

**ACADEMIC YEAR 2023/2024**

<b>General information</b>	
	<b>FOOD SAFETY 1</b>
Academic subject	<b>Beekeeping Sector Hygiene And Safety Control; Egg And Milk Hygiene And Safety Control; Fish And Fishery Products Hygiene And Safety Control; Bivalve Molluscs Hygiene And Safety Control.</b>
Degree course	Veterinary Medicine
Academic year	IV
SSD	VET/04
Language	Italian
Academic calendar	I and II 7-week term
Attendance	Mandatory

<b>teacher</b>	<b>mail address</b>	<b>phone</b>
Valentina Terio	valentina.terio@uniba.it	0805443970
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Department and address	Campus of Of Veterinary Medicine S.P. 62 Casamassima km 3, Valenzano
Virtual room	Platforms Teams Code: qxl2p5w
Tutoring	Tuesday and Thursday (9.00-10.00) or upon booking by mail

<b>Syllabus</b>	
<b>Learning Objectives</b>	The course provides the essential and fundamental knowledge elements to assess and manage the hygienic and safety of the beekeeping, milk, egg, fishery and shellfish chain, through knowledge of risk and hazard management and sector regulations.
<b>Course prerequisites</b>	Propedeuticity: General Pathology. The student should know EC Reg. 852/04 concerning the hygiene of food production and should have acquired the principles of control system in accordance to the HACCP method; moreover should have basic knowledge of microbiology and food-borne diseases together with traditional food preservation technologies (sterilization, sanitization, disinfection, salting, pasteurization, smoking). The student should have acquired knowledge related to the toxicology of environmental contaminants.

<p>Contents of the teaching module</p> <p><b>Beekeeping sector hygiene and safety control</b></p> <p>Teacher: <b>Valentina TERIO</b></p> <p><b>Lectures</b> <b>ECTS: 1</b></p> <p><b>Hours: 13</b></p> <p><b>Practical activities</b></p> <p><b>ECTS: 1</b></p> <p><b>Hours: 15</b></p>	<p>The module concerns the Area: Food Safety and Quality and professional Training.</p> <ul style="list-style-type: none"> <li>➤ Systematics of the superfamily Apoidea.</li> <li>➤ Organisation of bee society. Notes on the morphology, anatomy and physiology of the bee.</li> <li>➤ Hive as a super-organism: functions of worker bees, drones and queens.</li> <li>➤ Mechanisms of bee colony development;</li> <li>➤ Beekeeping equipment and production hygiene</li> <li>➤ Honey production methods and quality;</li> <li>➤ Chemical, biological and physical hazards in honey production</li> <li>➤ Labelling of hive products</li> <li>➤ Hive diseases</li> <li>➤ Health and commercial frauds in the beekeeping sector</li> <li>➤ European and national regulations</li> </ul> <p>Practical activities are carried out at the Department's experimental apiary and at the honey extraction laboratory. Educational visits to local beekeeping farms are also planned.</p>
<p>Contents of the teaching module</p> <p><b>Egg and milk hygiene and safety control</b></p> <p>Teacher: <b>Angela DI PINTO</b></p> <p><b>Lectures</b> <b>ECTS: 2</b></p> <p><b>Hours: 26</b></p> <p><b>Practical activities</b></p> <p><b>ECTS: 1</b></p> <p><b>Hours: 15</b></p>	<p>The module concerns the Area: Food Safety and Quality and professional Training.</p> <ul style="list-style-type: none"> <li>➤ <b>Introduction.</b> EU Food Laws: general principles and requirements concerning food safety. Risk analysis methodologies according to the principles of the Codex Alimentarius. Pre-requisite programs, Good Hygiene Practices (GHP) and Good Manufacturing Practices (GMP). Hazard Analysis and Critical Control Point (HACCP) system and guidelines for its application.</li> <li>➤ <b>Milk and dairy products.</b> European legislation for milk and milk products. Safety requirements for raw milk production. Hygiene on milk production holdings. Criteria for raw milk requirements concerning dairy products. Wrapping and packaging. Requirements for heat treatment. Labeling and identification marking. Milk and Milk Products: processing techniques. Risk assessment and management of milk and dairy products.</li> <li>➤ <b>Eggs and egg products.</b> European legislation for eggs and egg products. Marketing standards for eggs. Quality characteristics of eggs. Requirements for establishments. Raw materials for the manufacture of egg products. Special hygiene requirements for the manufacture of egg products. Analytical specifications. Labeling and identification marking. Risk assessment and management of eggs and egg products.</li> </ul> <p>Practical activities include educational visits to food companies operating in the sectors of interest and laboratory exercises at the facilities of the Food Safety section. Students are divided into groups and followed individually, when performing the laboratory tests required on the course, by the course leader and collaborators.</p>

