GHENT UNIVERSITY

# Course Specifications

Valid as from the academic year 2024-2025

## Statistical Topics in Food Technology (I002761)

**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 | Gent |

**Lecturers in academic year 2024-2025**

| | | |
|---|---|---|
| Meys, Joris | LA26 | staff member |
| De Meyer, Tim | LA26 | lecturer-in-charge |

| Offered in the following programmes in 2024-2025 | crdts | offering |
|---|---|---|
| Master of Science in Food Technology | 4 | A |
| Exchange Programme in Bioscience Engineering: Food Science and Nutrition (master's level) | 4 | A |

**Teaching languages**

English

**Keywords**

Statistics, statistical inference, experimental design, data analysis, scientific writing and reading

**Position of the course**

*General*:
The student learns how to read and write the "statistics" and "conclusions" sections of scientific papers in the subject field of food technology. The student learns to communicate about statistical problems related to food technology. A few more advanced statistical topics are introduced.
*Specific*:
After some introductory lectures, students present the basic concepts of statistical methods (both known and novel) to their fellow students (microteaching). Methods are selected from food technology papers, and their application within the context of the paper is discussed with the fellow students.

**Contents**

*Microteaching topics* depend on the papers selected for microteaching, but typically include some of the following:
1. Logistic regression
2. Nonlinear regression
3. Nonparametric methods
4. Mixed models
5. Methods for clustered and longitudinal data analysis
6. Response surface designs
7. Optimal experimental design
8. Model selection
9. Principal component analysis

**Initial competences**

Statistical Topics in Food Technology builds on certain learning outcomes of course unit Applied Statistics ; or the learning outcomes have been achieved differently.

**Final competences**

1 Understand and write the statistical content sections of papers in the subject field of food technology.
2 Assess the weak and strong aspects of the analysis. Relate those aspects to the

conclusions.
3 Assess the relation between the design of the experiment, the data analysis and the conclusions.
4 Communicate about statistical problems with other food technologists and statisticians.

**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**

Seminar, Lecture, Peer teaching

**Extra information on the teaching methods**

The statistical methods that are introduced in the lectures by lecturer or fellow students (microteaching) are required for appropriate discussion of the scientific papers under study (seminar).

**Study material**

Type: Slides

Name: Course overview
Indicative price: Free or paid by faculty
Optional: no
Language : English
Number of Slides : 20
Oldest Usable Edition : 2023
Available on Ufora : Yes
Online Available : No
Available in the Library : No
Available through Student Association : No

Type: Audiovisual Material

Name: Relevant papers microteaching
Indicative price: Free or paid by faculty
Optional: no
Language : English
Available on Ufora : Yes
Online Available : Yes
Available in the Library : No
Available through Student Association : No
Usability and Lifetime within the Course Unit : not applicable
Usability and Lifetime within the Study Programme : regularly
Usability and Lifetime after the Study Programme : not

**References**

Kutner, M. H., Nachtsheim, C., & Neter, J. (2004). *Applied linear regression models*. McGraw-Hill/Irwin.
Montgomery, D. (2000). Design and Analysis of Experiments. Wiley

**Course content-related study coaching**

Through the electronic learning environment (Ufora) they can exchange questions and answers outside lecture hours among themselves and with the lecturer. Individual questions may be answered during a meeting with the lecturer after making an appointment.

**Assessment moments**

continuous assessment

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

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

**Examination methods in case of permanent assessment**

Oral 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**

Knowledge, reading, writing and communication skills with respect to statistical design and analysis of experiments in food technology is tested by means of discussions ("participation"), an assignment, and presentations with questions ("oral examination"). The appropriate application of statistical methods is evaluated by means of the assignment.
The assignment needs to be submitted through Ufora. Feedback will be given during the lectures (general) and at the individual level (upon evaluation of the assignment).

**Calculation of the examination mark**

Theory: non-period aligned evaluation
Exercises: non-period aligned evaluation