competence for admission to EM AquaH study program and first semester courses at UGent.

Final competences

1 After successful completion of this course students are expected to be able to:
- identify and recognize the organs, cells and molecules that play a major role in the immune defence of fish and selected major livestock species

2 • understand and explain the differences and communalities in immune reactions against relevant pathogens of fish and selected major

livestock species
3 • exemplify the specifics of the immune system of fish and other farmed species
4 • gain hands-on practical experience with the analysis of immune responses to (fish) pathogens
5 • gain hands-on practical experience with vaccine design (e.g. nucleic acids-based vaccines; subunit vaccines) and understand the need to apply different routes of vaccination in different farm animals
6 • formulate research questions relevant to an internship or a thesis
7 • resolve research questions applicable to an internship or a thesis
8 • critically evaluate research papers and translate these into a comprehensive personalized review.

Conditions for credit contract

This course unit cannot be taken via a credit contract

Conditions for exam contract

This course unit cannot be taken via an exam contract

Teaching methods

Lecture, Practical, Independent work

Extra information on the teaching methods

- follow lectures (blended form of teaching);
- perform practical exercises;
- write individual report.

Study material

None

References

Basic Immunology, 6th Edition, A. K. Abbas, A.H. Lichtman, S. Pillai will be for sale at the University bookshop.
If students buy a second-hand copy of the book, make sure to ask the previous owner for the e-mail and password used to get access to the online material. If the student buys an older edition, it is the responsibility of the student to compare the content and stay updated on changes in the latest edition.

Course content-related study coaching

Assessment moments

end-of-term and continuous assessment

Examination methods in case of periodic assessment during the first examination period

Written assessment with multiple-choice questions

Examination methods in case of periodic assessment during the second examination period

Written assessment with multiple-choice questions

Examination methods in case of permanent assessment

Skills test, Participation, Assignment

Possibilities of retake in case of permanent assessment

examination during the second examination period is possible

Extra information on the examination methods

- individual exam (70% of final grade) with multiple choice questions on lectures;
- hands-on practical work with final report (10% of the final grade);
- individual reports (20% of the final grade).

Presence and participation is obligatory during practical work.
For the individual report, practical report as well as final exam a minimum score of 5.00 needs to be obtained to succeed in each of these parts; an overall score of 6.00 is required to pass for the entire course.

Calculation of the examination mark

For the individual report, practical report as well as final exam a minimum score of 5.00 needs to be obtained to succeed in each of these parts; an overall score of 6.00 is required to pass for the entire course.