NUTRITION AND METABOLISMS II (MACRONUTRIENTS)

COURSE OUTLINE

Responsible: Georgios Fragkiadakis

1. GENERAL			
SCHOOL	School of Health Sciences		
ACADEMIC UNIT	Department of Nutrition and Dietetics Sciences		
LEVEL OF STUDIES	Undergraduate		
COURSE CODE	0809.4.001.0	**SEMESTER**	Winter/Spring
COURSE TITLE	Nutrition and Metabolisms II (Macronutrients)		

INDEPENDENT TEACHING ACTIVITIES if credits are awarded for separate components of the course	**WEEKLY TEACHING HOURS**	**CREDITS**
	0	6
Total	**0**	**6**

COURSE TYPE general background, special background, specialised general knowledge, skills development	Special background
PREREQUISITE COURSES	None
LANGUAGE OF INSTRUCTION and EXAMINATIONS	English
OFFERED TO ERASMUS STUDENTS	Yes (in English) — Both Winter and Spring Semesters
COURSE WEBSITE (URL)	https://eclass.hmu.gr/courses/YD211/

2. LEARNING OUTCOMES

Learning outcomes

Nutrients that are needed in large amounts are called macronutrients. There are three classes of macronutrients: carbohydrates, lipids, and proteins. Macronutrients are carbon-based compounds that can be metabolically processed into cellular energy through changes in their chemical bonds. Chemical energy is converted into cellular energy known as ATP that is utilized by the body to perform work and conduct basic functions. The course focuses on the interconversion of macronutrients, the energy they offer and how a nutritionist-dietitian can utilize them in the diet (glycemic index, glycemic load etc.).

General Competences

Within the context of this course:

The student acquires knowledge of the individual metabolic pathways, which constitute the main possibilities for the utilization of macronutrients, carbohydrates, lipids, proteins.

The student understands the logic that governs the metabolic processes of macronutrients (carbohydrates, lipids, proteins), their interaction as well as their utilization in the phenomenon of life.

Finally, the student learns to organize, analyze and explain experimental data concerning macronutrients and functional components of foods.

3. SYLLABUS

The study of the role of the three main nutrients of foods in human nutrition. The necessity of their participation in the diet and to highlight their interactions at a metabolic level, as well as the problems created by their deficient or unbalanced intake. -Structure and characteristics of carbohydrates. Digestion and absorption of carbohydrates. Contribution of carbohydrates to the structure and function of the human body. Glycemic Index, Glycemic Load, Satiety Index, Insulin Index, Applications in Modern Dietetics. -Structure and properties of proteins-amino acids. Protein digestion and absorption. Human requirements for proteins-amino acids, biological value of proteins, methods of calculating them. Protein sources, bioavailability of amino acids. Disorders from insufficient or excessive intake of proteins-amino acids. -Structure and properties of fats found in food, digestion and absorption of fats. Human needs for fats, essential fatty acids. Effect of fat intake and type of fatty acids on health. Problems in fat metabolism. Disorders related to unbalanced intake and metabolism of fats. - Study of digestion, absorption, bioavailability and metabolism of proteins, vitamins, minerals and water, as well as their interactions. Interactions between nutrients and intermediate products of metabolism. Effect of nutrient metabolism on body function. Energy requirements of the individual and body composition.

4. TEACHING and LEARNING METHODS - EVALUATION

DELIVERY Face-to-face, Distance learning, etc.	Face to face, Distance learning, etc
USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY Use of ICT in teaching, laboratory education, communication with students	Use of PowerPoint during lectures. Email, Skype (communication with students)
TEACHING METHODS The manner and methods of teaching are described in detail.	**Activity** / **Semester workload** ESSAYS / 12 **Course total** / **12**
STUDENT PERFORMANCE EVALUATION Description of the evaluation procedure	Written midterm exam (progress, 50%) with Answer, Essay Development Questions, Problem Solving, Written Assignment, short answer questions and exercises Report / Report, Oral Examination, Public Presentation, Laboratory Work, extended answer Clinical Examination of a Patient, Artistic Interpretation, Other / Other Written final exam (50%) with short answer questions and evaluation exercises are listed explicitly and if and where they are accessible from students. extended answer.

5. ATTACHED BIBLIOGRAPHY

Nutrition and Metabolism (The Nutrition Society Textbook), by Helen M. Roche (Editor), Ian A. Macdonald (Editor), Annemie M. W. J. Schols

Metabolism at a Glance, by J. G. Salway (Author)