Statistical Topics in Food Technology (I000040)

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

    Credits 4.0   Study time 120 h   Contact hrs   60.0 h

Course offerings and teaching methods in academic year 2018-2019

A (semester 1)	English	lecture	5.0 h
		seminar	37.5 h
		microteaching	17.5 h

Lecturers in academic year 2018-2019

De Meyer, Tim	LA26	lecturer-in-charge

Offered in the following programmes in 2018-2019	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

Lecture, microteaching, seminar

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).

Learning materials and price

Slides are available. Further material is provided through Minerva.

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 (Minerva) 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.

Evaluation methods

continuous assessment

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

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

Examination methods in case of permanent evaluation

Oral examination, participation, assignment

Possibilities of retake in case of permanent evaluation

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 Minerva (drop box). 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