

<b>Academic subject:</b> Innovative technologies in food processing (6 CFU) (I.C. Innovative technologies in food processing integrated with Methods of food analysis - 9 CFU)			
<b>Degree Class:</b> LM-7		<b>Degree Course:</b> : Biotechnologies for Food Quality and Safety (LM-7)	
		<b>Academic Year:</b> 2020/2021	
		<b>Kind of class:</b> Mandatory	
		<b>Year:</b> First	<b>Period:</b> Second semester
		<b>ECTS:6</b> divided into <b>ECTS lessons:5</b> <b>ECTS</b> <b>exe/lab/tutor: 1</b>	
<b>Time management, hours, in-class study hours, out-of-class study hours</b> lesson: 40 exe/lab/tutor: 12 in-class study: 52 out-of-class study:98			
<b>Language:</b> Italian		<b>Compulsory Attendance:</b> no	
<b>Subject Teacher:</b> Summo Carmine		<b>Tel: 0805442272</b> <b>e-mail:</b> <b>carmine.summo@uniba.it</b>	
		<b>Office:</b> Department of Soil plant and Food Scienze – Food science and Technology Unit-	
		<b>Office days and hours:</b> Monday-Friday, 9-13 am and 2-4 pm after agreement by e-mail.	
<b>Prerequisites:</b> Knowledge of physics, inorganic and organic chemistry. Knowledge of the principles of food technologies and of the composition and quality of food.			
<b>Educational objectives:</b>  The student will to acquire knowledge and skills on the innovative food technologies aimed at the preservation of nutritional and sensory value of food, including the packaging operations. The student will also acquire skills respect to the methods the shelf-life evaluation of foods.			
<b>Expected learning outcomes (according to Dublin Descriptors)</b>		<p><b>Knowledge and understanding:</b></p> <p>Students will know and understand product and process innovations in the food industry; the meaning of shelf-life and the techniques for its evaluation and extension; the technical aspects of innovative packaging and food labelling.</p> <p><b>Applying knowledge and understanding:</b></p> <p>The student will be able to understand: the problems posed by the food industries and will be able to apply the most appropriate knowledge to solve them; develop appropriate approaches for the protection of the origin and traceability of food; apply knowledge and understanding to the use of innovative techniques for food packaging and consumer presentation; apply the main innovations for new eating styles.</p> <p><b>Making judgements:</b></p> <p>The student will be able to identify the aspects underlying the new problems of food production and bring them back to acquired schemes or propose innovative solutions.</p> <p><b>Communication:</b></p> <p>The student will have acquired adequate skills and communication tools to analyze, propose and critically discuss experimental data relating to new processes and food products with interlocutors of similar and different backgrounds.</p> <p><b>Lifelong learning skills:</b></p> <p>The student will have acquired sufficient learning and in-depth skills in research topics and current problems concerning the sector of food quality and safety.</p>	

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Course program           Recalls of food technology: processes, products, balances.  
 Process innovation: definition and objectives.  
 Mild technologies and innovative technologies in the food sector.  
 The shelf-life of food products: definition and objectives. The shelf-life forecast. Innovative techniques for extending the shelf life of food. Active and intelligent packaging. The traceability and labeling of food.  
 Innovative technologies in the food industries to raise the nutritional value and ensure the production of quality and safe food for the consumer.  
 Product innovation for new eating styles.  
 Innovative technologies for the enhancement of agro-food waste and by-products: extraction of compounds of interest, characteristics and use in the food industry.

**Analysis of case studies and guided visits to factories.**

**Teaching methods:**

Lessons, laboratory activities and seminars with experts from the academic sectors

**Auxiliary teaching:**

All the topics will be treated through Power Point presentations, videos and laboratory exercitations. on-line platforms such as Edmodo, google drive, mailing list of students to provide didactic materials and to interact with the students will be moreover used.

**Assessment methods:**

The exam consists of an oral dissertation on the topics developed during the theoretical and theoretical-practical lectures in the classroom and in the laboratory/production plants, as reported in the Academic Regulations for the Bachelor Degree Biotechnologies for Food Quality and Safety. Students attending at the lectures may have a middle-term preliminary exam, consisting of a written test, relative to the first part of the program, which will concur to the final evaluation and will be considered valid for a year.

The evaluation of the preparation of the student occurs on the basis of established criteria, as detailed in Annex B of the Academic Regulations for the Bachelor Degree in Biotechnologies for Food Quality and Safety.

**Bibliography:**

Notes of the lectures distributed during the course.