UNIVERSITÀ DEGLI STUDI DI PALERMO

DEPARTMENT	Scienze e Tecnologie Biologiche, Chimiche e Farmaceutiche
ACADEMIC YEAR	2018/2019
MASTER'S DEGREE (MSC)	PHARMACY
SUBJECT	NUTRITION SCIENCE
TYPE OF EDUCATIONAL ACTIVITY	A
AMBIT	50325-Discipline Biologiche
CODE	08656
SCIENTIFIC SECTOR(S)	BIO/09
HEAD PROFESSOR(S)	DI MAJO DANILA Ricercatore Univ. di PALERMO
OTHER PROFESSOR(S)	
CREDITS	6
INDIVIDUAL STUDY (Hrs)	102
COURSE ACTIVITY (Hrs)	48
PROPAEDEUTICAL SUBJECTS	
MUTUALIZATION	
YEAR	2
TERM (SEMESTER)	2° semester
ATTENDANCE	Not mandatory
EVALUATION	Out of 30
TEACHER OFFICE HOURS	**DI MAJO DANILA** Monday 9:30 13:30 Instituto di Fisiologia Umana, Corso Tukory 129 Wednesday 9:30 13:30 Instituto di Fisiologia Umana, Corso Tukory 129

DOCENTE: Prof.ssa DANILA DI MAJO

PREREQUISITES	The student must have knowledge of anatomy and organic chemistry to understand the objectives and contents of the course
LEARNING OUTCOMES	The student must demonstrate appropriate level of knowledge and understanding of complex topics concerning food composition and their nutritional role. Acquisition of the knowledge related to the nutrition basics: i)physiological role of nutrients; ii) nutritional value of the nutrients and of the food supplements; iii) role pf the neurotransmitters and peptide involved in feeding behavior control. Learning skills about the nutrition in the life cycle: i) nutrition during pregnancy and lactation, ii) nutrition during infancy, childhood and adolescence, iii) nutrition during aging, iv)nutrition during athletic training and performance. Gaining knowledge related to nutritional care: i) the guidelines for dietary planning; ii) the assessment of nutritional status; iii) interactions between drugs and nutrients. Judgment autonomy: ability to solve practical problems in the field of nutrition intervening with nutritional tips and suggestions appropriate to the physiological condition of the subject. The students needs to be able to evaluate the correctness of a way of eating, for the prevention of major diseases linked to an unbalanced diet. The students must demonstrate communicative skills in academic, professional and social fields where the ability to communicate easily, effectively and effortlessly in both oral and written forms is necessary. Learning skills: i) ability to stay uptodate by consulting the scientific journals of the sector, ii) ability to attend a second level master or conferences or graduated schools in food science and nutrition
ASSESSMENT METHODS	The exam consists of an oral interview aimed at verifying the competences and skills to be acquired at the end of the course. The purpose of the questions is to verify knowledge of the contents to be acquired at the end of the course, as well as analytical and expository skills .Knowledge checkpoints includes scrutiny of the capability to establish relationships between contents, theories,patterns and methodologies which have been dealt during the course. As far as analytical skills are concerned, at least one of the following goals will be verified: 1) S\he can give judgments and opinions about the disciplinary contents; 2) S\he can understand applications and\or implications of the disciplinary contents within the specific discipline of reference; 3) S\he can place the disciplinary contents within the professional, technological and sociocultural setting of reference. The student will need to answer at least two\three questions in the oral form about aspects of the syllabus with reference to the suggested textbooks. The exam aims at verifying knowledge and understanding of topics, interpretative competence and autonomy of judgement of concrete cases. The passing grade threshold will be considered reached if the student shows to have acquired the topics of the food science and is able to provide information about the principles of healthy eating for people under physiological conditions with satisfactory expository skills in order to prevent diseases related to improper nutrition. Below the above-mentioned threshold, the exam will be considered unsatisfactory. The more the student can interact with his\her examiner showing mastery of language, of the specific subject matter and ability to convey his\her knowledge of the topics of the specific field of reference, the more the assessment will be positive. The latter will be expressed by 18 to 30-30 with honours marks. The student will need to answer at least two\three questions in the oral form about aspects of the syllabus with reference to the suggested textbooks. The exam aims at verifying knowledge and understanding of topics, interpretative competence and autonomy of judgement of concrete cases. The passing grade threshold will be considered reached if the student shows to have acquired the topics of the food science and chemical food and is able to provide information about the principles of healthy eating for people under physiological conditions with satisfactory expository skills in order to prevent diseases related to improper nutrition. Below the above-mentioned threshold, the exam will be considered unsatisfactory. The more the student can interact with his\her examiner showing mastery of language, of the specific subject matter and ability to convey his\her knowledge of the topics of the specific field of reference, the more the assessment will be positive. The latter will be expressed by 18 to 30-30 with honours marks.
EDUCATIONAL OBJECTIVES	The objectives of the course of nutrition science are the following: ì) to study the composition of nutrients (carbohydrates, lipids, proteins, vitamins, minerals) and their metabolism and their function in the body; ìì) To understand food sources of nutrients and their recommended dietary allowance; ìîì) to study the components of energy expenditure and the methods used to measuring human energy expenditure and food energy; iv) to study neurotransmitters and peptides acting as peripheral signals involved in feeding behavior control. After, the course will aim to study the composition of vegetable and animal foods and their nutritional values. During this phase information will be provide about new food (i.e. functional food, genetically

