Food Science and Technology Dept, University of West Attica, Greece

Short Description of Courses supervised in English

in the Context of the Erasmus+ studies exchange Program,

academic year 2021-22

Course Code	7021-7022
Module	Compulsory
Title:	**Science and Technology of Fats and Oils**
Teacher:	Ioannis Tsaknis
Contact:	jtsaknis@uniwa.gr
Level	undergraduate
Semester	7 winter semester
Module Aims	The course aims to make students able to be responsible for quality control laboratories in the oil & fats industry, to design, organize and be responsible for production in the oil & fats industry.
Module Subject	Quality characteristics of olive oil and other vegetable oils, animal fats, oilseeds, margarines and spreads, oils and fats in bakery products, cooking oils, and salad oils. Classification of fats and oils. Fatty acid composition and glyceride structure of fats and oils. Control of non-glyceride constituents of fats and oils. Physical characteristics of fats and oils. Control of adulteration of fats and oils. Analysis of oilseeds, sampling analysis. Quality evaluation of frying oil. Extraction of vegetable and animal fats. Processing of fats and oils. Margarines/shortening production. Co-products of fats and oils. Mayonnaise production.
Number of Credits	8

Course Code	6041
Module	Compulsory
Title:	**Food Quality and Safety**
Teacher:	Ioannis Tsaknis
Contact:	jtsaknis@uniwa.gr
Level	undergraduate
Semester	6 spring semester
Module Aims	The course aims to make students able to: Apply Quality and Safety Management Systems in the production, processing, storage, transportation and the sales of food. Also the implementation of Environmental Management Systems as well as Integrated Management Systems in the different food categories.
Module Subject	Basic principles of quality management. Quality management systems ISO 9000. Total Quality Management (TQM). Environmental Management Systems (EMAS Regulation, ISO 14001 standard). Good Manufactural Practice. Good Hygiene Practice. Food Safety Management Systems (HACCP System, NTERNATIONAL FOOD STANDARD, HALAL System, BRITISH RETAIL CONSORTIUM). Integrated Management Systems (AGRO 2 - 2-1 & 2-2).
Number of Credits	5

Course Code	8011-8012
Module	Compulsory
Title:	**Milk and dairy products Science and Technology**
Teacher:	Efi Tsakali
Contact:	etsakali@uniwa.gr
Level	undergraduate

Semester	8 spring semester
Module Aims	The module aims to familiarize the students with: • The milk composition, including the chemistry, structure and function of its components • The changes occurring in milk and its ingredients during processing • The production and evaluation of dairy products • The performing of the necessary chemical and other analyzes on raw and auxiliary materials and on finished products. • Other important for the dairy industry issues on hygiene, nutrition, packaging, safety and quality assurance.
Module Subject	Scientific and technical principles relating to the commercial processing of milk from the farm to the consumer. Including liquid, concentrated, dehydrated and frozen milk products, butter, cheese and fermented dairy products. The course emphasizes both on theory and practical applications. The module is organized in the following units: Milk composition - Ingredients. Factors influencing the composition of milk Physicochemical characteristics of milk components and factors affecting each of them. Fractional separation and processing of milk components. Physicochemical properties: proteins and enzymes, lipids and liposomes, carbohydrates, vitamins and minerals of milk. Organic function of milk components. Milk processing equipment Effect of heat on milk and its ingredients: pasteurization and sterilization of milk. Milk liposomes: homogenization, separation, clarification. Condensation, evaporation, membrane separation and dehydration of milk. Microbiology and fermentation products of milk. Coagulation: principles of cheeses. Crystallization of fat: butter preparation. Freezing: ice cream and frozen desserts. Quality parameters of milk and its products. Production, collection, processing, storage and distribution of milk
Number of Credits	7

Course Code	3071
Module	optional
Title:	**Introduction to Physical Chemistry**
Teacher:	Ioannis VAMVAKAS
Contact:	ivamvakas@uniwa.gr
Level	BSc
Semester	Winter semester
Module Aims	Aim of the course is to introduce most important elements of physics and chemistry to better understand phenomena in chemical reactions.
Module Subject	Phase transitions and thermodynamics of transitions. The first law, internal energy. Enthalpy: definition, changes and temperature dependence, standard enthalpies of formation. Entropy and the second law. Gibbs energy. Helmholtz energy. Photochemical reaction.
Number of Credits	3

