

General Information	
Academic subject	Food chemistry (I. C. Food Chemistry and Applied Nutrition)
Degree course	Master programme: Food Science and Technology
ECTS credits	3 ECTS
Compulsory attendance	No
Teaching language	Italian

Subject teacher	Name Surname	Mail address	SSD
	<b>Vito Michele Paradiso</b>	<a href="mailto:vito.paradiso@uniba.it">vito.paradiso@uniba.it</a>	CHIM/10

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

Class schedule	
Period	II semester
Course year	First
Type of class	Lectures, workshops, field classes

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

Academic calendar	
Class begins	March 4 <sup>th</sup> , 2019
Class ends	June 14 <sup>nd</sup> , 2019

Syllabus	
Prerequisites/requirements	Principles of general, inorganic and organic chemistry. Principles of food constituents and food technology
Expected learning outcomes	<p><i>Knowledge and understanding</i></p> <ul style="list-style-type: none"> <li>○ Knowledge of the main chemical and physical interactions of food constituents</li> </ul> <p><i>Applying knowledge and understanding</i></p> <ul style="list-style-type: none"> <li>○ Skill to apply a systemic approach to the evaluation of food composition and properties</li> <li>○ Understanding phenomena and constituents determining food quality and its evolution</li> <li>○ Skill to describe chemical properties and structure of innovative foods</li> </ul> <p><i>Making informed judgements and choices</i></p> <ul style="list-style-type: none"> <li>○ Correctly advising solutions to change properties and quality of food</li> <li>○ Correctly advising analytical approaches to monitor properties and quality of food</li> </ul> <p><i>Communicating knowledge and understanding</i></p> <ul style="list-style-type: none"> <li>○ Describing chemical constituents and phenomena underlying properties and macroscopic phenomena in food</li> </ul> <p><i>Capacities to continue learning</i></p> <ul style="list-style-type: none"> <li>○ Updating the knowledge of chemical and physical interaction of food constituents</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>• Water</li> <li>• Food as a dispersed system</li> <li>• Dispersed systems: emulsions (formation, breaking, stabilization), emulsifiers</li> <li>• Dispersed systems: foams (formation and stability)</li> <li>• Dispersed systems: gels (structure and properties), gelling polymers (pectin, alginates, carragenaans, collagen)</li> <li>• Dispersed systems: other colloids (gums)</li> <li>• Lipid oxidation: autoxidation, photoxidation, thermoxidation, enzymatic oxidation, antioxidants</li> <li>• Caramelization and Maillard reaction</li> <li>• Food pigments</li> </ul>
Course program	
Reference books	<ul style="list-style-type: none"> <li>• Lecture notes and educational supplies provided during the course.</li> <li>• Fennema, O. R. (2010). Dispersed systems. In: Food Chemistry. Marcel Dekker.</li> <li>• Belitz, H.-D., Grosch, W., &amp; Schieberle, P. (2009). Food chemistry. Springer.</li> <li>• Scientific reviews</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 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 an oral 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 Master Degree in Food Science and Technology.</p> <p>Non-Italian students may be examined in English language, according to the aforesaid procedures.</p>
Evaluation criteria	<p><i>Knowledge and understanding</i></p> <ul style="list-style-type: none"> <li>○ Describing the main chemical and physical interactions of food constituents</li> </ul> <p><i>Applying knowledge and understanding</i></p> <ul style="list-style-type: none"> <li>○ Describing phenomena and constituents determining the quality of foods dealt with during lessons, as well as the evolution of quality during time</li> </ul> <p><i>Making informed judgements and choices</i></p> <ul style="list-style-type: none"> <li>○ Expressing reasonable hypotheses about solutions to change properties and quality of foods dealt with during lessons</li> </ul> <p><i>Communicating knowledge and understanding</i></p> <ul style="list-style-type: none"> <li>○ Describing chemical constituents and phenomena underlying properties and macroscopic phenomena in foods dealt with during lessons</li> </ul> <p><i>Capacities to continue learning</i></p>

	<ul style="list-style-type: none"><li>○ Expressing reasonable hypotheses about the evaluation of chemical properties of foods dealt with during lessons</li></ul>
Receiving times	Tutorial activities: from Monday to Thursday 9.00 a.m. – 12.30 p.m. by appointment only