

General Information	
Academic subject	Packaging (I.C. Enology and Packaging)
Degree course	Food Science and Technology (L26)
ECTS credits	3 CFU
Compulsory attendance	No
Teaching language	Italian

Subject teacher	Name Surname	Mail address	SSD
	<b>Carmine Summo</b>	<a href="mailto:carmine.summo@uniba.it">carmine.summo@uniba.it</a>	AGR/15

ECTS credits details	
Basic teaching activities	2.5 ECTS Lectures   0.5 ECTS Laboratory or field classes

Class schedule	
Period	I Semester
Course year	Third
Type of class	Lecture- workshops

Time management	
Hours	75
In-class study hours	27
Out-of-class study hours	48

Academic calendar	
Class begins	September 30 <sup>th</sup> , 2019
Class ends	January 17 <sup>th</sup> , 2020

Syllabus	
Prerequisites/requirements	Prerequisites: Chemistry; Unit operations of food technology
Expected learning outcomes	<p><i>Knowledge and understanding</i></p> <ul style="list-style-type: none"> <li>○ Knowledge of food packaging materials and their properties</li> <li>○ Knowledge of food packaging technologies</li> <li>○ Knowledge of safety of food contact materials and regulations</li> <li>○ Knowledge of shelf-life evaluation approaches</li> </ul> <p><i>Applying knowledge and understanding</i></p> <ul style="list-style-type: none"> <li>○ Knowledge of materials and packaging technologies of foods presented during the course.</li> <li>○ Ability to set up a shelf-life evaluation for a food product</li> </ul> <p><i>Making informed judgements and choices</i></p> <ul style="list-style-type: none"> <li>○ Ability to correctly direct choices or packaging materials and technologies.</li> </ul> <p><i>Communicating knowledge and understanding</i></p> <ul style="list-style-type: none"> <li>○ Ability to describe materials and packaging technologies of foods presented during the course</li> </ul> <p><i>Capacities to continue learning</i></p> <ul style="list-style-type: none"> <li>○ Ability to update and deepen the knowledge about food packaging materials and technologies.</li> </ul> <p>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)</p>
Contents	<ul style="list-style-type: none"> <li>● Introduction</li> <li>● Food contact materials properties and applications <ul style="list-style-type: none"> <li>○ Plastic materials, biopolymers, cellulosic material, metals, glass</li> </ul> </li> <li>● Shelf-life <ul style="list-style-type: none"> <li>○ Food deterioration, shelf-life, shelf-life evaluation</li> </ul> </li> </ul>

	<ul style="list-style-type: none"> <li>• Packaging technologies <ul style="list-style-type: none"> <li>○ Aseptic packaging, modified atmosphere packaging, active and intelligent packaging, packaging of some food products</li> </ul> </li> <li>• Migrations and safety of food contact materials <ul style="list-style-type: none"> <li>○ Migrations and EC Regulation 1935/2004</li> </ul> </li> <li>• Sustainability</li> </ul>
Course program	
Reference books	<ul style="list-style-type: none"> <li>• Lecture notes and educational supplies provided during the course.</li> <li>• Gordon L. Robertson, Food Packaging: Principles and Practice, Third Edition. CRC Press, 2013.</li> <li>• Joongmin Shin and Susan E.M. Selke, Food Packaging. In: Food Processing: Principles and Applications, Second Edition. Ed: Stephanie Clark, Stephanie Jung, and Buddhi Lamsal. John Wiley and Sons, 2014.</li> </ul> <p><i>Additional readings</i></p> <ul style="list-style-type: none"> <li>• Luciano Piergiovanni, Sara Limbo. Food packaging. Materiali, tecnologia e qualità degli alimenti. Springer Verlag, 2010.</li> </ul>
Notes	
Teaching methods	<p>Lectures will be presented through PC assisted tools (PowerPoint, video). Field and laboratory classes, reading of regulations will be experienced.</p> <p>Lecture notes and educational supplies will be provided by means of online platforms (i.e.: Edmodo, Google Drive...)</p>
Evaluation methods	<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 Bachelor 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> <p>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 Food Science and Technology.</p> <p>The foreign student's profit test can be done in English in the way described above.</p>
Evaluation criteria	<p><i>Knowledge and understanding</i></p> <ul style="list-style-type: none"> <li>○ Describe food contact materials and their applications</li> </ul> <p><i>Applying knowledge and understanding</i></p> <ul style="list-style-type: none"> <li>○ Describe technologies and materials for packaging of food products presented during lectures</li> <li>○ Describe the approach to shelf life problem solving</li> </ul> <p><i>Making informed judgements and choices</i></p> <ul style="list-style-type: none"> <li>○ Express reasonable hypotheses about choice of materials and technologies for packaging of food products presented during lectures</li> </ul> <p><i>Communicating knowledge and understanding</i></p> <ul style="list-style-type: none"> <li>○ Correct use of technical lexicon of food packaging</li> </ul> <p><i>Capacities to continue learning</i></p> <ul style="list-style-type: none"> <li>○ Indicate sources for the search of new solutions for food packaging</li> </ul>
Receiving times	Monday-Thursady by previous agreement by email