

General information	
Academic subject	NUTRACEUTICALS, NUTRIGENOMICS AND FOOD MODELS (integrated exam of FUNDAMENTALS OF DIETETIC AND NUTRACEUTICALS)
Degree course	Foods of animal origin safety and health - (LM86)
Academic Year	2022/2023 – I year
European Credit Transfer and Accumulation System (ECTS)	6
Language	Italian
Academic calendar (starting and ending date)	II semester
Attendance	Recommended

Professor/ Lecturer	
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Virtual headquarters	Teams code for mentoring activities qlrtn7n
Tutoring (time and day)	Monday-Friday, 13-14, after email contact

Syllabus	
Learning Objectives	<i>Acquire knowledge of the principles of nutrigenomics with particular reference to the nutraceutical value of foods and the molecular mechanisms underlying their action. Understanding the importance of nutraceuticals in the food sector Learn the main food patterns in order to acquire useful skills for industrial applications</i>
Course prerequisites	<i>Being a first year, first semester exam, there are no specific prerequisites other than those required for access to the degree course</i>
Contents	<i>Introduction to the course: training objectives and teaching methodologies. Introduction to nutraceuticals: definitions and general regulatory framework. Molecular targets of the action of biologically active substances and interaction with their targets. Definitions of genetics, genomics, epigenetics and epigenomics. Modulation mechanisms of gene expression. The nuclear receptors. Mechanisms of action of nuclear receptors. General mechanisms of oncogenesis. Nutrigenomic action of extra virgin olive oil. Meat and dairy products: friends or enemies? The main food models compared: Mediterranean, ketogenic, vegetarian, vegan, protein diet. Probiotics and prebiotics. The importance of the intestinal microbiota for the health of the organism. The role of the intestinal microbiota in the treatment of pathologies of the entero-hepatic axis. Foods that influence the activity of bacterial flora. Nutraceutical value of the main functional foods. Nutraceutical value of polyunsaturated fatty acids: omega3, omega6, omega9. Interactions between food / food supplements and drugs.</i>
Books and bibliography	<i>NUTRIGENOMICA ED EPIGENETICA Dalla biologia alla clinica. Galimberti D., Gidaro G. B., Calabrese V., Gelli A., Govoni S. Edra editore. 2017 CREA. Linee Guida per una sana alimentazione. Ministero Salute. 2018</i>

Additional materials	<i>Slides of lessons. Scientific papers.</i>
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Work schedule			
Total	Lectures	Hands on (Laboratory, working groups, seminars, field trips)	Out-of-class study hours/ Self-study hours
Hours			
150	60		90
ECTS			
6	6		
Teaching strategy		<p><i>The course will be carried out through lectures with the help of power point slides which will be made available to students in pdf format from time to time.</i></p> <p><i>Practical activities consist of reading scientific articles in small groups and producing an oral and written report.</i></p> <p><i>E-learning mode: in the case of a specific regulation that makes it mandatory</i></p>	
Expected learning outcomes			
Knowledge and understanding on:		<ul style="list-style-type: none"> o Elements of nutraceuticals and nutrigenomics. o Probiotic products o Nutraceutical value of functional foods 	
Applying knowledge and understanding on:		<ul style="list-style-type: none"> o Evaluation with a scientific approach of the beneficial effect of foods and of the main dietary models on human health o Critical evaluation of the use and effectiveness of a nutraceutical food and a food model o Methodology of Evidence-Based Medicine (EBM) 	
Soft skills		<ul style="list-style-type: none"> • <i>Making informed judgments and choices</i> <ul style="list-style-type: none"> o Autonomous reading of specific scientific books and articles o Data analysis according to the principles of EBM o Creation of short written or verbal reports on the characteristics of food • <i>Communicating knowledge and understanding</i> <ul style="list-style-type: none"> o Communicate the characteristics of nutraceuticals to specialist and non-specialist interlocutors o Inspire people's eating behavior on appropriate eating patterns o Inspire appropriate strategic choices in the nutraceutical industrial production sector • <i>Capacities to continue learning</i> <ul style="list-style-type: none"> o Use the methodology of the scientific approach to data analysis in every sector of one's training and professional activity 	

Assessment and feedback	
Methods of assessment	<i>Oral examination</i>
Evaluation criteria	<ul style="list-style-type: none"> • <i>Knowledge and understanding</i> <ul style="list-style-type: none"> o Elements of the program • <i>Applying knowledge and understanding</i> <ul style="list-style-type: none"> o Critical discussion of articles proposed for the oral exam • <i>Autonomy of judgment</i> <ul style="list-style-type: none"> o Judgment on the scientific quality of the proposed articles • <i>Communicating knowledge and understanding</i> <ul style="list-style-type: none"> o Ability to express oneself with technical language • <i>Communication skills</i>



	Ability to develop personal considerations on the topics proposed for the exam <ul style="list-style-type: none">• <i>Capacities to continue learning</i><ul style="list-style-type: none">○ Use of EBM methodology in professional activity
Criteria for assessment and attribution of the final mark	<i>The final grade is awarded out of 30. The exam is passed when the grade is greater than or equal to 18</i>
Additional information	