	modified organism, organic food, probiotic food) and about nutrition in the life cycle such as during pregnancy and lactation, in infancy, in childhood, in aging, for athletic training and performance; Finally, the drug and food interactions will be studied. In conclusion, the course includes a practical part in which the students will instruct to prepare a dietary plan under physiological conditions through the information about the nutritional value of the food assimilated.
TEACHING METHODS	The course will be articulated in traditional lesson
SUGGESTED BIBLIOGRAPHY	Maurizio La Guardia, Santo Giammanco, Marco Giammanco: Fondamenti di Scienza dell'alimentazione, Ed. Edises. Per la consultazione: Giuseppe Arienti: Basi molecolari della nutrizione. Ed. Piccin Ugo Leuzzi, Ersilia Bellocco, Davide Barreca: Biochimica della nutrizione, Ed.Zanichelli E. Carbone, F.Cicirata, G.Aicardi: Fisiologia dalle molecole ai sistemi integrati, Ed. EdiSes JS Garrow, WPT James, A Ralph: Human nutrition and dietetics, Ed Churchill livingstone

SYLLABUS

Hrs	Frontal teaching
1	Course introduction. Aims of food science. Historical facts about eating habits.
2	Energy intake and expenditure. Components of energy expenditure. Determinants of energy expenditure. Measurement of energy expenditure (Direct and Indirect calorymetry). Estimation of energy requirements.
4	Digestion, Absorption, Transport and Metabolism of nutrients (Carbohydrates, Lipids, Proteins)
6	Water, Minerals: macrominerals (Calcium, Phosporus,Magnesium,Sodium and Potassium) and trace elements (Iron, Zinc, Copper, Iodine, Fluoride, Chromium, Selenium, Manganese). Functions, absorption and transport, storage, excretion, recommended dietary allowance, source and intake, deficiency and toxicity.
4	Vitamins: fat-soluble (vitamin A,D,E,K) and water-soluble (vitamins B and ascorbic acid). Absorption, transport, storage; functions, nutrient interaction,recommended dietary allowance, sources and intake, deficiency and toxicity.
6	Vegetables and animals foods: composition and nutritional value
2	Beverages: composition and nutritional value
2	Antioxidants. Classification. Health effects (relation to diet, adverse effects). Pro-oxidant activities. Oxidative stress in disease. Levels in food.
2	Light foods, functional foods, organic foods, genetically modified organisms, probiotic foods
4	Central nervous system regulation of food intake. Neurotransmitters and Peptides acting as peripheral signals involved in feeding behaviour control.
3	Adipose tissue: regulation of body weight
6	Balanced diet in physiological condition, such as pregnancy and lactation, in infancy, in childhood, in aging, for athletic training and performance.
2	Mediterranean Diet
4	Drug-diet interactions