

General information	
Academic subject	Advanced food technologies (I.C. Food technologies, sensory analysis and packaging)
Degree course	Master programme: <i>Food Science and Technology (LM-70)</i>
Academic Year	<i>First</i>
European Credit Transfer and Accumulation System (ECTS)	3 ECTS
Language	<i>Italian</i>
Academic calendar (starting and ending date)	<i>March 13<sup>th</sup>, 2023 – June 16<sup>th</sup>, 2023</i>
Attendance	<i>No Compulsory</i>

Professor/ Lecturer	
Name and Surname	Francesco Caponio
E-mail	<a href="mailto:francesco.caponio@uniba.it">francesco.caponio@uniba.it</a>
Telephone	080 5442235
Department and address	<i>DiSSPA</i>
Virtual headquarters	<i>Microsoft Teams</i>
Tutoring (time and day)	From Monday to Friday 8.30 a.m. – 1.30 p.m. and 2.30 p.m. – 5.30 p.m. previous agreement

Syllabus	
<b>Learning Objectives</b>	The student will acquire knowledge and skills relating to edible oils and fats, paying particular attention to both innovative technologies and quality and genuineness, as well as unconventional quality assurance methods. Furthermore, the course will allow to acquire knowledge and skills related to the production processes of beer and nerve foods.
<b>Course prerequisites</b>	Knowledge of the virgin olive oils processing technologies.
<b>Contents</b>	<p>Introduction.</p> <p>Quality and genuineness of the oils. Storage of virgin olive oils. Effects of storage on the analytical indexes. The influence of oxidation and hydrolysis compounds in the evolution of oxidation in edible oils.</p> <p>Margarines: production technology and fat quality. Fat hydrogenation, interesterification and fractionation techniques.</p> <p>The quality of oils and fats used in the food industry. Processing technology of animal fats and evaluation of their quality.</p> <p>Quality and processing of ovine and goat's milk.</p> <p>Principal food adulterations in the dairy industry.</p> <p>Innovative technologies of winemaking. Sparkling wines: definition, classification and production technologies.</p> <p>Beer: definition and classification; characteristics of the barley and its substitutes; preparation of malt and must; brewing, pasteurization and bottling.</p> <p>Nerve foods.</p>
<b>Books and bibliography</b>	<ul style="list-style-type: none"> <li>• Notes of the lectures distributed during the course.</li> <li>• Capella P., Fedeli E., Bonaga G., Lercker G. "Manuale degli oli e dei grassi". Tecniche Nuove, Milano.</li> <li>• Sunier J. "La fabbricazione del malto e della birra". a cura dell'unione fabbricanti di birra e malto, Roma.</li> <li>• Colagrande O. "Preparazione dei vini di qualità". Chiriotti Editori, Pinerolo.</li> <li>• Cabras P., Martelli A. "Chimica degli alimenti". Piccin, Padova.</li> <li>• Cappelli P., Vannucchi V. Chimica degli alimenti. Conservazione e trasformazione. Zanichelli, Bologna.</li> </ul>

	Additional readings: <ul style="list-style-type: none"> <li>• Oils &amp; fats manual. A. Karleskind Ed. Intercept Ltd, Andover, UK.</li> <li>• Bailey's industrial oil &amp; fat products. Y.H. Hui Ed. John Wiley &amp; Sons, New York, USA.</li> </ul>
<b>Additional materials</b>	

<b>Work schedule</b>			
Total	Lectures	Hands on (Laboratory, working groups, seminars, field trips)	Out-of-class study hours/Self-study hours
<b>Hours</b>			
75	16	14	45
<b>ECTS</b>			
3	2	1	
<b>Teaching strategy</b>	Lectures will be presented by means of Power Point presentations, videos with views of real industrial plants, didactic visit, case-studies and laboratory exercitations. Lecture notes and educational supplies will be provided by means of online platforms.		
<b>Expected learning outcomes</b>			
<b>Knowledge and understanding on:</b>	<ul style="list-style-type: none"> <li>○ Knowledge of technologies, including innovative ones, and of their influence on product quality.</li> <li>○ Knowledge of analytical techniques to ensure olive oil genuineness.</li> </ul>		
<b>Applying knowledge and understanding on:</b>	<ul style="list-style-type: none"> <li>○ Ability to understand the relations between food composition and shelf-life.</li> <li>○ Ability to apply analytical techniques for food frauds.</li> <li>○ Ability to apply food technologies to ensure efficiency and quality.</li> </ul>		
<b>Soft skills</b>	<ul style="list-style-type: none"> <li>• <i>Making informed judgments and choices</i> <ul style="list-style-type: none"> <li>○ Correctly advising solutions to ensure high quality standards in foods.</li> <li>○ Correctly evaluating an analytical report.</li> </ul> </li> <li>• <i>Communicating knowledge and understanding</i> <ul style="list-style-type: none"> <li>○ Describing correct analytical and technologic approaches to ensure food quality.</li> </ul> </li> <li>• <i>Capacities to continue learning</i> <ul style="list-style-type: none"> <li>○ Updating the knowledge of the relations between technology and food quality.</li> </ul> </li> </ul>		
The expected learning outcomes, in terms of both knowledge and skills, are provided in Annex A of the Academic Regulations of the Degree in Food Science and Technology (expressed through the European Descriptors of the qualification).			

<b>Assessment and feedback</b>	
Methods of assessment	<p>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 Master Degree in Food Science and Technology (article 9) and in the study plan (Annex A).</p> <p>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.</p>

	Non-Italian students may be examined in English language, according to the aforesaid procedures.
Evaluation criteria	<ul style="list-style-type: none"> <li>• <i>Knowledge and understanding</i> <ul style="list-style-type: none"> <li>○ Updating the knowledge of the relations between technology and food quality.</li> </ul> </li> <li>• <i>Applying knowledge and understanding</i> <ul style="list-style-type: none"> <li>○ Describing the relations between food composition and shelf-life applied to the cases reported during lectures.</li> <li>○ Indicating the correct analyses ensuring product genuineness.</li> </ul> </li> <li>• <i>Autonomy of judgment</i> <ul style="list-style-type: none"> <li>○ Expressing correct judgements regarding product genuineness.</li> </ul> </li> <li>• <i>Communicating knowledge and understanding</i> <ul style="list-style-type: none"> <li>○ Expressing reasonable hypotheses about processes able to ensure high quality standards.</li> </ul> </li> <li>• <i>Communication skills</i> <ul style="list-style-type: none"> <li>○ The student will be evaluated considering the use of appropriate technical language.</li> </ul> </li> <li>• <i>Capacities to continue learning</i> <ul style="list-style-type: none"> <li>○ Expressing reasonable hypotheses about the evaluation of product genuineness, even though collaborative approaches.</li> </ul> </li> </ul>
Criteria for assessment and attribution of the final mark	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 Master Degree in Food Science and Technology.
<b>Additional information</b>	