



General information	
Academic subject	Food bioprocesses from by-products and novel sources
Degree course	INNOVATION DEVELOPMENT IN AGRIFOOD SYSTEMS (IDEAS)
Course year	I year
European Credit Transfer and Accumulation System (ECTS):	3
SSD	AGR/16
Teaching language	English
Period	II semester
Compulsory attendance	No

Subject teacher	
Name Surname	Chiara Demarinis
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Address	Department of Soil, Plant, and Food Science – Via G. Amendola, 165/A – Bari
Receiving times	Monday-Friday 09:30 – 17:30 by appointment (the timetable also includes lessons when held).

Syllabus	
Obiettivi formativi	<p>Knowledge and understanding Knowledge of the actual issues related to the food wastes and economic and sustainability needs and latest bioprocesses to enhancing wastes and innovative sources to produce novel foods.</p> <p>Applying knowledge and understanding Ability to autonomously identify and carry out the most suitable technologies aimed at the valorisation of food wastes and novel sources</p> <p>Making informed judgements and choices Ability to interpret the results of analytical controls and to adjust the parameters of bioprocesses to the achievement of defined quality standards.</p> <p>Communicating knowledge and understanding Ability to communicate the importance and role of bioprocesses and the purpose of biotechnological processes for the enhancing the food wastes and novel food ingredients in order to obtain specific quality standards.</p> <p>Capacities to continue learning Ability to update and deepen self-knowledge of food biotechnological processes through the study of scientific publications in the food wastes re-utilisation and novel sources use for novel food production.</p>
Prerequisites/requirements	Biology, microbiology, Food technologies, chemistry, biochemistry and enzymology
Contents	<ul style="list-style-type: none">• Food industry wastes: problems and opportunity;• Development of green production strategies;• Sources, characterization and composition of food wastes and food industry wastes;• Treatment of solid food wastes;• Production of organic acids, enzymes, biopolymers from food wastes;• Functional foods and nutraceuticals derived from industry food wastes;
Reference books	BOOKS: <ul style="list-style-type: none">• <i>Food Waste to Valuable Resources: Applications and Management.</i>



	<p>Rajesh Banu, Gopalakrishnan Kumar, Gunasekaran M., Kavitha S. 2020</p> <ul style="list-style-type: none"> • <i>Food Industry Wastes: Assessment and Recuperation of Commodities.</i> Maria R. Kosseva, Colin Webb. 2013 1st edition <p>Scientific papers suggested during the course Student notes</p>
Note ai testi di riferimento	

Time management			
Hours			
Total	In-class study hours	Practice (laboratory, field, exercise, other)	Out-of-class study hours
75	16	14	45
CFU/ETCS			
3	0,64	0,56	1,8

Teaching methods	Lectures, laboratory classes and working groups
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Expected learning outcomes	
Knowledge and understanding	Knowledge of the actual issues related to the food wastes and economic and sustainability needs and latest bioprocesses to enhancing wastes and innovative sources to produces novel foods.
Applying knowledge and understanding	Ability to autonomously identify and carry out the most suitable technologies aimed at the valorisation of food wastes and novel sources
Transversal skills	<p>Knowledge and understanding Knowledge of the actual issues related to the food wastes and economic and sustainability needs and latest bioprocesses to enhancing wastes and innovative sources to produces novel foods.</p> <p>Applying knowledge and understanding Ability to autonomously identify and carry out the most suitable technologies aimed at the valorisation of food wastes and novel sources</p> <p>Making informed judgements and choices Ability to interpret the results of analytical controls and to adjust the parameters of bioprocesses to the achievement of defined quality standards.</p> <p>Communicating knowledge and understanding Ability to communicate the importance and role of bioprocresse and the purpose of biotechnological processes for the enhancing the food wastes and novel food ingredients in order to obtain specific quality standards.</p> <p>Capacities to continue learning Ability to update and deepen self-knowledge of food biotechnological processes through the study of scientific publications in the food wastes re-utilisation and novel sources use for novel food production.</p>

Valutazione	
Evaluation methods	Oral exam. The exam must be held in English.
Evaluation criteria	<p>Knowledge and understanding Understand the novel scientific approaches aimed at enhancing food waste and new raw materials to be used in the production of novel foods.</p> <p>Applying knowledge and understanding Students must know and know how to apply the current methodologies aimed at the enhancement and re-use of food waste and novel raw materials.</p>



	<p><i>Making informed judgements and choices</i> Acquisition of considerable autonomy of judgment in the context of the specific themes of current biotechnological approaches aimed at enhancing food wastes and new raw materials.</p> <p><i>Communicating knowledge and understanding</i> Ability to spread the knowledge acquired on the current requirements and pre-treatment methodologies of food waste and new raw materials for food production.</p> <p><i>Capacities to continue learning</i> Gaining knowledge of this module is verified during lectures, practical lessons and guided tours. It is also verified through the case studies proposed during learning activities.</p>
Criteria for measuring learning and assigning the final grade	The evaluation is expressed on a thirty-point scale
Altro	