Course Code	5051
Module	compulsory
Title:	**Food Biotechnology**
Teacher:	Dimita Houhoula
Contact:	dhouhoula@uniwa.gr
Level	BSc
Semester	wintersemester
Module Aims	Recent developments in food biotechnology including genetic modification of foods and micro-organisms, nutritional genomics and the development of functional foods
Module Subject	Describing the fermentation that improves the palatability and acceptability of raw materials by producing flavour and aroma components and modifying food texture, theory of microbial growth in food fermentations and the equipment used to produce fermented foods in submerged cultures and

	solid substrate fermentations. Outlining the production of microbial enzymes and selected commercially important fermented foods, including alcoholic drinks, bakery and dairy products, and mycoprotein; Concluding with a summary of developments in the production of bacteriocins and antimicrobial ingredients.
Number of Credits	3 ECTS

Course Code	1011
Module	compulsory
Title:	**Mathematics**
Teacher:	Ioannis VAMVAKAS
Contact:	ivamvakas@uniwa.gr
Level	BSc
Semester	Winter semester
Module Aims	To teach students the basic concepts and essential techniques in linear algebra, functions, integral calculus, and ordinary differential equations.
Module Subject	Matrices identities, determinants, study of a function, monotony, derivative, integral calculus, indefinite integrals of common functions, Properties of definite integrals, integrating with u-substitution, integration by parts, Improper integrals, differential equations introduction, verifying solutions for differential equations, separation of variables, identifying separable equations, approximation with Euler's method.
Number of Credits	7

Course Code	2011-2012
Module	compulsory
Title:	**Physics**
Teacher:	Ioannis VAMVAKAS
Contact:	ivamvakas@uniwa.gr
Level	BSc
Semester	spring semester
Module Aims	Aim of the course is to teach students think critically and use appropriate concepts to analyze qualitatively problems or situations involving the fundamental principles of physics, and to use appropriate mathematical techniques and concepts to obtain quantitative solutions to problems in physics.
Module Subject	Physics is an introduction to classical mechanics and selected topics of modern physics. The course goals include presentation and understanding of fundamental physical laws and basic principles as well as methods of applying them to practical problems. It aims to the development of a feel for the scientific method and understanding of problem solving techniques. Overall the course intends to provide the necessary knowledge and tools for the subsequent studies.
Number of Credits	8 ECTS

Course Code	7052
Module	Elective
Title:	**Current Topics in Nutrition**
Teacher:	Kanellou Anastasia
Contact:	akanellou@uniwa.gr
Level	BSc
Semester	Winter semester
Module Aims	The students to deepen their knowledge and awareness to nutrition issue arising, as well as the consumer dietary needs

Module Subject	Dietary habits of today, food supplement, light food products, functional food, organic food, alternative diets-vegetarism, food allergies-intolerance, GMOs, AGEs, dietary guidelines for specific population groups, basic clinical nutrition topics, obesity and weight control, food additives-artificial sweeteners, probiotics and other
Number of Credits	3 ECTS

Course Code	4041
Module	compulsory
Title:	**Human Nutrition**
Teacher:	Kanellou Anastasia
Contact:	akanellou@uniwa.gr
Level	BSc
Semester	Spring semester
Module Aims	The students to know the basics in human nutrition as well as the role of food ingredients
Module Subject	Carbohydrate, fats, lipids, vitamins, minerals, water, dietary guidelines, Mediterranean diet, energy needs and body weight calculations, the digestive truck, food metabolism, food groups and the major nutrients
Number of Credits	4 ECTS

Course Code	7051
Module	elective
Title:	**Food Product Development**
Teacher:	Kanellou Anastasia
Contact:	akanellou@uniwa.gr
Level	BSc
Semester	Winter semester
Module Aims	to know the current consumer needs and dietary guidelines as well as the strategies to contribute positive in developing a new food product to fill a market gap
Module Subject	New idea strategies, consumer and food market needs, novel foods, functional food ingredients, sensory analysis, nutrient claims, case studies, the role of the food technologist in developing new food products
Number of Credits	3 ECTS