<p>Contents of the teaching module</p> <p><b>Fish and fishery products hygiene and safety control</b></p> <p>Teacher: <b>Valentina TERIO</b></p> <p><b>Lectures</b> <b>ECTS 2</b></p> <p><b>Hours: 26</b></p> <p><b>Practical activities</b></p> <p><b>ETCS: 1</b></p> <p><b>Hours: 15</b></p>	<p>The module concerns the Area: Food Safety and Quality and professional Training.</p> <ul style="list-style-type: none"> <li>➤ Fishing techniques and quality of fishery products. Taxonomy of fishery products and taxonomic keys for the recognition of the main commercialized fish species. Techniques for the evaluation of the freshness of fishery products according to EC Reg. 2406/96.</li> <li>➤ Microbiology of fishery products: the main pathogens and deterioration agents in fish. Techniques of conservation and processing of fishery products and safety control of production. Additives in fishery products. Chemical-physical techniques for the determination of the freshness of fishery products.</li> <li>➤ Food laws and standards, national and international legislation concerning the fish sector (EU Reg. 853/2004, EU Reg. 2074/2005, EU Reg 1441/2007, EU Reg 1881/06).</li> </ul> <p>Health fraud in the fisheries sector and inspections. Inspection of fishery products and assessment of freshness according to Reg. 2406/96</p>
<p>Contents of the teaching module</p> <p><b>Bivalve molluscs hygiene and safety control</b></p> <p>Teacher: <b>Valentina TERIO</b></p> <p><b>Lectures</b> <b>ECTS: 2</b></p> <p><b>Hours: 26</b></p> <p><b>Practical activities</b></p> <p><b>ECTS: 1</b></p> <p><b>Hours: 15</b></p>	<p>The module concerns the area Food Safety and Quality and professional Training.</p> <ul style="list-style-type: none"> <li>➤ Anatomy and physiology of filter organisms. Recognition of species of commercial interest.</li> <li>➤ Structural and instrumental requirements for the Community recognition of the Molluscs Purification Center and the Molluscs Dispatch Centres (CDM and CSM). Inspection procedures for the safety control of bivalve molluscs.</li> <li>➤ The chemical risk: contamination by heavy metals, PCBs and dioxins, polycyclic aromatic hydrocarbons: provisions of EC Reg. 1881/06. EU sector regulations: EC Reg. 853/04 and EC Reg. 1441/07.</li> </ul> <p>Evaluation of molluscs freshness Investigation of pathogenic bacteria and viruses in retail molluscs</p>

<p><b>Biosecurity standards for the frequency of practical activities</b></p>	<p>Access to the laboratories and the apiary of the Section of Food Safety is allowed only to students equipped with protective clothing (disposable latex gowns and gloves) who have read the biosafety manual.</p>
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<p><b>Material for personal study</b></p>	
<p><b>Books and bibliography</b></p>	<ul style="list-style-type: none"> <li>➤ PALESE L. A. "Il controllo sanitario e qualitativo dei prodotti alimentari"</li> </ul>

	<p>della pesca” Ed Piccin</p> <ul style="list-style-type: none"> <li>➤ TIECCO G. “Igiene tecnologia degli alimenti di o.a.” Ed Edagricole</li> <li>➤ Cenci Goga – Ispezione e controllo degli alimenti. Point Veterinaire Italie.</li> <li>➤ Contessi - Le api. Biologia, allevamento, prodotti. - Edagricole, BO, Ed. 2017</li> <li>➤ G. Lombardi – Malattie delle api - Edagricole BO</li> <li>➤ G.L. Marcazzan, L. Bortolotti – I prodotti dell’aveare - Edagricole (2017)</li> <li>➤ Regolamenti europei in materia di sicurezza alimentare</li> </ul>
<b>Additional materials</b>	Lesson Notes and slides projected in class

<b>Work schedule</b>			
<b>Hours</b>			
Total	Lectures	Hands on (Laboratory, working groups, seminars, field trips)	Out-of-class study hours/ Self-study hours
275	91	60	124
<b>CFU/ETCS</b>			
11	7	4	/

<b>Teaching strategy</b>	<p>Teaching will mainly consist of frontal lessons and active learning methods, such as problem-solving, case study, and role play, to integrate information and facilitate learning.</p> <p>The teaching process will be implemented through iconic communication models, verbal and graphic, using the resources and educational technologies available.</p> <p>Self-Learning activities will consist of audio-visual and videos available to students on the TEAMS platform and self-assessment tests provided by teachers.</p> <p>The role of lectures will be consistently reduced, however, in the hours of exercise during which more weight will be given to problem-solving and learning by doing to encourage the acquisition of skills and competencies.</p> <p>Practical activities include educational visits to food companies operating in the sectors of interest and laboratory exercises at the facilities and experimental apiary of the Food Safety section. Students will be divided into groups of 8-10 people and followed and guided by the teacher and Ph.D. students.</p>
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<b>Expected learning outcomes</b>	
<b>Applying knowledge and understanding on:</b>	<p>At the end of the course, the student must be able to:</p> <ul style="list-style-type: none"> <li>• Apply principles of biosecurity correctly (DOC 1.28)</li> <li>• Collect, preserve, and transport samples, select appropriate diagnostic tests, interpret and understand the limitations of the test results. (DOC 1.21)</li> <li>• Recognize signs of possible notifiable, reportable diseases of hives as well as abuse and take appropriate action, including notifying the relevant authorities. (DOC 1.24)</li> <li>• Perform inspection of food and feed producing animals and inspection in the field of related food technology. (DOC 1.35)</li> <li>• Promote, monitor, and maintain health and safety in the veterinary setting; demonstrate knowledge of systems of quality assurance; apply principles of risk management to their practice. (DOC 1.3)</li> </ul>
<b>Soft skills</b>	<p><b><i>Making informed judgments and choices</i></b></p> <ul style="list-style-type: none"> <li>• Be able to review and evaluate literature and presentations critically. (DOC</li> </ul>

