GHENT UNIVERSITY

Course Specifications

Valid in the academic year 2023-2024

Meat Science and Technology (I002755)

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

Credits 4.0 **Study time 120 h**

Course offerings and teaching methods in academic year 2023-2024

A (semester 1)	English	Gent	independent work	0.0h
			excursion	
			group work	
			lecture	
			practical	

Lecturers in academic year 2023-2024

De Smet, Stefaan	LA22	lecturer-in-charge
Devlieghere, Frank	LA23	co-lecturer
Eeckhout, Mia	LA23	co-lecturer

Offered in the following programmes in 2023-2024	crdts	offering
Bachelor of Science in Food Technology	4	A
Master of Science in Bioscience Engineering Technology: Food Industry	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

Meat science, meat processing, meat quality, muscle biochemistry, sustainable meat processing, additives, meat alternatives

Position of the course

The aim of this course is to provide basic knowledge in 1/ meat characteristics and postmortal muscle biochemistry and their relation with the quality and processing of meat; 2/ the different technologies, ingredients and additives involved in meat processing. Attention is further given towards sustainability items in the meat industry and the position of meat consumption and the meat industry in a broader societal context.

Contents

Theory:

1. The contemporary meat industry
1.1. Meat in the societal context
1.2. Towards a sustainable meat food chain
2. Meat science
2.1. Introduction, definitions and composition
2.2. Meat consumption and nutritional value
2.3. Structure and biochemistry
2.4. Muscle to meat conversion
2.5. Sensorial and technological quality
2.6. Slaughtering and cutting of meat
3. Meat technology: technological processes in the meat industry
3.1. Freezing of meat
3.2. Cooking of meat

3.3. Drying of meat
3.4. Salting and curing of meat
3.5. Emulsified meat products
3.6. Restructured meat products
3.7. Additives in meat products
3.8. Meat alternatives
4. Food safety aspects of meat and meat products

Practice:
1. Measuring the quality of fresh meat
2. Company visits: meat processing plant, slaughterhouse (might be replaced by guest lecture)
3. Paper reading and debates: discussion of hot topics based on recent publications (e.g. meat and health; sustainability of meat production and consumption)
4. Group work: presentations on the meat industry in an international context (e.g. the meat chain in different parts of the world) and discussion.

Initial competences

The student has basic knowledge of biology, microbiology and biochemistry.

Final competences

1 Have basic knowledge of meat characteristics, muscle biochemistry and meat technological processes.
2 Have insight in the postmortal muscle to meat conversion and the effects thereof on sensory and technological quality.
3 Have insight in methods and approaches to analyse, assess and guarantee the quality of meat.
4 Understand how the treatment and the processing techniques in the production of meat products influence the properties and the quality of the derived products.
5 Have insight in the safety aspects of meat products.
6 Have insight in the contemporary evolution of the meat industry within the societal context and the impact of sustainable development.

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, Excursion, Lecture, Practical, Independent work

Extra information on the teaching methods

The theory is given by university lecturers an guest speakers. The practical part comprises of a laboratory practical, an excursion to a meat processing company and slaughterhouse (might be replaced by guest lecture), paper reading and debates on a hot topic and presentations on recent developments in the meat industry within different regions of world, given by the students as part of their group work.

Learning materials and price

English course notes with literature references are available. All learning material and presentations that are used during the lectures are available via UFORA.

References

Meat and meat products. 1995. Ed. A.H. Varnam and J.P. Sutherland. Chapman and Hall. ISBN 0-412-49560-0
Technology of meat and meat products. 1992. Ed. J.P. Girard. Ellis Horwood Limited. ISBN 0-13-904285-7
Lawrie's Meat Science, 6th edition. 1998. Ed. R.A. Lawrie. Woodhead Publishing Limited. ISBN 1-85573-395-1

Course content-related study coaching

For the theory and the practicals, contact hours are scheduled. During these contact hours the student can ask additional information or explanation to the lecturer. The practical exercises are guided by a teaching assistant. Additional support can be provided after making an appointment.

Assessment moments

end-of-term and continuous assessment

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

Written assessment

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

Written assessment

Examination methods in case of permanent assessment

Participation, Presentation, Written assessment, 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

Period-aligned evaluation:
The written examination consists of several questions that are mostly short open questions. Some questions aim at evaluating basic knowledge, whereas other questions aim at evaluating insight. One question is also included on the laboratory practical.
Non-period aligned evaluation:
Laboratory practical, paper debates and company visits: active participation is obligatory. Paper reading: written evaluation of the assignments. Group work on the meat chain: evaluation of the presentation.

Calculation of the examination mark

Period-aligned evaluation: 75% of the score
Non-period-aligned evaluation: 25% of the score
The student needs to participate to all assignments and exams that are part of the evaluation (period aligned and non-period aligned). Students who eschew period aligned and/or non-period aligned evaluations for this course unit, or when one obtains a score lower than 8/20 (not rounded up) on one of both parts (period aligned or non-period aligned evaluation), they will fail for this course unit. In that case the end score is set to 9/20 even when the calculation indicates a score of 10/20 or more.