

Milk and Dairy Technology (I002764)

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

Credits 4.0	Study time 120 h	Contact hrs 40.0h
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Course offerings and teaching methods in academic year 2022-2023

A (semester 1)	English	Gent	guided self-study	2.5h
			practicum	13.75h
			excursion	3.75h
			lecture	20.0h

Lecturers in academic year 2022-2023

Moens, Kim	LA23	staff member
Dewettinck, Koen	LA23	lecturer-in-charge
Tzompa Sosa, Daylan Amelia	LA23	co-lecturer

Offered in the following programmes in 2022-2023

	crdts	offering
Bachelor of Science in Food Technology	4	A
Master of Science in Food Technology	4	A
Exchange Programme in Bioscience Engineering: Agricultural Sciences (master's level)	4	A
Exchange Programme in Bioscience Engineering: Food Science and Nutrition (master's level)	4	A

Teaching languages

English

Keywords

Milk, processing, dairy products, quality

Position of the course

This product oriented course deals with the technology of dairy products. Knowledge of general food technology and engineering is applied onto dairy products. Attention is given to the study of the raw material, modification and processing steps and quality aspects of end products. Practical sessions comprise analytical experiments, experimental work with pilot equipment and sensory analysis of dairy products.

Contents

1. Chemical and physical properties of milk

- 1.1 Carbohydrates
- 1.2 Lipids
- 1.3 Proteins
- 1.4 Minor components

2. Dairy Technology

- 2.1 Primary treatments of milk
- 2.2 Fermented products
- 2.3 Fat rich products
- 2.4 Cheese
- 2.5 Concentrates and powders

Initial competences

Milk and dairy technology builds on certain learning outcomes of the course unit food chemistry; or the learning outcomes are acquired in a different way.

Final competences

- 1 Explain the physicochemical properties of milk
- 2 Describe the production of different milk derived products
- 3 Assess the effect of processing on the quality characteristics of dairy products.
- 4 Critically evaluate the production process of dairy products
- 5 Integrate theoretical concepts in the practical sessions
- 6 Analyze (physico)chemical properties of dairy products.
- 7 Analyse and connect experimental data from raw milk characteristics to quality parameters of dairy products

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

Practicum, Guided self-study, Excursion, Lecture

Extra information on the teaching methods

The theory will be given by means of lectures. Slides with comments are available as study material. For the practical exercise the students will perform experiments and analyses in the lab.

Learning materials and price

Slides and practical notes will be available on Ufora (no costs).

References

BYLUND, G. (2003) Dairy Processing handbook. Tetra Pak Processing systems, Lund, Sweden.
 FREDRICK, E. (2011) Fat crystallization and partial coalescence in dairy cream: role of monoacylglycerols.
 SPREER E. (1998) Milk and Dairy product technology. Marcel Dekker, inc, New York.
 WALSTRA, P.; GEURTS, T.J.; NOOMEN, A.; JELLEMA, A. & VAN BOEKEL M. A. J. S. (1999) Dairy Technology - Principles of Milk Properties and Processes. Marcel Dekker, inc. New York / Basel.
 WALSTRA, P; WOUTERS, J.T.M.; GEURTS, T.J. (2006) Dairy science and technology. CRC Press Taylor & Francis, Boca Raton, Florida, USA.
 FOX, P. F., UNIAKKE-LOWE, T., MCSWEENEY, P. L. H., & O'MAHONY, J. A. (2015). Dairy chemistry and biochemistry, second edition.

Course content-related study coaching

Possibility to consult the lecturers or teaching assistants after the lectures and practical sessions or on appointment.
 The (practical) exercises are guided by a teaching assistant.

Assessment moments

end-of-term and continuous assessment

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

Oral examination

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

Oral examination

Examination methods in case of permanent assessment

Participation, Assignment

Possibilities of retake in case of permanent assessment

examination during the second examination period is possible in modified form

Extra information on the examination methods

An oral exam is organized. Several open questions will be given to the students. The students have time to prepare their answers.
 The assignment is a report of the practical exercises for which intermediate feedback is foreseen.

Calculation of the examination mark

The periodic evaluation is an oral examination which counts for 60% of the final mark. The permanent evaluation includes participation during the practical exercises and the report of the practical exercises and counts for 40% of the final mark.

Students who escew periodic and/or permanent evaluations cannot pass the exam. If the final mark is still 10/20 (or higher), the mark is reduced to 9/20.