GHENT UNIVERSITY

Course Specifications

Valid as from the academic year 2023-2024

Sustainability in Food Systems: Theory and Concepts (I690022)

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

Credits 4.0 **Study time 120 h**

Course offerings in academic year 2024-2025

A (semester 1) English Kortrijk

Lecturers in academic year 2024-2025

Huysveld, Sophie	LA24	lecturer-in-charge
Cadena Martinez, Erasmo	LA24	co-lecturer
Dewulf, Jo	LA24	co-lecturer

Offered in the following programmes in 2024-2025	crdts	offering
Postgraduate Certificate Food Packaging	4	A
Postgraduate Certificate Sustainable Food Packaging Solutions	4	A

Teaching languages

English

Keywords

Sustainability, systems thinking, production and consumption, sustainable technology, life cycle thinking

Position of the course

This course focuses on the sustainability (assessment) of technological operations (human activities) and how to make them more sustainable from an environmental perspective. Also economic and social aspects are considered. Special attention is paid to food and food packaging systems, and on how the choice of production technology, ingredients, efficiency, logistics and avoidance of food waste contribute to a sustainable food system.

Contents

- Introduction on sustainable development, sustainability challenges, sustainable production and consumption
- Technology and sustainability
- The natural environment: resource base and sink for emissions
- Metabolism of anthroposphere (incl. circular economy)
- Life cycle sustainability assessment

Initial competences

Students are expected to have a scientific background at a university level (physics, chemistry, life sciences) and basic engineering skills (such as unit conversions, mass and energy balances).

Final competences

1 Students have knowledge of the environmental, social and economic sustainability challenges.
2 Students have knowledge of the meaning of systems thinking and are able to illustrate its importance for food systems with concrete examples.
3 Students can explain the concept 'sustainable development' and can place it in the context of the different stakeholders of food systems.
4 Students can explain how resource consumption and emissions from technological operations affect environmental sustainability of food systems.
5 Students have knowledge of concepts: clean technology, industrial ecology, circular economy and life cycle thinking.
6 Students can apply life cycle thinking when analyzing the sustainability of technological

operations in food systems.
7 Explain the challenges of prospective sustainability assessment of technological operations.
8 Distinguish environmental, economic and social effects of technological operations in food systems.

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

Group work, Lecture

Extra information on the teaching methods

Lectures (can be online) Theory and guest speaker from industry.
Group work (can be online).

Study material

None

References

Scientific literature available on this topic and the results of in-house research.

Course content-related study coaching

Before and after the lectures, the student can ask the teacher or assistant for additional information or explanations. The teacher and assistant can also be contacted by e-mail.

Assessment moments

end-of-term assessment

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

Assignment

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

Assignment

Examination methods in case of permanent assessment

Possibilities of retake in case of permanent assessment

not applicable

Extra information on the examination methods

Assignment: the evaluation of this course is part of an individual integrative assignment in which students have to integrate and apply knowledge and competences from all the different courses making up the specific elective track of the postgraduate certificate Food Packaging.
The student (qualitatively) evaluates a food product-packaging concept. The product-packaging concept will be predetermined before the start of the lectures. The student should demonstrate s/he is able to apply the course in an interdisciplinary way, and explain the concept from a course specific perspective.
The product of the assignment is a report (including a self-reflection) which will be presented to a jury.

Calculation of the examination mark

Students who eschew one or more parts of the evaluation may be failed by the examiner.
The end-of-term evaluation (100%): the assignment

- Report (60%)
- Presentation (20%)
- Q&A (20%)