

## 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 2024-2025

A (semester 1)

English

Gent

lecture

group work

excursion

practical

independent work

0.0h

### Lecturers in academic year 2024-2025

De Smet, Stefaan

LA22

lecturer-in-charge

Devlieghere, Frank

LA23

co-lecturer

Eeckhout, Mia

LA23

co-lecturer

### Offered in the following programmes in 2024-2025

[Bachelor of Science in Food Technology](#)

crdts 4

offering 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 postmortem 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 and 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.

**Study material**

Type: Syllabus

Name: Notes

Indicative price: Free or paid by faculty

Optional: no

Language : English

Available on Ufora : Yes

Additional information: The notes consist of the syllabus and the slides presented during the lectures.

Type: Slides

Name: Meat Science and Technology

Indicative price: Free or paid by faculty

Optional: no

Language : English

Available on Ufora : Yes

Type: Lab Material

Name: Practicum meat quality

Indicative price: Free or paid by faculty

Optional: no

Type: Excursion

Name: Company visits

Indicative price: Free or paid by faculty

Optional: no

## 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.