



# UNIVERSITÀ DEGLI STUDI DI PALERMO

DEPARTMENT	Promozione della Salute, Materno-Infantile, di Medicina Interna e Specialistica di Eccellenza "G. D'Alessandro"		
ACADEMIC YEAR	2022/2023		
BACHELOR'S DEGREE (BSC)	DIETISTICS		
INTEGRATED COURSE	BIOLOGY AND NUTRITION - INTEGRATED COURSE		
CODE	21907		
MODULES	Yes		
NUMBER OF MODULES	2		
SCIENTIFIC SECTOR(S)	BIO/13, MED/49		
HEAD PROFESSOR(S)	CONIGLIARO ALICE	Professore Associato	Univ. di PALERMO
OTHER PROFESSOR(S)	CONIGLIARO ALICE	Professore Associato	Univ. di PALERMO
	MIRISOLA MARIO GIUSEPPE	Professore Associato	Univ. di PALERMO
CREDITS	6		
PROPAEDEUTICAL SUBJECTS			
MUTUALIZATION			
YEAR	1		
TERM (SEMESTER)	1° semester		
ATTENDANCE	Mandatory		
EVALUATION	Out of 30		
TEACHER OFFICE HOURS	<p><b>CONIGLIARO ALICE</b>  Monday 15:00 18:00 Sezione di Biologia e Genetica del Dipartimento BIND in via Divisi 83, oppure attraverso la piattaforma TEAMS. A causa di possibili impegni istituzionali o riunioni di lavoro potrebbe non essere possibile ricevere gli studenti nel giorno e alle ore indicate, pertanto sarebbe preferibile fissare un appuntamento tramite e-mail.</p> <p><b>MIRISOLA MARIO GIUSEPPE</b>  Monday 11:00 13:00 Dipartimento Stebicef, campus universitario edificio 16, studio docente  Tuesday 11:00 13:00 Dipartimento Stebicef, campus universitario edificio 16, studio docente  Wednesday 11:00 13:00 Dipartimento Stebicef, campus universitario edificio 16, studio docente  Thursday 11:00 13:00 Dipartimento Stebicef, campus universitario edificio 16, studio docente  Friday 11:00 13:00 Dipartimento Stebicef, campus universitario edificio 16, studio docente</p>		

<b>PREREQUISITES</b>	<p>The prerequisites are those established at the national level for access to the Health Professions courses.</p> <p>To be admitted to the Degree Course in Dietetics, the students must pass tests that also include biology questions.</p>
<b>LEARNING OUTCOMES</b>	<p>Knowledge and understanding</p> <ul style="list-style-type: none"> <li>- Acquisition of the specific language of the disciplines of Biology and Genetics;</li> <li>- Knowledge and understanding of the fundamental biological processes of living organisms and how hereditary characters are transmitted to generations;</li> <li>- Knowledge and understanding of the genetic basis of some relevant human diseases in the field of nutrition.</li> <li>- Knowledge of the structure and metabolism of individual macronutrients.</li> <li>- Knowledge of the role of macronutrients in biological processes and in controlling gene expression.</li> </ul> <p>Ability to apply knowledge and understanding</p> <p>Ability to distinguish, organise and apply, independently:</p> <ul style="list-style-type: none"> <li>- knowledge of the basic biological processes of cells and organisms;</li> <li>- the laws governing the transmission of hereditary characters in living species;</li> <li>- regulations of the metabolism of individual macronutrients.</li> </ul> <p>Autonomy of judgement</p> <p>To be able to independently evaluate and integrate</p> <ul style="list-style-type: none"> <li>- the knowledge acquired in biology and genetics in the study of organisms and in particular of man;</li> <li>- The role that nutrition has on biological processes;</li> <li>- the implications of alterations in biological processes for human pathologies.</li> </ul> <p>Communication skills</p> <p>Ability to communicate and explain, in a simple way, even to a non-expert audience, the processes of biology and genetics and the effect of nutrition on them.</p> <p>Learning ability</p> <p>Ability to use correctly the scientific bibliography specific to the sector for a continuous updating of knowledge in the biomedical field.</p> <p>Ability to learn and follow appropriately, using the knowledge acquired in the course, the subsequent teaching courses of the curriculum for Dietetics.</p>
<b>ASSESSMENT METHODS</b>	<p>The evaluation will be based on an oral interview. The questions will aim to test i) the knowledge acquired and ii) the elaboration and synthesis skills.</p> <p>To test the knowledge, the ability to contextualise the topic within a specific cellular process by illustrating the properties and characteristics of the molecule and/or biological activity will be required.</p> <p>The ability to extrapolate the minimum information of the process clearly and concisely and the understanding of the implications within the discipline will be assessed.</p> <p>The grading scheme is as follows</p> <p>30-30 with honour (A-A+ Excellent)</p> <p>Excellent knowledge of the course contents; the student demonstrates high analytical-synthetic ability and can apply the knowledge to solve highly complex problems.</p> <p>27-29 (B Very good)</p> <p>Excellent knowledge of the course contents and very good language skills; the student shows analytical-synthetic ability and can apply the knowledge to solve problems of medium and, in some cases, high complexity.</p> <p>24-26 (C Good)</p> <p>Good knowledge of the course contents and good language skills; the student can apply the knowledge to solve medium complexity problems.</p> <p>21-23 (D Satisfactory)</p> <p>Fair knowledge of the contents of the course, in some cases limited to the main topics; acceptable ability to use the specific language of the discipline and to apply the acquired knowledge autonomously.</p> <p>18-20 (E Sufficient)</p> <p>Minimal knowledge of the course contents, often limited to the main topics; modest ability to use the specific language of the discipline and apply autonomously the acquired knowledge.</p> <p>Insufficient (F Fail)</p> <p>No acceptable knowledge of the main contents of the course; very little or no ability to use the specific language of the discipline and to apply the acquired knowledge autonomously.</p>
<b>TEACHING METHODS</b>	Lectures

