

Academic subject: Food Technologies			
Degree Class: LM-86		Degree Course: Safety and Health of Food of Animal Origin	Academic Year: 2020/2021
		Kind of class: Mandatory	Year: II
			Period: I semester
			ECTS: 6 divided into ECTS lessons: 5 ECTS exe/lab/tutor: 1
Time management, hours, in-class study hours, out-of-class study hours lesson: 60 exe/lab/tutor 25 in-class study: 0 out-of-class study: 65			
Language: Italian	Compulsory Attendance: No		
Subject Teacher: Michele Faccia	Tel: +39.0680.5443012 e-mail: michele.faccia@uniba.it	Office: Department of Soil, Plant and Food Sciences, Via Amendola 165/A, Bari Room 9, 1 st Floor	Office days and hours: From Monday to Friday by e-mail appointment
Prerequisites: Chemistry (inorganic and organic), Microbiology			
Educational objectives: The course aims to transfer to students the principles and applications of the latest technologies in the field of food preservation and processing, and of some analytical techniques for molecular characterization of products of animal origin. In addition to these innovative aspects, the course will complete the path of knowledge of classic food transformations through the study of the cured meats and canned fish industry. Finally, aspects relating to “functional foods ”and other innovative food products will be deepened..			
Expected learning outcomes (according to Dublin Descriptors)	<p>Knowledge and understanding: The students will improve knowledge on process and product innovation in the food industry, on the transformation processes of some meat and fish products and on analytical techniques useful for their molecular characterization. Innovation in the dairy sector will be particularly deepened..</p> <p>Applying knowledge and understanding: At the end of the course, the students will be able to evaluate the usefulness and possible applications of innovative food technologies in the production of products of animal origin. They will acquire knowledge on some analytical techniques able to evaluate the quality of food at the molecular level.</p> <p>Making judgements: Ability in correctly orienting the search for suitable solutions for the production of high quality foods of animal origin.</p> <p>Communication: Ability to describe the elements of food technology useful for food production aimed at exchanging ideas, information, data and methodologies with specialist and non-specialist interlocutors, on issues relating to the qualitative, nutritional and health aspects of food products of animal origin.</p> <p>Lifelong learning skills: The course aims to train an expert who can participate in daily technical management, but also to the research and development of innovative products, in the modern food industry that uses food raw materials of animal origin. He will possess the ability to deepen and update knowledge on the compositional, nutritional and health aspects of foods and on the influence of the processing technologies.</p>		

Course program Educational objectives of the course, professional repercussions, teaching methodologies, examination methods. Cured meat products. Raw and cooked ham: classification and production technology. Salami industry. Seasoned sausages: classification and production technology. Cooked sausages: Mortadella and Wurstel, production technology. Italian cured meats with DOP and IGP brands. Examination of some production regulations. Canned fish. Canned tuna: production technique and quality assessment. Semi-preserved fish. Fermented milk industry: yogurt, kefir, koumiss and other acidified milks. Cream and butter industry. Ice cream production. Production of food creams and butter making. Butter quality. Ongoing Test for assessing the students' level of learning: multiple choice tests on the topics covered. Innovation in the food industry. Definitions and objectives of process and product innovation. From idea to marketing: obstacles and opportunities. Mild Technologies: Membrane technologies, ultrasounds, irradiation, Microwave, extraction using supercritical fluids, hyperbaric sterilization, natural antimicrobials. Product innovation: Traditional innovative products, functional and novel foods. Innovation in the dairy industry. Strategies for the control of non-pathogenic spoilage microorganisms; innovative technologies for the treatment of dairy wastes. Innovations in the production technology of stretched and non-stretched curd cheeses; lactose-free and fortified cheeses; functional cheeses; cheese analogues for vegan people. Practical classes: HPLC applications with for the characterization of cheeses and meat products. Sensory analysis techniques applied to cheese. Applications of gas chromatography, GC-MS for the analysis of VOCs and Olfactometry; Electrophoretic techniques for the characterization of species and genetic variants in milk.

Teaching methods: The theoretical part of the course will be carried out through lectures in the classroom with the aid of PowerPoint presentations that will be available to students in pdf format. The practical lessons will be held both in the laboratories of the Department of Veterinary Science and the Department of Soil, Plant and Food Sciences. Each student will perform the illustrated laboratory techniques individually.

Auxiliary teaching:

Assessment methods: During the course, a summary and a discussion about the topics of the lessons will be carried out at least 2 times, in order to check the status of student learning, with ongoing tests in the form of multiple-choice written questions. The final exam will consist in a discussion in which the student must demonstrate: i) knowledge of the topics covered by the program; ii) capacity of speaking with adequate specialized terminology.

Bibliography:

Zambonelli, Coloretti, Grazia. Tecnologia dei salumi. Edagricole, 2011
De Leonardis A. Qualità e processi di trasformazione dei prodotti ittici. Aracne Editrice, 2015
Mucchetti G, Neviani E., Microbiologia e Tecnologia Lattiero-casearia, Tecniche Nuove.
Power Point presentations used during classes
Class notes and didactic material distributed during the lessons