GHENT UNIVERSITY

Course Specifications

Valid as from the academic year 2020-2021

Food Chemistry (I002513)

Due to Covid 19, the education and evaluation methods may vary from the information displayed in the schedules and course details. Any changes will be communicated on Ufora.

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

Credits 5.0 **Study time** 150 h **Contact hrs** 50.0 h

Course offerings and teaching methods in academic year 2020-2021

A (semester 2)	Dutch	Gent	lecture	30.0 h
			excursion	2.5 h
			practicum	27.5 h

Lecturers in academic year 2020-2021

De Meulenaer, Bruno	LA23	lecturer-in-charge

Offered in the following programmes in 2020-2021	**crdts**	**offering**
Bachelor of Science in Bioscience Engineering (main subject Chemistry and Food Technology)	5	A

Teaching languages

Dutch

Keywords

Food, agricultural raw materials, chemical composition, properties, degradation reactions, nutritional value, food safety

Position of the course

Food chemistry deals with the study of the chemical, biochemical and phyiscochemical processes involved in agricultural raw materials and in foodstuffs, and during the transformation of agricultural raw materials into derived products.
This knowledge is essential for a student how want to specialize further as a MSc in Food Science and Nutrition or as a MSc in Chemistry and Bioprocestechnology.
A systematic overview of the main constituents of foods is given together with their chemical and physicochemical properties.

Contents

1 Water
2 Proteins
3 Lipids
4 Carbohydrates
5 Enzymes
6 Vitamins
7 Pigments
8 Additives

Initial competences

Having acquired all learning outcomes of the following courses or their equivalents:
Chemistry 1: Structure of Matter (I001826)
Chemistry 2: Reactivity of Matter (I001831)
Chemistry 3: Organic Chemistry - structure (I001839)
Chemistry 4: Organic Chemistry - reactivity (I001846)
Biochemistry and Molecular Biology (I001838)

Final competences

1 Describe the chemical characteristics of agricultural raw materials and their derived products

2 Identify and describe the chemical process which determine the quality of agricultural raw materials and their derived products
3 To identify on basis of a vertical thinking process the chemical parameters determining the quality of agricultural raw materials and their derived products and to assess these parameters.
4 Substantiate the steps in the analysis of chemical quality parameters of agricultural raw materials and their derived products
5 Apply analytical protocols for chemical quality parameters of agricultural raw materials and their derived products
6 To communicate scientifically with respect to the chemical characteristics of agricultural raw materials and their derived 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

Excursion, lecture, practicum

Extra information on the teaching methods

Lectures : via lectures a theoretical overview of the chemical components present in foods, their properties and their chemicals conversions in foods are presented. A introduction lecture to the practicals is foreseen as well.
Excursion : a food company is visited.
Practicals: via laboratory exercises, students are familiarized with the quantitative analysis of selected food components or quality parameters.

Learning materials and price

Course notes of both the theoretical and practical lectures are available to the student in order to copy them.
Apart from that the course notes are supplemented with the presentations which are given during the lectures and which are electronically available for the students.

References

Fennema, O. et al. (Eds) 2007) Fennema's Food Chemistry, Marcel Dekker, New, York, ISBN-10: 0849392721
Belitz, H.-D., Grosch, W., Schieberle, P. (2009) Food Chemistry, Springer, Berlin, ISBN 978-3-540-69934-7

Course content-related study coaching

Study coaching is accomplished via
- theoretical lectures
- practical lab exercises
- questions during or after lectures
- the possibility to consult the teacher after the theoretical lectures or exercises, on appointment
- availability in the library of reference books
- availability in the library of other specialized literature

Evaluation methods

end-of-term evaluation and continuous assessment

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

Written examination with open questions, written examination, oral examination

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

Written examination with open questions, written examination, oral examination

Examination methods in case of permanent evaluation

Written examination with open questions, open book examination, assignment, report

Possibilities of retake in case of permanent evaluation

examination during the second examination period is possible

Extra information on the examination methods

From the period aligned evaluations, a clear idea can be obtained from the students analytical and synthetic skills. These should allow the student to identify problems

related to the subject area and propose potential solutions for them, on basis of causality. From the permanent evaluation during the exercises the other skills as mentioned in the Final Objectives are evaluated. In addition, the creative and communicative attitudes of the students can be assessed. Finally, the students are stimulated to work in group together.
Students who eschew period aligned and/or non-period aligned evaluations for this course unit may be failed by the examiner.
Theory: written and oral (both closed book) examination
Exercises: written (open book) examination with respect to the practicals

All these examinations will allow to evaluate the students thorough and fundamental knowledge and the students analytical and critical skills developed in this particular discipline.
Considering the exercises, especially the ability to handle and interpret analysis results will be evaluated in addition to the critical understanding of the underlying chemical principles of an analytical method.
During the oral examinations, the communicative skills of the student can be assessed.

Calculation of the examination mark

Theory: period aligned (66%) evaluation
Exercises: period aligned (33%) and non-period aligned evaluation
If for both the written theoretical and oral theoretical examination an insufficient score was obtained and the overall average of all the evaluated parts is nevertheless sufficient, the overall average will be revised to 9/20.
The non-period aligned evaluation of the exercises is sometimes used to upgrade the scores on the oral examination of the theory in case of a calamity. Students who do not take part in the lab-exercises cannot pass this course.
Students who eschew periodic and/or permanent evaluations for this course unit may be failed by the examiner.