

General information		
Academic subject	<i>Honey bee products (I.C. Food entomology and post-harvest pathology)</i>	
Degree course	<i>Food Science and Technology (LM70)</i>	
Academic Year	<i>Second</i>	
European Credit Transfer and Accumulation System (ECTS)	3 ECTS	
Language	<i>Italian</i>	
Academic calendar (starting and ending date)	<i>September 26<sup>th</sup>, 2022 – January 20<sup>th</sup>, 2023</i>	
Attendance	<i>No Compulsory</i>	

Professor/ Lecturer	
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Virtual headquarters	Microsoft Teams
Tutoring (time and day)	Monday-Friday 9.00-17.00 by appointment

Syllabus	
<b>Learning Objectives</b>	<i>The teaching is aimed at providing hints on the bio-ethology of honey bees and more in-depth knowledge on production techniques, characteristics, possible uses and on the enhancement of honey bee products. The laboratory activities will aim to bring the student closer to the world of bees by guiding him through sensory, chemical-physical and melissopalinalogical analyzes, to discover the diversity and quality of honeys.</i>
<b>Course prerequisites</b>	<i>Prerequisites: General Zoology; Entomology.</i>
<b>Contents</b>	<i>Essential elements of honey bee bio-ethology and ecology. Raw materials, methods of production and characteristics of bee products. Equipment and operation of a honey house. Criteria for enhancing the honey bee products (honey, royal jelly, propolis, etc.). Sensory, chemical-physical and melissopalinalogical analyzes of honeys. Notes on beekeeping legislation.</i>
<b>Books and bibliography</b>	<i>Bortolotti L., Mazzacan G.L., 2017. I prodotti dell'alveare. Edagricole-New Business Media, Milano, 196 pp. Contessi A., 2004. Le Api. Biologia, allevamento, prodotti (third edition). Edagricole, Bologna: 497 pp.</i>
<b>Additional materials</b>	<i>Notes, slides and other bibliographic materials will be furnished during the course</i>

Work schedule			
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>	<i>Lectures will be presented through PC assisted tools (PowerPoint, video). Field and laboratory classes, reading of regulations will be experienced.</i>		

	<i>Lectures, notes and educational supplies will be provided Microsoft Teams platform.</i>
<b>Expected learning outcomes</b>	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>Knowledge and understanding on:</b>	<ul style="list-style-type: none"> <li>○ Knowledge of production techniques, characteristics of hive products and criteria for enhancing them.</li> </ul>
<b>Applying knowledge and understanding on:</b>	<ul style="list-style-type: none"> <li>● Ability to associate the characteristics of the hive products to the production areas.</li> <li>● Ability to produce and market hive products in compliance with current legislation.</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>○ Ability to propose production methods suited to specific company needs and to enhance the products of the hive.</li> </ul> </li> <li>● <i>Communicating knowledge and understanding</i> <ul style="list-style-type: none"> <li>○ Ability to communicate theoretical and practical knowledge on hive products by effectively discussing them with the interlocutors.</li> </ul> </li> <li>● <i>Capacities to continue learning</i> <ul style="list-style-type: none"> <li>○ Ability to keep knowledge of beehive products constantly updated and to intercept new inputs from the world of production and the market to promote qualitative and quantitative improvements to companies in the sector.</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>	
<b>Methods of assessment</b>	<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, as reported in the Academic Regulations for the Bachelor Degree in Food Science and Technology (article 9) and in the study plan (Annex A). 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's 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>
<b>Evaluation criteria</b>	<ul style="list-style-type: none"> <li>● <i>Knowledge and understanding</i> <ul style="list-style-type: none"> <li>○ Ability to clearly and correctly explain the topics covered during the lessons, adequately motivating the answers.</li> </ul> </li> <li>● <i>Applying knowledge and understanding</i> <ul style="list-style-type: none"> <li>○ Ability to apply the knowledge acquired during the lessons to concrete cases of the honey bee product chain.</li> </ul> </li> <li>● <i>Autonomy of judgment</i> <ul style="list-style-type: none"> <li>○ Ability to propose and argue possible solutions to problems inherent to honey bee products.</li> </ul> </li> <li>● <i>Communicating knowledge and understanding</i> <ul style="list-style-type: none"> <li>○ Ability to discuss in a clear, correct and convincing way the arguments concerning the products of honey bees.</li> </ul> </li> </ul>



	<ul style="list-style-type: none"><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>○ Demonstration of having assimilated the concepts exposed on the products of the hive by applying them to cases other than those dealt with in class.</li></ul></li></ul>
Criteria for assessment and attribution of the final mark	The evaluation criteria that contribute to the attribution of the final mark will be: knowledge and understanding, the ability to apply knowledge, autonomy of judgment, i.e. the ability to criticize and formulate judgments, communication skills
<b>Additional information</b>	