

**COURSE OF STUDY** *Bachelor degree: Food Science and Technology (L26)*
**ACADEMIC YEAR** 2023-2024

**ACADEMIC SUBJECT** *Food biochemistry (6 ECTS) - I.C. General and food biochemistry (9 ECTS)*

General information	
Year of the course	II
Academic calendar	I semester
Credits (CFU/ETCS)	6
SSD	AGR/13 Chimica Agraria
Language	Italian
Mode of attendance	Facultative

Professor/ Lecturer	
Name and Surname	Carmine Crecchio
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Telephone	080 5442854
Department and address	1 floor old building former Agriculture Faculty, room n.7
Virtual room	teams
Office Hours (and modalities: e.g., by appointment, on line, etc.)	From Mon to Fri: 10,00 -12,00 in presence; all afternoons by “teams” as for appointment

Work schedule			
Hours			
Total	Lectures	Hands on	Out-of-class study hours/ Self-study hours
150	32	28	90
CFU/ETCS			
6	4	2	

Learning Objectives	The course aims to furnish knowledge on the main metabolisms of animal and plants and on the main biochemical techniques.
Course prerequisites	Basic knowledge in general and organic chemistry and in cell biology.

Teaching strategy	Lectures will be presented through PC assisted tools (PowerPoint, video). Field and laboratory classes, reading of regulations will be experienced. Lecture notes and educational supplies will be provided by means of online platforms
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Expected learning outcomes in terms of	
DD1 Knowledge and understanding on	Knowledge and comprehension of the food biochemistry and metabolisms.

<p>DD2 Applying knowledge and understanding on</p> <p>DD3-5 Soft skills</p>	<p>Capacity to use the acquired information to be used for further studies in the field of plant and animal food biochemistry.</p> <ul style="list-style-type: none"> <li>• <i>Making informed judgments and choices</i></li> </ul> <p>Capacity to use the acquired information to be used for further studies.</p> <ul style="list-style-type: none"> <li>• <i>Communicating knowledge and understanding</i></li> </ul> <p>Capacity to describe the main pathways of food in animal and plant systems.</p> <ul style="list-style-type: none"> <li>• <i>Capacities to continue learning</i></li> </ul> <p>Capacity to upgrade at higher levels the knowledge relative to the food biochemistry.</p>
<p>Content knowledge</p>	<p>Adsorption, anabolism and catabolism of glucids. Adsorption, anabolism and catabolism of lipids. Adsorption, anabolism and catabolism of proteins. Adsorption, anabolism and catabolism of vitamins. Photosynthesis Main biochemical techniques: centrifugation, electrophoresis, cell lysis.</p>
<p>Texts and readings</p>	<p>Slides used and furnished during the course. Biochimica industriale – Verga, Pilone – Sprinter. Principi di Biochimica – Settima edizione, Nelson, Cox – Zanichelli. Introduzione alla Biochimica di Lehninger – Sesta Edizione Nelson, Cox – Zanichelli. Wilson, Walker. Biochimica e biologia molecolare – Principi e tecniche. Raffaello Cortina Ed. Wilson, Walker. Metodologia biochimica: le bioscienze e le biotecnologie. Raffaello Cortina Ed. Skoog, West, Holler. Fondamenti di Chimica Analitica, Edises.</p>
<p>Additional materials</p>	<p>Notes, slides and other bibliographic materials will be furnished during the course and will integrate the suggested texts.</p>
<p>Repository</p>	<p>Available in Teams class</p>
<p>Assessment</p>	
<p>Assessment methods</p>	<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> <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>
<p>Assessment criteria</p>	<ul style="list-style-type: none"> <li>• <i>Knowledge and understanding</i> Describe the main metabolic pathways in animal and plants.</li> <li>• <i>Applying knowledge and understanding</i> Describe the importance of biochemistry to evaluate the functions of eukaryotic organisms</li> <li>• <i>Autonomy of judgment</i></li> </ul>

	<p>The student will be able to express reasonable hypotheses about the functions of eukaryotic organisms.</p> <ul style="list-style-type: none"> <li>• <i>Communicating knowledge and understanding</i></li> </ul> <p>Capacity to describe the fate of biomolecules contained in food.</p> <ul style="list-style-type: none"> <li>• <i>Communication skills</i></li> </ul> <p>The student will be evaluated considering the use of appropriate technical language.</p> <ul style="list-style-type: none"> <li>• <i>Capacities to continue learning</i></li> </ul> <p>Capacity to use and apply the biochemical background to improve the knowledge of metabolic pathways of food-.</p>
Final exam and grading criteria	<p>The evaluation criteria that contribute to the attribution of the final mark ( /30) will be: knowledge and understanding, the ability to apply knowledge, autonomy of judgment, i.e. the ability to criticize and formulate judgments, communication skills</p>
Further information	