Course Code	5041-5042
Module	compulsory
Title:	**Food Packaging**
Teacher:	Papadakis Spyros
Contact:	sepapad@uniwa.gr
Level	BSc
Semester	Winter semester
Module Aims	
Module Subject	The theory lectures cover the following subjects: Definitions and functions of food packaging. Glass packaging. Metal packaging. Corrosion of metallic containers. Plastic packaging. Permeability and mechanical properties of thermoplastic polymers. Processing and converting of thermoplastic polymers. Paper and paper-based packaging materials. Filling and sealing of food packages. Aseptic processing and packaging. Modified atmosphere packaging. Laboratory exercises deal with the subjects: Evaluation of the double seam of metal containers. Integrity evaluation of aseptic packages. Study of the internal corrosion of tinplate cans. Study of the corrosion of Fe and Al. Modified atmosphere packaging.

	Permeability of thermoplastic polymers to water vapor. Shelf life determination of moisture sensitive foods. Identification of plastic resins with the burning test and the density test. Layers' separation of laminates and thickness measurement of each layer. Mechanical properties of polymers. Edible membranes.
Number of Credits	7

Course Code	6052
Module	compulsory
Title:	**Sensory Evaluation of food (lab)**
Teacher:	Vladimiros Lougovois
Contact:	vloug@uniwa.gr
Level	BSc
Semester	Spring semester
Module Aims	
Module Subject	Laboratory classes: Discriminative tests (paired comparison test, duo – trio test, triangle test, ranking test). Descriptive methods (structured scaling, quality index method, profiling, quantitative descriptive analysis). Preference – acceptance tests (paired comparison preference test, ranking test, hedonic scaling). Statistical processing of sensory data.
Number of Credits	3

Course Code	7054
Module	elective
Title:	**Applied Nutrigenetics**
Teacher:	Kanellou Anastasia
Contact:	akanellou@uniwa.gr
Level	BSc (6)
Semester	Winter semester
Module Aims	Insight in current nutrigenetics guidelines - limitations
Module Subject	Structure of DNA, genes and single polymorphism (SNP) interacting with nutrients, nutrigenetics and nutriepigenetic, gene-groups possibly involved in disease development, current dietary interventions changing genes expression and their limitations, bioethic concerns and commercialization
Number of Credits	3

Course Code	6021
Module	elective
Title:	**Industrial Microbiology**
Teacher:	Anthimia Batrinou
Contact:	batrinou@uniwa.gr
Level	BSc
Semester	spring
Module Aims	To attain knowledge of the basic principles of microbial production used in the Food Industry
Module Subject	Microbial metabolic pathways that are exploited for the production of microbial compounds, microbial growth kinetics, the applications of the yeast *Saccharomyces cerevisiae* in the food industry, food fermentations.
Number of Credits	4 ECTS

Course Code	8033
Module	elective
Title:	**Biofunctional Constituents in Food**
Teacher:	Irini Strati
Contact:	estrati@uniwa.gr
Level	BSc
Semester	Spring
Module Aims	Understanding the role of functional foods and bioactive ingredients, through the presentation of recent scientific data on potential health positive effects. Particular objectives are the knowledge of the legal framework for the development, production and entry of functional food into the market, and on the other hand, of the basic techniques of functional foods industrial production.
Module Subject	Functional foods and ingredients: definition, categories, studies on safety, bioavailability and bioactivity. Health and nutrition claims. Procedures for approval of functional foods. Phytochemicals, natural antioxidants, carotenoids, fatty acids, pro- and pre-biotics, superfoods, novel foods.
Number of Credits	3 ECTS

Course Code	3021-3023
Module	compulsory
Title:	**Biochemistry**
Teacher:	Panagiotis Zoumpoulakis
Contact:	pzoump@uniwa.gr
Level	BSc
Semester	Winter
Module Aims	Understanding the structure, function and organization of biomolecules in living organisms as well as the key metabolic pathways.
Module Subject	Structure and function of biomolecules (nucleic acids, proteins, polysaccharides, lipids), instrumental determination of protein structures, basic principles of biochemical changes in living organisms, main metabolic pathways as well as their regulation and control Laboratory: basic laboratory techniques regarding isolation, protein electrophoresis, protein isolation and enzyme kinetics, DNA isolation, PCR (Polymerase Chain Reaction).
Number of Credits	8 ECTS