

General Information	
Academic subject	Biochemical processes of nutrition
Degree course	Food Science and Technology (L26)
ECTS credits	6 ECTS
Compulsory attendance	No
Teaching language	Italian

Subject teacher	Name Surname	Mail address	SSD
	Angela Maria Serena Lezza	angelamariaserena.lezza@uniba.it	BIO/10

ECTS credits details	
Basic teaching activities	4.0 ECTS Lectures 2.0 ECTS Laboratory classes

Class schedule	
Period	II semester
Course year	Second
Type of class	Lectures and workshops

Time management	
Hours	150
In-class study hours	60
Out-of-class study hours	90

Academic calendar	
Class begins	March 01st, 2022
Class ends	June 17th, 2022

Syllabus	
Prerequisites/requirements	Prerequisites: "Principles of vegetal physiology, genetics and biochemistry"
Expected learning outcomes	<p><i>Knowledge and understanding</i></p> <ul style="list-style-type: none"> ○ Deep knowledge of the biochemical processes of nutrition including: chemical composition of foods and digestive/metabolic utilization of foods. ○ Knowledge of the specific requirements for the different nutrients and of the pathologies caused by nutritional errors. <p><i>Applying knowledge and understanding</i></p> <ul style="list-style-type: none"> ○ Ability of applying the notions, acquired in classes, to the evaluation of the content of specific nutrients in different foods and of their adequacy for particular needs. ○ Ability of evaluating the suitability of diets to specific cases. <p><i>Making informed judgements and choices</i></p> <ul style="list-style-type: none"> ○ Ability of identifying the possibility of introducing alternate components in a food or particular foods in a diet to meet specific nutritional requirements. <p><i>Communicating knowledge and understanding</i></p> <ul style="list-style-type: none"> ○ Ability of utilizing adequately written and oral communication in Italian and English and of setting up visual presentations for the diffusion of relevant notions at various levels. <p><i>Capacities to continue learning</i></p>

	<ul style="list-style-type: none"> ○ Ability of deepening issues related to nutrition for the maintenance of individual physical well-being and for prevention/management of pathologies by reading updated literature and participation to seminars and thematical meetings. <p>The expected learning outcomes, in terms of both knowledge and skills, are provided in Annex A of the Academic Regulations of the Degree in Food Science and Technology (expressed through the European Descriptors of the qualification)</p>
Contents	Preliminary concepts about nutrients. Glucids and glucid content of some foods. Fibers in nutrition. Lipids: nutritional intake and biosynthesis. Lipid content of some foods. Proteins. Biological value of proteins. Essential amino acids. Protein content of some foods. Nutritional purines and pyrimidines. Water-soluble and fat-soluble vitamins. Functions and content in foods. Inorganic elements. Water and mineral salts: functions and content in foods. Ethanol and its biochemical effects. Nutrition and health. Obesity and adequate nutrition. Nutrition in particular phases of life. Adverse reactions to foods: intolerances and allergies. Foods and technology.
Course program	<p>Preliminary concepts about nutrients. Glucids. Regulation of glycemic homeostasis, diabetes. Glucid content of some foods. Glycemic index. Fibers in nutrition. Lipids. Triglycerides and cholesterol: nutritional intake and regulation of biosyntheses. Essential fatty acids: nutritional intake and metabolism. Lipid content of some foods. Regulation of body weight. Proteins. Biological value of proteins. Essential amino acids: nutritional intake and metabolism. Minimal protein intake. Protein content of some foods. Consequences of nutritional protein excess or deficiency. Cori's cycle and glucose-alanine cycle. Purines and pyrimidines. Nutritional intake and biosynthesis; catabolism. Water-soluble and fat-soluble vitamins. Functions and content in foods. Inorganic elements: water and mineral salts. Functions and content in foods. Ethanol. Biochemical effects of consumption of alcoholic beverages, from metabolite to toxic. Nutrition and health. Pathologies associated to incorrect feeding habits. Obesity and adequate nutrition. Metabolic adaptation to fasting. Nutrition in particular phases of life. Free radical species and oxidative stress. Adverse reactions to foods: intolerances and allergies. Foods and technology: new nutritional products.</p> <p>Laboratory classes: application of biochemical methods to the determination of the nutritional values of foods. Analysis of different kinds of diets.</p>
Reference books	<p>Notes from lectures and laboratory classes. Presentations (in pdf) provided by the teacher.</p> <p>Additional readings Le basi molecolari della nutrizione by G. Arienti – Piccin Editore</p> <p>I principi di biochimica di Lenhinger by D.L. Nelson e M.M. Cox – Zanichelli Editore</p>
Notes	
Teaching methods	Lectures will be presented through PC assisted tools (PowerPoint, video). Laboratory classes, reading of study-cases will be experienced.

	Lecture notes and educational supplies will be provided by means of online platforms
Evaluation methods	<p>The exam consists of an oral dissertation on the topics developed during the theoretical and theoretical-practical lectures in the classroom and in the laboratory, as reported in the Academic Regulations for the Bachelor's Degree in Food Science and Technology (article 9) and in the study plan (Annex A).</p> <p>The evaluation of the preparation of the student occurs on the basis of established criteria, as detailed in Annex B of the Academic Regulations for the Bachelor's Degree in Food science and Technology.</p> <p>The foreign student's profit test can be done in English in the way described above</p>
Evaluation criteria	<p><i>Knowledge and understanding</i></p> <ul style="list-style-type: none"> ○ Deep knowledge of the chemical composition and of the digestive/metabolic utilization of foods and of the specific requirements for the different nutrients. <p><i>Applying knowledge and understanding</i></p> <ul style="list-style-type: none"> ○ Ability of identifying the possible nutritional strategies for metabolic alterations due to pathologies related to incorrect nutrition. Evaluation of the suitability of particular foods for specific diets. <p><i>Making informed judgements and choices</i></p> <ul style="list-style-type: none"> ○ Ability of evaluating the possibility of introducing specific diets to maintain individual physical well-being. ○ Elaboration of reasonable hypotheses for the composition of foods. <p><i>Communicating knowledge and understanding</i></p> <ul style="list-style-type: none"> ○ Ability to explain adequately the specific compositions of foods and the reasons for the choice of certain diets. <p><i>Capacities to continue learning</i></p> <ul style="list-style-type: none"> ○ Ability to update in a constant and autonomous way the notions about the possibilities to innovate foods and their combinations in diets.
Receiving times	The teacher is available on Tuesday afternoon in the interval 15.30-18.00 or with other schedules, by previous appointment