

## Fish and Shellfish Immunology (1002797)

<b>Course size</b>	<i>(nominal values; actual values may depend on programme)</i>		
<b>Credits 4.0</b>	<b>Study time 120 h</b>	<b>Contact hrs</b>	40.0h

### Course offerings in academic year 2022-2023

A (semester 1)	English	Gent
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### Lecturers in academic year 2022-2023

Vanrompay, Daisy	LA22	lecturer-in-charge
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### Offered in the following programmes in 2022-2023

	<b>crdts</b>	<b>offering</b>
<a href="#">International Master of Science in Health Management in Aquaculture</a>	4	A
<a href="#">International Master of Science in Marine Biological Resources</a>	4	A
<a href="#">Master of Science in Aquaculture</a>	4	A
<a href="#">Exchange Programme in Bioscience Engineering: Agricultural Sciences (master's level)</a>	4	A

### Teaching languages

English

### Keywords

Antigens, immune organs of fish, inflammation, key cells of innate immunity in fish, cell based innate immune sensing in fish, cellular effectors in fish, humoral-based immune sensing in fish, cytokines, chemokines, MHC of fish, antigen presentation in fish, T and B cell response in fish, immunoglobulins of fish, key cell types of innate immunity in shellfish, pathogen recognition receptors of shellfish, the proPO system in shellfish, coagulation in shellfish, anti-viral mechanisms in shellfish

### Position of the course

This course aims at providing a detailed overview on immunology of fish and shellfish.

### Contents

- 1 History of immunology
- 2 Antigens
- 3 Immune organs of fish
- 4 Inflammation
- 5 Innate immunity
- 6 Key cells
- 7 Cell based innate immune sensing fish
- 8 Cellular effectors in fish
- 9 Humoral-based immune sensing in fish
- 10 Cytokines and chemokines
- 11 MHC in fish
- 12 Ag presentation
- 13 T cell response in fish
- 14 Immunoglobulines of fish
- 15 B cell response in fish
- 16 Hemocytes in shellfish and tissues of their immune system
- 17 PRR of shellfish
- 18 ProPO in shellfish
- 19 Coagulation in shellfish
- 20 Anti-viral mechanisms in shellfish

### Initial competences

General biology, microbiology, basic knowledge on aquaculture.

### **Final competences**

- 1 The student possesses a broad knowledge at an advanced level in a number of basic disciplines (biology, immunology) relevant to aquaculture-- Klik om te editeren ---
- 2 The student understands the processes ongoing in different forms and systems of aquatic production in relation to disease prevention-- Klik om te editeren ---
- 3 The student understands the ethical issues of animal production and experimentation-- Klik om te editeren ---
- 4 --The student can design and implement strategies for future development in aquaculture wiht emphasis on prevention of infectious diseases Klik om te editeren ---
- 5 --The student is able to interact with peers, with various stakeholders in the aquaculture sector, and with a general public concerning personal research, thoughts, ideas, and research proposals, both written and orally- Klik om te editeren ---

### **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**

Lecture

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

Theory lectures: lectures based on powerpoint presentations.

### **Learning materials and price**

Syllabus (English). Estimated price 15 euro.

### **References**

- 1) Fish Defenses, Vol I: Immunology. Edited by G. Zaccane et al., (2017). CRC Press, Taylor & Francis Group
- 2) Fish vaccination. Edited by R. Gudding, A. Lillehaug and O. Evensen (2014). John Wiley & Sons, Ltd. , 9600 Garsington Road, Oxford, OX4 2DQ, UK. ISBN 978-0-470-67455-0.
- 3) Immunobiology. Kenneth Murphy and Casey Weaver. 9<sup>th</sup> Edition, (2016). Garland Science Publishing. Book is also known as Janeway's Immunobiology
- 4) Essential Immunology. P.J. Delves, S.J. Martin, D.R. Burton, Roitt, I.M. (eds) (2011). Wiley-Blackwell 12<sup>th</sup> edition.
- 5) Abul K. Abbas & Andrew H. Lichtman, S. Pillai (2017). Cellular and Molecular Immunology. 9<sup>th</sup> edition. Elsevier Science/Saunders, Philadelphia.

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

Teacher available for student counselling

### **Assessment moments**

end-of-term assessment

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

Written examination

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

Written examination

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

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

not applicable

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

Theory: written examination

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

Out of 20:  
20 points attributed to written exam  
Students who eschew period aligned evaluations for this course unit may be failed  
by the examiner.