

## Functional Foods (I002717)

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

**Credits 5.0**

**Study time 150 h**

### Course offerings and teaching methods in academic year 2023-2024

A (semester 2)

English

Gent

lecture

seminar

independent work

### Lecturers in academic year 2023-2024

Van Camp, John

LA23

lecturer-in-charge

### Offered in the following programmes in 2023-2024

Master of Science in Biology

**crdts**

**offering**

5

A

Master of Science in Bioscience Engineering: Food Science and Nutrition

5

A

Master of Science in Bioscience Engineering Technology: Food Industry

5

A

Master of Science in Food Technology

5

A

Master of Science in Nutrition and Food Systems

5

A

Exchange Programme in Bioscience Engineering: Cell and Gene Biotechnology (master's level)

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

Human nutrition and health, food science, functional foods

### Position of the course

To study the relationship between nutrition and health in humans, the principles to evaluate nutrient requirements and nutritional status of humans (for individuals as well as for populations) are given. Techniques to formulate diets are explained and applied to protein, fat and micronutrient mixtures. In a more theoretical part, an overview is given of the nutritional composition of vegetable products, dairy products, oils and fats, meat and meat products, and stimulants. The influence on human health of bio-active compounds present in these products is discussed. The development of functional foods and their mechanism of action in humans is explained. A group discussion on a nutritional subject is included.

### Contents

1. Introduction
2. The nutritional status: general overview, methods for determination of body composition
3. The nutritional requirements (for energy, protein, vitamins and anorganic nutrients)
4. The world hunger: current situation, causes, interventions
5. Functional foods: definition, legislation, claims
6. Vegetable products, dairy products, oils and fats, meat- and meat products, stimulants: nutritional composition and effects on human health
7. Alternative nutrition, nutrition for athletes, stimulants

**Initial competences**

Functional Foods builds on certain learning outcomes of course unit Human Nutrition (or the Dutch equivalent "voeding van de mens"); or the learning outcomes have been achieved differently.

**Final competences**

- 1 The student has knowledge on the nutritional value of foods.
- 2 The presence of bio-active compounds in foods, as well as the mechanisms by which they influence human health, is understood.
- 3 Knowledge is obtained about techniques to evaluate nutrient recommendations and nutrient status of humans.
- 4 Principles for development of foods in relation to specific needs of humans are understood.
- 5 The student can present and defend a case-study related to nutrition and health.

**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, Seminar, Lecture, Independent work

**Extra information on the teaching methods**

Theory: oral lectures Exercises: theoretical exercises are performed with the whole group while tasks are performed in smaller groups

**Learning materials and price**

There is an English syllabus with literature references available

**References**

Human Energy Requirements. W.P.T. James and E.C. Scholfield (eds.). Oxford University Press, Oxford, 1990  
Functional foods: biochemical and processing aspects. Mazza, G. (ed.) Technomic Publishing Company, Inc., 1998  
Introduction to Functional Food Science. Matirosyan, M. (ed.) Food Science Published Dallas, 4th Edition, 2020

**Course content-related study coaching**

For the theory and the theoretical exercises, contact hours are available in which the student can ask additional information and/or clarification.  
A case-study is made on a topic of functional foods which is supervised by a scientific co-worker.

**Assessment moments**

end-of-term and continuous assessment

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

Oral assessment, Peer and/or self assessment, Written assessment

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

Oral assessment, Written assessment

**Examination methods in case of permanent assessment**

Assignment

**Possibilities of retake in case of permanent assessment**

examination during the second examination period is possible

**Extra information on the examination methods**

Theory: written examination  
Exercises: written examination (open book)  
For the non-period aligned examination a case-study needs to be presented and defended, and a report has to be submitted

**Calculation of the examination mark**

Theory: period aligned evaluation (60%)  
Exercises: period aligned evaluation (20%) and non-period aligned evaluation in the

case of group works (20%)

Students who eschew period aligned and/or non-period aligned evaluations for this course unit may be failed by the examiner (ie if mathematically the final score is 10/20 or more, then this score becomes 7/20). When the student wants to repeat the examination in a new examination period, an exemption for the non-period aligned evaluation can only be given in case minimum 50% of the marks were obtained.