

COURSE OUTLINE

1. GENERAL

SCHOOL	AGRICULTURAL SCIENCES		
DEPARTMENT	FOOD SCIENCE AND NUTRITION		
EDUCATION LEVEL	<i>Undergraduate</i>		
LECTURE CODE	MK412	SEMESTER	4 th
LECTURE TITLE	NUTRITION AND HUMAN METABOLISM		
SELF-ENDED TEACHING ACTIVITIES	WEEKLY TEACHING HOURS	CREDIT UNITS (ECTS)	
LECTURES	4	4	
LABORATORY EXERCISES	2	2	
		6	
COURSE TYPE	DEVELOPMENT OF SKILLS		
PREREQUISITE COURSES:			
LANGUAGE OF INSTRUCTION and EXAMINATIONS:	Greek		
THE COURSE IS OFFERED TO ERASMUS STUDENTS			
COURSE WEBSITE (URL)	https://food.uth.gr/theodoros-goulas/		

2. LEARNING OUTCOMES

Learning outcomes
<p>The course aims to introduce students to the basic concepts of the processes of digestion, absorption, bioavailability and metabolism of macro- and micro-nutrients. It also refers to introductory concepts of the interaction between nutrients and intermediate products of metabolism.</p> <p>Finally, the aim of the course is for students to understand the integration of energy metabolism, the body's reaction to lack of food, the effect of exercise on metabolism, oxidative and antioxidant processes and the connection between nutrition and the metabolism of macro- and micro -nutrients with the functioning of body organs.</p> <p>Upon successful completion of the course, the student will be able to:</p> <ol style="list-style-type: none"> 1. Know the basic terminology of nutrition and metabolism processes 2. Understand how the human body responds to food and nutrients it takes in. 3. Understand the mechanisms of digestion, absorption, bioavailability and metabolism of carbohydrates, proteins, lipids, lipoproteins, vitamins and trace elements 4. Understand the body's ability to regulate homeostasis through regulators balancing mechanisms 5. Understand the connection of nutrients with the development of chronic diseases, such as obesity, diabetes, cardiovascular diseases, etc.
General Skills
<ol style="list-style-type: none"> 1. Autonomous work 2. Group work 3. Promotion of free, creative and inductive thinking 4. Search, analyze and synthesize data and information, using and necessary technologies

3. COURSE CONTENT

Theory

1st Week

Basic concepts and definitions: Structural characteristics of macro- and micro-nutrients.

2nd Week

The digestive system (digestion, absorption, bioavailability of nutrients) and mechanisms body nutrition

3rd Week

Energy conversion

4th Week

Carbohydrate metabolism

5th Week

Protein metabolism

6th Week

Lipid metabolism

7th Week

Lipoprotein metabolism

8th Week

Dietary fiber metabolism

9th Week

Metabolism of water-soluble vitamins

10th Week

Metabolism of fat-soluble vitamins

11th Week

Metabolism of trace elements

12th Week

Organism homeostasis

13th Week

Nutrients and the development of chronic diseases

4. TEACHING AND LEARNING METHODS - ASSESSMENT

Delivery method	In person	
USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES	PRESENTATION OF LECTURES THROUGH PPT USE OF COMPUTER DURING THE LECTURES BY THE TEACHER LEARNING PROCESS SUPPORT THROUGH E- CLASS	
TEACHING ORGANIZATION	Activity	Semester Workload
	Lectures	52
	Laboratory/Tutorial Exercises	26
	Individual reports of laboratory/tutorial exercises	25
	Group exercise in case studies	17
	Preparation for written exam	30
	Total Course (25 workload hours per credit unit)	150
STUDENT EVALUATION	<p>1. WRITTEN EXAM (70%) -- Multiple choice questions -- Critical and brief development questions -- Computational problem solving</p> <p>2. LABORATORY GRADE (30%) -- Participation and performance during the laboratory/tutorial exercise -- Written report of results of laboratory/tutorial exercise -- Oral examination on written reports</p> <p>For the recognition of the course, students must secure a passable grade in both individual grades.</p>	

5. SUGGESTED BIBLIOGRAPHY

-Suggested Bibliography :

- Gropper SS, Smith KL, Groff JL. Διατροφή και Μεταβολισμός, Τόμος 2. Εκδόσεις Πασχαλίδης, 2008, 978- 960-399-575-3.
- Carr T, Gropper S, Smith J. Advanced Nutrition and Human Metabolism. 7th Edition. Cengage Learning, 2017.
- Συντώσης Λ, Σκενδέρη Α. Διατροφή και Μεταβολισμός. Broken Hill Ed, 2016.

-Suggested Scientific Literature:

Human Nutrition Metabolism, Lancet, New England Journal of Medicine, Circulation, Plos Medicine, Diabetes Care