

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

Credits 5.0 Study time 135 h Contact hrs 60.0 h

Course offerings and teaching methods in academic year 2019-2020

A (semester 1)	English	self-reliant study activities	15.0 h
		guided self-study	5.0 h
		group work	15.0 h
		lecture	25.0 h

Lecturers in academic year 2019-2020

Van Camp, John LA23 lecturer-in-charge

Offered in the following programmes in 2019-2020

	crdts	offering
Bachelor of Science in Food Technology	5	A
Master of Science in Biology	5	A
Master of Science in Nutrition and Rural Development	5	A
Exchange Programme in Bioscience Engineering: Agricultural Sciences (master's level)	5	A
Exchange Programme in Bioscience Engineering: Food Science and Nutrition (master's level)	5	A

Teaching languages

English

Keywords

Digestion, metabolism, nutrients, human nutrition

Position of the course

Several end products are ingested (intentionally or not) by humans. This is certainly the case for foods, but also for drugs, additives, and residues of primary agricultural production. A general basic knowledge on the intake, digestion, and metabolism of nutrients in humans is therefore needed. This course gives an introduction to digestion and metabolism in humans in relation to nutrition. Basic knowledge is obtained in the principles of endogenous and microbial digestion, and in the principle of nutrient balances. The latter is also used to obtain recommendations for energy, protein, and water intake. A general overview is given for the digestion and metabolism of anorganic nutrients and vitamins. Some new nutrients are discussed. Techniques to evaluate food and nutrition intake in humans are explained.

Contents

Basic information is given on the principles of microbial and endogenous digestion and on the role of nutrients in metabolism. The information given is mainly directed towards humans, but also differences with animal nutrition are highlighted. Techniques to determine the requirements for energy, protein and water are discussed. An overview is given of the role of oligo-nutrients and vitamins in human nutrition. Examples of new nutrients are given.

Theory

1. Introduction
2. Food, nutrition and health
3. Digestion
4. Metabolism
5. Energy, protein, water balances

6. Inorganic nutrients
 7. Vitamins and new nutrients
- Practica*

A work is made on food consumption (individual) and on food balance sheets (in group)

Initial competences

Profound knowledge of structure of biomolecules, glycolysis, Krebs Cycle, chemical reactions between organic molecules, morphology of bacteria, bacterial metabolism.

Final competences

- 1 The student will have a basic knowledge in the digestion and metabolism of nutrients (proteins, carbohydrates, fats, minerals, trace elements, vitamins) in the human body.
- 2 The basic principles for determination of nutrient requirements in humans are understood.
- 3 Students understand - and can reflect critically on - the determination of food and nutrient intake.
- 4 The student can reflect critically around theoretical and practical questions related to nutrition and metabolism.
- 5 Students can use food balance sheets in the context of food (in)security in a predefined country.

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

Guided self-study, group work, lecture, self-reliant study activities

Extra information on the teaching methods

Theory: oral lectures supported by slides

Exercises: a case-study on food intake: participants are asked to assess the sources of nutrients in a diet and compare this with national and international patterns. They need to report on how their results differ from national/international reference values or guidelines. They also have to make a group work on food balance sheets for a specific country.

Learning materials and price

An English syllabus with literature references is available.

References

Are available at the library of the Department and the ICP Food Science and Nutrition: Gibney, M.J., Lanham-New, S.A., Cassidy, A. & Vorster, H.H. (2009). Introduction to human nutrition. The Nutrition Society Textbook Series. Wiley-Blackwell Publishing, Oxford, 371 p.
Frayn, K.N. (2003). Metabolic regulation. A human perspective. 2nd edition. Blackwell Publishing, Oxford, 339p

Course content-related study coaching

Regular follow-up by the professor and/or his collaborators of students performances through organised 'questions hour' (in group or individual).
Use of Minerva.

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

Assignment

Possibilities of retake in case of permanent evaluation

examination during the second examination period is possible

Extra information on the examination methods

Theory: written examination

Exercises: partly written and partly oral examination
Evaluation of reports on exercises, performed individually or in group throughout the lecture period

Calculation of the examination mark

Theory: period aligned evaluation (60%)

Exercises: period aligned (20%) and non-period aligned (20%) evaluation

Students who eschew period aligned and/or non-period aligned evaluations for this course unit may be failed by the examiner