



# UNIVERSITÀ DEGLI STUDI DI PALERMO

<b>DEPARTMENT</b>	Scienze e Tecnologie Biologiche, Chimiche e Farmaceutiche
<b>ACADEMIC YEAR</b>	2021/2022
<b>MASTER'S DEGREE (MSC)</b>	CHEMISTRY AND PHARMACEUTICAL TECHNOLOGIES
<b>SUBJECT</b>	FOOD CHEMISTRY
<b>TYPE OF EDUCATIONAL ACTIVITY</b>	C
<b>AMBIT</b>	20893-Attività formative affini o integrative
<b>CODE</b>	01832
<b>SCIENTIFIC SECTOR(S)</b>	CHIM/10
<b>HEAD PROFESSOR(S)</b>	AVELLONE GIUSEPPE    Professore Associato    Univ. di PALERMO
<b>OTHER PROFESSOR(S)</b>	
<b>CREDITS</b>	8
<b>INDIVIDUAL STUDY (Hrs)</b>	136
<b>COURSE ACTIVITY (Hrs)</b>	64
<b>PROPAEDEUTICAL SUBJECTS</b>	01933 - ORGANIC CHEMISTRY
<b>MUTUALIZATION</b>	
<b>YEAR</b>	3
<b>TERM (SEMESTER)</b>	2° semester
<b>ATTENDANCE</b>	Not mandatory
<b>EVALUATION</b>	Out of 30
<b>TEACHER OFFICE HOURS</b>	<b>AVELLONE GIUSEPPE</b> Tuesday    11:00    13:30    Studio del docente in via Archirafi n.32 scala A, primo piano, stanza 75SI CONSIGLIA LA PRENOTAZIONE TRAMITE MAIL:beppe.avellone@unipa.it

DOCENTE: Prof. GIUSEPPE AVELLONE

<b>PREREQUISITES</b>	Knowledge required for entry to the degree course and verified through the entrance test
<b>LEARNING OUTCOMES</b>	Knowledge and ability 'to understand: Acquisition of concepts, knowledge and specialist terminology from university-level texts and other sources. Capacity 'to apply knowledge and understanding: Capacity' to professionally apply the knowledge acquired with discernment, critical thinking and ethical correctness. Making judgments: Enable 'interpretation and comparison of experimental data with extrapolation of valid conclusions and original. Enable 'communication: Capacity' to communicate equally with other specialist operators on issues of matter and to speak with clarity with non-specialists, including by providing explanations. Capacity 'Learning: Attitude update by consulting the literature scientific, even in a research context, and wait at higher specialization courses such as master and graduate schools.
<b>ASSESSMENT METHODS</b>	Oral exam: Oral examination, aimed to assess the skills and disciplinary knowledge possessed by student; the evaluation is expressed in thirtieths. The questions will be specifically designed to test the learning outcomes and to verify: a) the knowledge of topics; b) the ability to process the knowledge, c) the mastery of scientific language and presentation skills. The assessment has a final grade included in the following range: 30-30 with honours (excellent), corresponding to "excellent knowledge of topics, excellent use of language, good analytical skills, the student can implement his/her knowledge to solve the posed problems"; 26-29 (very good), corresponding to "good mastery of topics, very good use of language, the student can implement his/her knowledge in order to solve the posed problems"; 24-25 (good), corresponding to "basic knowledge of the main topics, fair use of language, with moderate capability to independently implement knowledge to solve the posed problems"; 21-23 (satisfactory), corresponding to "the student doesn't possess full mastery of the main teaching topics but s/he possesses knowledge of them, satisfactory use of language, poor ability to independently implement the acquired knowledge"; 18-20 (passing grade), corresponding to "very poor basic knowledge of main teaching topics and scarce technical language, no or very poor ability to independently implement the acquired knowledge"; unsatisfactory when the student doesn't possess an acceptable knowledge of the contents of the topics dealt during the course.
<b>EDUCATIONAL OBJECTIVES</b>	he course aims to provide the necessary knowledge on the composition, for classes of substances, the Main fresh and preserved foods; exposing the basic requirements in terms of the constitution, the preparation and preservation standards also on the basis of existing legislation. They set out the main technological processes for major food and chemical processes preparations Related, Also they discuss numerous essays and describes specific analytical techniques for the checks genuineness, hygiene and proper procedure, and for the detection of fraud, adulteration or adulteration of food, beverages and related products.
<b>TEACHING METHODS</b>	Lessons
<b>SUGGESTED BIBLIOGRAPHY</b>	- L Mannina, M.Daglia, A Ritieni "La chimica e gli alimenti. Nutrienti e aspetti nutraceutici" CEA - P. Cabras , A. Martelli "Chimica degli alimenti" Ed. Piccin, Padova. - Dispense gratuite rilasciate dal Docente. Per consultazione: T. Coultate "La Chimica degli Alimenti" Ed. Zanichelli; Bologna.

## SYLLABUS

Hrs	Frontal teaching
2	Review of the main constituents of food substances
5	Natural waters, parameters, requirements and potability standards; sampling, official methods of analysis; Correction and purification. analytical controls. Macronutrients and micronutrients.
5	Lipids: Chemical composition of oils and fats. Essays and analytical determinations. olive oil production techniques; grading, seed oils: the main oil plants; processes of extraction and purification; essays detection and characterization.
5	Carbohydrates: mono, oligo and polysaccharides starch and cellulose. Dietary fiber.

## SYLLABUS

Hrs	Frontal teaching
5	Proteins: Amino acids: amphoteric character, stereochemistry, isoelectric point. Classification. Peptide bond. Protein structure. Property physicochemical and functions.
2	Vitamins: Biological functions; food sources
5	Cereals and cereal: Wheat and its variety. Essays and controls on flour. Bread. pastas food. chemical and organoleptic tests, Other sources of starch.
5	Dairy: Milk composition, general characteristics; alterations; treatments of storage; adulteration. Controls and analysis on milk. Butter production, composition. Cheeses: raw materials, the cheese-making processes, Sampling, determinations and analysis on dairy products
3	Meat: Classification, structure and characteristics of fresh meat; Preserved meat products. Essays and controls on meat and meat products.
4	Fish products: classification, composition and characteristics. Technical conservation and transformation. analytical essays Eggs: classification, fresh characters, properties' nutrients, preservation; ovoderivati.
5	Alcohol: classification and characteristics. Wine: grapes, grape must, fermentation, different winemaking processes. Essays and analysis of musts and wines. Adulteration and sophistication. Vinegar: characteristics, production processes. Brandy analysis. Liqueurs and other alcoholic beverages
3	Coffee, cocoa, Te. Origin, production, varieties, derived foods. Adulteration and essays. dietetic foods: foods for infants Functional foods: Food probiotics and prebiotics
4	Food preservation: Cause of food tampering. Biocontaminazioni and alterations. Technologies and industrial processes of conservation and processing of foods. packaging and shipping techniques
1	Food Additives: Use of additives in modern. technological adjuvants.
2	Food contamination: Chemical Contamination: radionuclides, mycotoxins. Analysis of the contaminants.
2	Food legislation: Food Fraud. healthcare and commercial offenses. food transportation. official and institutional control bodies controls.
4	The Nutraceutical: nutraceuticals in food, functional foods. Claims healthful and the legislation. Probiotics and prebiotics
2	Novel Food legislation and analysis