GHENT UNIVERSITY

Course Specifications

Valid as from the academic year 2025-2026

Oceans and Human Health (I002604)

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

Credits 3.0 **Study time 90 h**

Course offerings and teaching methods in academic year 2025-2026

A (semester 1)	English	Gent	lecture independent work
B (semester 1)	English	Gent	

Lecturers in academic year 2025-2026

Asselman, Jana	LA22	lecturer-in-charge
Janssen, Colin	LA22	co-lecturer

Offered in the following programmes in 2025-2026	crdts	offering
Bachelor of Science in Environmental Technology	3	A
Virtual Mobility	3	B
Master of Science in Bioscience Engineering: Environmental Technology	3	A
Exchange Programme in Bioscience Engineering: Environmental Technology (master's level)	3	A
Exchange Programme in Bioscience Engineering: Land and Forest management (master's level)	3	A

Teaching languages

English

Keywords

Oceans and Human health; Coastal populations; biodiscovery; sustainable use of the ocean, blue bio-economy

Position of the course

The marine environment contributes significantly to human health through the provision and quality of the air that we breathe, the food we eat, the water we drink, and in offering health-enhancing, economic and recreational opportunities. For millennia, humans have been dependent on seas and oceans as a source of food and a means of transportation. Yet, the oceans and coastal seas are like a double-edged sword when it comes to interactions with human health. Natural events such as hurricanes, severe storms and tsunamis can have devastating impacts on coastal populations, while pathogens and toxic waste can cause illness and death. In terms of productivity (lost working days), the overall global burden of human disease caused by sewage pollution of coastal waters has been estimated at 4 million lost person-years annually. On the positive side, the oceans provide humans with many benefits including food for around a third of the global population, the air that we breathe and our climate system which enables habitation of much of the planet. The marine environment can also be the source of potential health benefits through the provision of healthy food, novel pharmaceuticals and related products derived from marine organisms, as well as through a contribution to general well-being from a close association with the coastal environment (i.e. recreational and psychological benefits, or the Blue Gym effect).The marine environment is also under pressure from human activities such

as transport, industrial processes, agricultural and waste management practices. Evaluation and management of the resultant impacts, on both marine ecosystems themselves, and on human health, have largely been undertaken as separate activities, under the auspices of different disciplines with no obvious interaction. Hence, many relationships between the marine environment and human health are still relatively unexplored, leaving critical knowledge gaps for those seeking to develop effective policies for the sustainable use of marine resources and environmental and human health protection.

Contents

This course aims at describing and illustrating the fundamental and applied concepts of the emerging research and development field of Oceans and Human Health (OHH). This includes insights, fundamental science and applications to elucidate and understand how marine ecosystems impact human health and vice versa. This course aims at mobilizing interdisciplinary competencies and ensuring that the necessary scientific and technical capabilities are transferred. The complex and causal interconnections between the marine environment and ecosystem and human health require a systems approach addressing all levels of organization from genes to ecosystems. Such an integrated systems approach - which will be presented applied in this course - will draw on the skills and expertise of many scientific disciplines including the social and economic sciences. Topics will focus on both threats and benefits of marine ecosystems for human health, including biodiscovery of natural products, Blue Gym Effect, sea spray, offshore wind, deepsea mining and pollution in a broader context.
LECTURES (1.5 ECTS)
Part of the knowledge will be conveyed through lectures, including principles and basics of oceans & Human health and introduction to threats and opportunities within oceans and human health.
BLENDED LEARNING SESSIONS (INTEGRATION SEMINAR) (1 ECTS)
Students will be divided into groups to work on specific topics related to the course. Students can choose a specific project topic within a fixed theme that changes each academic year. The theme will be announced at the start of the course. This will focus on new ground-breaking topics relevant to Oceans & Human Health. Each blended learning session will provide knowledge and discussion on a critical part that students need to develop for their project (e.g. legislation, valorization). Part of the knowledge will be made available via free online available material (such as video's from lecturers, presentations at conferences, publications, reports). During the blended learning sessions this material will be discussed and argued in small groups to increase the insight and understanding and apply this to their topic. In the final session, students will summarize their main findings in a short written report and group presentation where the other students will question them based on an assigned perspective (e.g. industry, politician, citizen perspective)
CRITICAL REFLECTION (0.5 ECTS)
Students will then reflect on the project in a group report. The content of the report will be discussed and evaluated individually during the oral exam to assess the contribution and knowledge for each group member separately.

Initial competences

General and basis knowledge of biology, ecology, physics and chemistry. This course builds on the content of Applied marine ecology if you did not follow this course or an equivalent course, you can still follow Oceans and Human Health but an additional effort (reading some background material) might be required.

Final competences

1 Understand the main processes driving the relationship between marine ecosystem health and human health.
2 Discuss consequences of human activities in marine ecosystems.
3 Discuss how changes in marine ecosystems lead to consequences for human health
4 Identify threats and opportunities of blue economy activities to oceans and human health interactions
5 Develop strategies to further strengthen the positive human health impact of oceans

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, Independent work

Study material

Type: Slides

Name: Slides and papers related to the course
Indicative price: Free or paid by faculty
Optional: no
Language : English
Available on Ufora : Yes
Online Available : Yes
Available in the Library : No
Available through Student Association : No
Additional information: All course material is available freely on UFORA where students can choose to print it themselves (printing costs at their own expense)

References

Course content-related study coaching

Oral presentations, discussions in groups (of different sizes), contact hours for individual guidance upon request.

Assessment moments

end-of-term and continuous assessment

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

Oral assessment, Written assessment

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

Oral assessment, Written assessment

Examination methods in case of permanent assessment

Participation, Presentation, Assignment

Possibilities of retake in case of permanent assessment

not applicable

Extra information on the examination methods

* End of term assessment: Written examination on content of the lectures.
* Continuous assessment: participation of the student in the blended learning, project reports per session, presention at the end of the final session, final report, oral examination related to project.

Calculation of the examination mark

End of term assessment: 50%; continous assessment: 50%;
Students who eschew continuous or end of term assessment may be failed by the examiner.