GHENT UNIVERSITY

Course Specifications

Valid as from the academic year 2026-2027

Emerging Topics and Current Practice in Environmental Risk Assessment (I003014)

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

Credits 5.0 **Study time 150 h**

Course offerings and teaching methods in academic year 2026-2027

A (semester 2)	English	Gent	group work	0.0h
			peer teaching	0.0h
			lecture	0.0h
			seminar	0.0h

Lecturers in academic year 2026-2027

De Schamphelaere, Karel	LA22	lecturer-in-charge
Demeestere, Kristof	LA24	co-lecturer

Offered in the following programmes in 2026-2027	**crdts**	**offering**
Master of Science in Environmental Science and Technology	5	A

Teaching languages

English

Keywords

Environmental toxicology, ecotoxicology, risk assessment of chemicals, contaminants of emerging concern, chemical exposure, chemical hazards

Position of the course

This course builds further on fundamental knowledge and skills obtained in environmental chemistry and environmental risk assessment. The aims of this course are to bring students up-to-date with emerging topics and issues in environmental risk assessment of chemicals and to learn about current practice in the regulatory arena, based on case studies.

Contents

LECTURES

This part will deal with a selection of emerging topics in environmental risk assessment at an advanced level, with a special attention for trace contaminants of emerging concern (e.g. human pharmaceuticals), the use of new technologies and methods (e.g. QSAR models, species extrapolation, bioavailability), specific prevention, remediation and management tools (e.g., sustainable by design, advanced wastewater treatment), state-of-the-science and advanced monitoring methods (e.g. passive samplers, bioanalytical tools, non-targeted analysis). Topics will be dealt with in a detailed and holistic manner, including legislative aspect, accounting both for exposure, effects, risks, and remediation.
Part of the knowledge will be conveyed by classic lectures and guest lectures by specialists in the field. The students will need to prepare the lectures by critical reading of scientific papers related to the subject. Q&A sessions and discussion will follow at the end of every lecture.

CASE STUDY (GROUP WORK, SEMINAR, PEER-TEACHING)

In this part, the students will work on a certain class of chemicals (e.g., pharmaceuticals) and will need to seek answers to the following questions, in three parts:
1. REGULATORY OVERVIEW:
What is the current evidence on exposure, effects and risks of this class of chemicals?

What prevention, remediation, management actions are already being undertaken?
2. PROBLEM PRIORITISATION:
Which specific chemicals from this class are the most relevant to target for ecological impact reduction?
3.PROBLEM SOLVING:
What is the most appropriate and feasible approach to reduce ecological impact for these specific chemicals?
How can this be implemented and what are the limitations?
At regular intervals, the students will present their progress to the lecturer and discuss next steps. At the end of the case study, the students will report and discuss their findings in a seminar to invited stakeholders from the field (academia, industry, government).

Initial competences

Master of Science level knowledge in at least one of the following disciplines: (eco) toxicology, environmental risk assessment, or environmental chemistry

Final competences

1 Understand emerging issues in environmental risk assessment
2 Synthesize the current scientific evidence on an environmental risk assessment topic of emerging concern
3 Apply state-of-the-science models and tools for risk assessment of chemicals and communicate results to stakeholders
4 Perform exposure, effect, hazard and risk calculations according to current practice
5 Have knowledge about advanced monitoring and analytical tools for emerging chemicals and the interpretation of analytical results

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

Group work, Seminar, Lecture, Peer teaching

Study material

Type: Slides

Name: lectures and guestlectures
Indicative price: Free or paid by faculty
Optional: no
Language : English
Available on Ufora : Yes
Online Available : No
Available in the Library : No
Available through Student Association : No

References

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

Oral assessment

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

Oral assessment

Examination methods in case of permanent assessment

Participation, Presentation, Peer and/or self assessment, Assignment

Possibilities of retake in case of permanent assessment

examination during the second examination period is possible in modified form

Calculation of the examination mark

End of term assessment:20%; Continuous assessment: 80%
In case of assignments in group: if there is a clear difference in the input between the different group members, the examination mark for this part will be different between the different group members.
Students who eschew continuous or end of term assessment may be failed by the examiner. The maximum global score in this case is 7/20.