**MODULE**  
**BASIC DIETARY AND NUTRIGENOMICS SCIENCE**

*Prof. MARIO GIUSEPPE MIRISOLA*

**SUGGESTED BIBLIOGRAPHY**

Giuseppe Arienti  
Le basi molecolari della nutrizione 4a edizione  
Piccin ISBN-13978-8829926985

Stipanuk, Martha H., Caudill, Marie A.. Biochemical, Physiological, and Molecular Aspects of Human Nutrition - Elsevier Health Sciences. ISBN: 978-0-323-44181-0

<b>AMBIT</b>	10347-Scienze della dietistica
<b>INDIVIDUAL STUDY (Hrs)</b>	45
<b>COURSE ACTIVITY (Hrs)</b>	30

**EDUCATIONAL OBJECTIVES OF THE MODULE**

knowledge on Structure and metabolism of single macronutrients. Regulation of macronutrients metabolism. Signal transduction dependence on single and group of nutrients. Nutrition in aging and aging-associated diseases. Nutrients and epigenome.

**SYLLABUS**

<b>Hrs</b>	<b>Frontal teaching</b>
8	structure and properties of macronutrients
4	digestion and absorption of the macronutrients
8	nutrient sensing pathways and examples of hormone-based modulation
4	calorie restriction, fasting and their metabolic effects
2	nutrients and epigenome
2	nutrition and cancer
2	nutrition and longevity the blue zones

## MODULE BIOLOGY

*Prof.ssa ALICE CONIGLIARO*

### SUGGESTED BIBLIOGRAPHY

P. Bonaldo, C. Crisafulli, R. D'Angelo, M. Francolini, S. Grimaudo, C. Rinaldi, P. Riva, M.G. Romanelli "Elementi di Biologia e Genetica" EdiSES Editore, prima edizione. ISBN 9788833190389

C. Donati, M. Stefani, N. Taddei "Biologia & Genetica" Zanichelli Editore, prima edizione. ISBN: 9788808520524

<b>AMBIT</b>	10338-Scienze biomediche
<b>INDIVIDUAL STUDY (Hrs)</b>	45
<b>COURSE ACTIVITY (Hrs)</b>	30

### EDUCATIONAL OBJECTIVES OF THE MODULE

Distinguish prokaryotic and eukaryotic cell. Identify the main biological structures, the organization and functioning of a eukaryotic cell. Analyze the flow of the genetic information and the mechanisms of gene expression in prokaryotes and eukaryotes. Analysis and comparison of genomic stability and variability. Main mutation type. Understanding genetic inheritance modes and genotype-phenotype relationship. Genetic inheritance in humans. Modes of transmission of wild type and mutated genes.

## SYLLABUS

Hrs	Frontal teaching
4	Structural and functional cell organization. Prokaryotic and eukaryotic cells. Citomembrane: organization and functional examples
6	The flow of the genetic information, from DNA to proteins. The RNAs. Transcription and translation processes.
4	The regulation of gene expression in eukaryotes.
2	Cell communication and signal transduction.
2	The Cell Cycle
2	DNA replication.
2	Mitosis, meiosis and gametogenesis in humans.
4	Mendelian inheritance rules: dominant and recessive phenotypes, Law of Segregation, Law of Independent Assortment. Non-Mendelian inheritance: co-dominance, incomplete dominance, multiple alleles, polygenic traits.
4	Human genetic: genotype and phenotype. Genetic inheritance in humans. Modes of transmission. Hereditary metabolic disorders.