GHENT UNIVERSITY

Course Specifications

Valid as from the academic year 2020-2021

Food Chemistry (I002780)

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 1)	English	Gent	practicum	26.25 h
			seminar	3.75 h
			lecture	30.0 h

Lecturers in academic year 2020-2021

De Meulenaer, Bruno	LA23	lecturer-in-charge

Offered in the following programmes in 2020-2021	**crdts**	**offering**
Master of Science in Nutrition and Rural Development	5	A
Exchange Programme in Bioscience Engineering: Chemistry and Bioprocess Technology (master's level)	5	A
Exchange Programme in Bioscience Engineering: Food Science and Nutrition (master's level)	5	A

Teaching languages

English

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 physicochemical processes involved in agricultural raw materials and in foodstuffs, and during the transformation of agricultural raw materials into derived products.
A systematic overview of the main constituents of foods is given together with a selection of their chemical and physicochemical properties. Considering the diversity in the background of the attending student population, especially with respect to their chemical background, special attention is given to familiarise the students with the basic structures of food constituents.
In addition, the examples given in the course consider as much as possible the international context of the attending student population.

Contents

Theory:
1 Introduction
2 Water
3 Proteins
4 Lipids
5 Carbohydrates
6 Enzymes
7 Vitamins
8 Additives
Exercises:

The practicum consist of theoretical and practical exercises to familiarize the students

with the basic quantitative aspects of food chemistry and to give them insight in the chemistry behind food preparation.

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 selected 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 Apply basic analytical protocols for chemical quality parameters of agricultural raw materials and their derived products
5 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

Lecture, practicum, seminar

Extra information on the teaching methods

Lectures consist at the one hand of the theoretical lectures according to the table of content mentioned before.

In addition, in the framework of workcolleges various calculation exercises will be performed. In the practical exercises, some chemical reactions taking place during food preparation will be studied.
In the practicals, the students prepare different types of food and vary the type of ingredients in order to study the different effects on the chemical reactions taking place during food preparation.

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 0849392721
Belitz, H.-D., Grosch, W. and Schieberle (2009) Food Chemistry, Springer, Berlin, ISBN 978-3-540-69934-7

Course content-related study coaching

Study coaching is accomplished during
1. theoretical lectures
2. theoretical exercises
3. the possibility to consult the teacher or his collaborators after the theoretical lectures or exercises, on appointment
4. availability in the library of reference books and specialised journals
5. availability in the library of other specialized literature, databases and other relevant materials

Evaluation methods

end-of-term evaluation and continuous assessment

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

Written examination, oral examination

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

Written examination, oral examination

Examination methods in case of permanent evaluation

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 non-period aligned 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.
Theory: written and oral (both closed book) examintion (exams take place independently)
Exercises: written (open book);
All these examinations will allow evaluating 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 obtain reliable quantitative data from analytical results will be assessed. During the oral examinations, the communicative skills of the student can be assessed.

Calculation of the examination mark

Theory: period aligned evaluation (80%)
Exercises: period aligned (20%) 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 integrated (for 10%) in the period aligned evaluation.
Students who do not take part in the exercises cannot pass this course unit.