

CYPRUS UNIVERSITY OF TECHNOLOGY

Department of Agricultural Sciences, Biotechnology and Food Science

Subject available in English through individual supervised study

Academic Year 2019 - 2020

Autumn Semester (Sept. – Dec.)

Course Code	Course Title	ECTS
ABF_ 210	Genetics	5
ABF_335	Zoonoses and Food Crises	5
ABF_351	Food Biotechnology	6
ABF 310	Plant Pathology	6
LCE_660	Greek Language and Culture	4
LCE_101	English I for Academic Purposes	4

Spring Semester (Jan. – May)

Course Code	Course Title	ECTS
ABF_ 218	Agronomy (Field Crops)	5
ABF_ 356	Food Safety and Quality	5
ABF_ 353	Diary Sciences and Technology	6
ABF_ 350	Oenology	5
ABF_ 250	Food Packaging	5
ABF 415	Postharvest Physiology and Technology	4
LCE_660	Greek Language and Culture	4
LCE_101	English I for Academic Purposes	4

Description of the Courses

Autumn Semester

ABF 210: Genetics

Introduction to Genetics. Mendelian genetics and extensions of Mendelian Genetics (dominance, multiple infertile and lethal alleles, epistasis, penetrance and expression). Cytogenetics (mitosis, meiosis, the discovery of linkage). The nature of the gene, DNA structure and function. Structure and function of eukaryotic chromosomes. Genetic recombination, linkage and mapping, gene and chromosome mutations. Sex determination and sex chromosomes. Extrachromosomal Inheritance. The course includes lectures and tutorials.

ABF 335: Zoonoses and Food Crises

The objective of this course is to offer basic knowledge of important production animal diseases that can be transmitted from animal to humans directly or through the food-chain. Risk factors for animal and human health are analyzed alongside epidemiological evidence, diagnostics, prevention and intervention strategies, and bioethics. Real examples from food crises outbreaks will be presented, dealing directly or indirectly with animal health and the hygienic condition of animal-origin products. Preventive measures and the management of food crises are emphasized.

ABF 351: Food Biotechnology

Introductory concepts and definitions. Theory and application of micro-organisms and enzymes during the preparation of fermented foods. Theoretical background aspects of functional microorganisms and their behaviour as fermentation starters. Process engineering aspects of the formation of biomass and products, and of modern biotechnology in food fermentation will be dealt with. Differentiation of fermentation and bioconversion. Fermentable foods and application of industrial fermentations. Typical fermentations and bioconversions. Biochemistry and technology of microbial protein, microbial oil, alcohol, organic acids, aminoacids and polysaccharides. The course includes lectures and laboratory exercises.

LCE 660: Greek Language and Culture

LCE 101: English I for Academic Purposes

LCE 101 concentrates on the learning of English for Specific Academic Purposes (ESAP). The course aims to enable students to acquire and use the English language efficiently and fluently in the performance of their duties as qualified agricultural and food scientists. This is accomplished through the use of a variety of topics and genre. Relevant material will be used to acquaint the students with different writing styles (comparison and contrast, cause and effect, and classification). Special effort will be made so that students exercise and improve their critical thinking abilities. Students are expected to develop sufficient range of language, phonological control and sociolinguistic awareness to be able to express themselves with a degree of clarity, fluency and spontaneity.

Spring Semester

ABF 218: Agronomy (Field Crops)

This course covers the most important groups of field crops, including cereals (wheat, barley, oats rye, maize), legumes, tobacco, cotton, alternative crops (biofuel, medicinal, aromatic plants). For each of the above crops or group of crops the following topics will be discussed: Botanical classification, utilisation of the crop, plant morphology, adaptation, growth, climatic requirements. Cropping sequence and cultivation. Nutrient management and manuring. Varieties. Plant spacing, row width and seed preparation. Sowing and transplanting. Irrigation and Pest Management. Harvest, storage, yield and crop quality. Productivity and Production Economics. The course includes lectures, field trips and lab practicals.

ABF 356: Food Safety and Quality

This course provides an overview of the most important bacterial toxins, mycotoxins and phycotoxins, their presence and mechanisms of toxic action, and detoxification mechanisms. Bacterial virulence mechanisms and host responses will be discussed, including interference of pathogen-host interaction with food components. The effect of processing (e.g. heating) on food safety, including survival of pathogens, formation of Maillard products, heterocyclic amines, PAK's, and oxidation products are reviewed. Microbiological and toxicological risk assessment will be discussed including genetic polymorphisms for detoxification in humans.

ABF 250: Food Packaging

The course gives an overview of the various aspects and functions of food packaging regarding the consumer, the product itself and the production chain. The subject is integrating the knowledge of different disciplines: food processing, chemistry, physics and microbiology as well as logistics, environmental sciences, legal aspects and marketing. The topics included are: Nature, function and physical properties of packaging materials such as plastic, paper, metal etc. in relation to the quality of the food product. Packaging of specific commodities such as horticultural products, cereals, beverages, dairy products, meat etc.

ABF 350: Oenology

Grapes as a raw material for winemaking. Grape varieties for the most important regions for wine production in Greece and Cyprus. Prefermentive phenomena and treatments. Yeasts and alcoholic fermentation. Malolactic fermentation. Winemaking methods and techniques. Wine types (red, white, sparkling wines etc). Wine composition. The physical and chemical stability of wine. The maturation and ageing of wines. The fining and clarification of wines. Microbiological spoilage of wine and its control. The bottling and storage. The role of sulfur dioxide in wine. Wine and health. Wine legislation. The course includes lectures and laboratory exercises. Visits to local wine industries and regional wineries could also be arranged.

ABF 353: Dairy Sciences and Technology

The Importance of the dairy industry for Cyprus, European and World economy is presented. Composition, properties and nutritive value of milk. Factors and processes influencing the

composition and properties of milk. Biosynthesis and secretion of milk. Milk microorganisms. Growth and metabolism activities of microorganisms of milk. Mastitis-antibiotics. Production and quality control of clean and healthy pasteurized milk. Hygiene of dairy plants. Milk processing commonly used in the food industry. Dairy products, functional dairy products and dairy ingredients. The course includes lectures and laboratory exercises. Visits to dairy industries could also be arranged.

LCE 660: Greek Language and Culture

LCE 101: English I for Academic Purposes

LCE 101 concentrates on the learning of English for Specific Academic Purposes (ESAP). The course aims to enable students to acquire and use the English language efficiently and fluently in the performance of their duties as qualified agricultural and food scientists. This is accomplished through the use of a variety of topics and genre. Relevant material will be used to acquaint the students with different writing styles (comparison and contrast, cause and effect, and classification). Special effort will be made so that students exercise and improve their critical thinking abilities. Students are expected to develop sufficient range of language, phonological control and sociolinguistic awareness to be able to express themselves with a degree of clarity, fluency and spontaneity.