	<p>1.8).</p> <ul style="list-style-type: none"> <li>• Understanding of, and competence in, the logical approaches to both scientific and clinical reasoning, the distinction between the two, and the strengths and limitations of each (DOC 2.1)</li> <li>• Organize the audit system for the control of the supply chains.</li> <li>• Assessing trade and sanitary fraud in the different supply chains</li> </ul> <p><b>Communicating knowledge and understanding</b></p> <ul style="list-style-type: none"> <li>• Work effectively as a member of a multi-disciplinary team in the delivery of services (DOC 1.6.)</li> <li>• Communicate effectively with clients, the public, professional colleagues and responsible authorities, using language appropriate to the audience concerned and in full respect of confidentiality and privacy (DOC 1.4)</li> </ul> <p><b>Capacities to continue learning</b></p> <ul style="list-style-type: none"> <li>• Demonstrate that they recognise personal and professional limits, and know how to seek professional advice, assistance and support when necessary (DOC 1.12)</li> <li>• Demonstrate an ability of lifelong learning and a commitment to learning and professional development. This includes recording and reflecting on professional experience and taking measures to improve performance and competence (DOC 1.13)</li> </ul>
<p><b>Summary of the knowledge and skills that the integrated course helps students to acquire (Day One Competence) provided by EAEVE</b></p>	<p><b>Skills:</b></p> <p>1.12 1.13 1.21 1.24 1.28 1.3 1.35 1.4 1.6 1.8 2.1</p>

<b>Assessment and feedback</b>	
<p>Methods of assessment</p>	<p>Verification of the integrated course of "Food Safety 1" allows the acquisition of 11 of the ECTS provided by the study plan. The exam includes a contextual partial test of the two modules "Beekeeping sector hygiene and safety control" and "Egg and milk hygiene and safety control" and, in the same section or in the next section a contextual partial test of the modules "Bivalve molluscs hygiene and safety control" and "Fish and fishery products hygiene and safety control". The ECTS are acquired only after exceeding the two parts and the registration on the ESSE3 portal of the report.</p>
<p>Evaluation criteria</p>	<ul style="list-style-type: none"> <li>• <b>Knowledge and understanding:</b> Verification of the results achieved will be carried out: <ul style="list-style-type: none"> <li>○ During the course, through Problem Based Learning Flipped Classroom sessions in which will evaluate the ability to develop strategic solutions by the students.</li> <li>○ The oral final exam will verify the acquisition of the knowledge provided as detailed in the "objectives of the course".</li> </ul> </li> </ul>

	<ul style="list-style-type: none"> <li>• <b>Applying knowledge and understanding:</b> <ul style="list-style-type: none"> <li>○ Being able to link different modules and disciplines and provide appropriate examples.</li> <li>○ Being able to assess the sanitary food matrices quality.</li> <li>○ Being able to implement inspection behavior in case of sanitary and commercial fraud.</li> <li>○ Being able to recognize risks and hazards in the different supply chains treated.</li> </ul> </li> <li>• <b>Autonomy of judgment :</b> <ul style="list-style-type: none"> <li>○ ability of analysis and critical sense concerning the topics studied;</li> <li>○ ability to orient themselves/herself in the application of industry regulations.</li> </ul> </li> <li>• <b>Communicating knowledge and understanding :</b> <ul style="list-style-type: none"> <li>○ display ability and clarity</li> <li>○ language skills and mastery of mandatory legislation</li> </ul> </li> <li>• <b>Capacities to continue learning:</b> <ul style="list-style-type: none"> <li>○ Ability to re-process knowledge and transfer it to new and differentiated situations.</li> <li>○ Ability to deepen topics not specifically included in the teaching program.</li> </ul> </li> </ul>
Criteria for assessment and attribution of the final mark	<p>Results of the tests to monitor the hygiene and safety of the apiculture, hygiene and safety of eggs and milk, fish and fishery products the hygiene and safety control of bivalve molluscs will contribute to the definition of the final grade of the discipline "Food Safety 1".</p> <p>The final grade is the result of the collegial judgment of the three partial tests in which the student must demonstrate that he has acquired the critical sense of the topics studied. The final assessment, expressed in the thirtieth, will be considered passed with a mark equal to or greater than 18 and will take into account not only the accuracy of the response but also the communication ability, the clarity of the exposition, the disciplinary competence and the level of depth.</p>
Altro	