GHENT UNIVERSITY

Course Specifications

Valid in the academic year 2022-2023

Food Fermentations (I002726)

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

Credits 4.0 **Study time 120 h** **Contact hrs** 40.0h

Course offerings and teaching methods in academic year 2022-2023

A (semester 2)	English	Gent	lecture	26.25h
			excursion	6.25h
			microteaching	3.75h
			group work	3.75h

Lecturers in academic year 2022-2023

Vandenbussche, Caroline	LA23	staff member
Raes, Katleen	LA23	lecturer-in-charge

Offered in the following programmes in 2022-2023	crdts	offering
Master of Science in Biology	4	A
Master of Science in Bioscience Engineering: Food Science and Nutrition	4	A
Master of Science in Food Technology	4	A
Exchange Programme in Bioscience Engineering: Chemistry and Bioprocess Technology (master's level)	4	A
Exchange Programme in Bioscience Engineering: Food Science and Nutrition (master's level)	4	A

Teaching languages

English

Keywords

Food Fermentations, fermentation techniques, bacteria, yeasts, molds, indogenous fermented food products

Position of the course

The course will focus on the production of different fermented foods, both industrial processes and traditional fermented food products. The role of the most important microorganisms (lactic acid bacteria, *Bacillus*, acetic acid bacteria, yeast, molds, ….) will be discussed. The impact of the fermentation process on microbiological, enzymatic, biochemical, nutritional changes will be dealt with. Different fermentation techniques will be discussed.

Contents

1. Introduction
2. Lactic acid fermentations
3. Alcoholic fermentations
4. Alkaline fermentationss
5. Acetic acid fermentations
6. High salt/savory sauce and paste fermentations
7. Fermentations producing meat substitutes
8. company visits
9. task

Initial competences

Basic knowledge of biochemistry and microbiology

Final competences

1 Explaining the principles of food fermentations and its applications

2 Explaining the role of the different microorganisms in the food fermentation process.

3 Discussing the biochemical, enzymatic and chemical reactions occurring during the production of fermented foods.

4 Demonstrating a critical, creative and scientific thinking attitude.

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, Microteaching, Excursion, Lecture

Extra information on the teaching methods

Task : Making a report related to a local fermented food product) and/or presentation of a recent paper on food fermentations and/or new fermentation process starting from a byproduct as raw material, presentation of the work for the other students in the course (is part of the course), as well at the internationalisation@home seminar (when it is organised)
Oral lectures

Learning materials and price

Syllabus is available

References

Walstra, P., Wouters, J.T.M. & Geurts T.J. (Eds.) (2006). Dairy Science and Technology, 2nd ed. CRC TAylor & Francis. 782 pp.ISBN 084727630
- Hutkins, R.W. 2006. Microbiology and technology of fermented foods. ISBN 978-0-8138-0018-9.
- Bamforth, C.W. 2005. Food, fermentation and micro-organisms. ISBN 978-0-632-05987-4.
- Feiner, G. 2006. Meat products handbook. ISBN 978-1-84569-050-2.
- Hui, Y.H. 2006. Food biochemistry and food processing.ISBN 978-0-8138-0378-4.

Course content-related study coaching

The students can contact the professor after the lectures.

Assessment moments

end-of-term assessment

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

Written examination with open questions

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

Written examination with open questions

Examination methods in case of permanent assessment

Report

Possibilities of retake in case of permanent assessment

examination during the second examination period is possible in modified form

Calculation of the examination mark

PGE: Written exam: 75%
NPGE: Report and presentation/defence of the task: 25%
When the student obtains less than 10/20 for at least one of the components (PGE or NPGE), they can no longer obtain a pass mark for the course unit as a whole. If the total score does turn out to be a mark of ten or more out of twenty, this is reduced to the highest fail mark (i.e. 9/20).
The deadlines for the paper must be respected. If not, a mark can be deducted from the total.
If different group members clearly show a different degree of input, then the final mark per student belonging to the same group can still differ.
Students who eschew one or more parts of the assessment can no longer obtain a

pass mark for the course unit. Should the final mark be higher than 7/20, it will be reduced to the highest non-passable mark (i.e. 7/20).