ACADEMIC YEAR 2025/2026

General information	
Name of the integrated course	**HYGIENE AND SAFETY OF PRIMARY PRODUCTION**
Integrated teaching modules	**Food hygiene and safety** **Residue toxicology**
Degree course	Animal Science (L38)
Academic Year	III year
European Credit Transfer and Accumulation System (ECTS)	5 (ECTS lessons: 3; ECTS exe/lab/tutor: 2)
Language	Italian-English (1 ECTS)
Period of teaching	II semester (02/03/2026 – 19/06/2026)
Attendance	Mandatory

Teachers	**e-mail address**	**phone**
Olimpia Lai	olimpia.lai@uniba.it	+39 080 5713972
Giuseppe Crescenzo	giuseppe.crescenzo@uniba.it	+39 080 5443922
Anna Mottola	anna.mottola@uniba.it	+39 080 5713605

Headquarters	Campus of Veterinary Medicine, S.P. per Casamassima km 3, 70010 Valenzano (Ba)
Virtual rooms	Microsoft Teams "HYGIENIC-SANITARY SAFETY OF PRIMARY PRODUCTION 2025-2026". Access codes: omwluap
Tutoring (time and day)	Tuesday and Wednesday 1:00 – 3:00 pm. According to an appointment requested by e-mail. Tutoring can be done using Microsoft Teams platforms

Syllabus	
Learning Objectives	The integrated course on HYGIENIC-SANITARY SAFETY OF PRIMARY PRODUCTION aims to provide knowledge of food safety, understood as the control of hazards or the limitation of microbiological and toxicological health risks such as DPA and NDPA to the various xenobiotic substances present in the environment or occurring along the production chain of food of animal origin.
Course prerequisites	Students should possess knowledge and competence regarding the anatomy, histology, cytology of higher animals, as well as knowledge and competence relating to the physiology, immunology, pathology and pathophysiology of these animals, from a molecular, cellular, organs and systems point of view. Furthermore, knowledge and competence regarding structural and functional characteristics of the most common pathogens of higher animals (bacteria and parasites) are required, along with knowledge and competence in chemistry and biochemistry. Finally, knowledge and skills related to the most common techniques of breeding and sanitary management of DPA and NDPA animals would be appropriate.

Contents of the teaching: **Food hygiene and safety** **Anna Mottola** **Lectures ECTS: 2** **Hours: 16** **Practical activities:** **Food hygiene and safety** **ECTS: 1** **Hours: 10**	Definition of food, food hygiene and food safety Objectives of food safety; food hygiene quality; food supply chains Definition of biological, chemical, physical hazards Chemical, physical contamination of foods of animal origin Intrinsic, extrinsic and implicit factors in foods Role of microorganisms in foods of animal origin Microbiological contamination of foods and microbiological criteria Zoonosis-related references in primary food production and compliance with current regulations Sanitation requirements of primary food production according to the regulatory basis of food hygiene Introduction and scope of national and Community legislation in food safety; Application of Regulation (EC) No 178/2002, Regulation 852/2004, Regulation 853/2004 and Regulation (EC) No 2073/2005 Implementation of self-control in primary production Laboratory exercises to determine hygienic and sanitary microbiological criteria. External visits to farms and/or food processing plants of animal origin.
Contents of the teaching: **Residue Toxixology** **Olimpia Lai** **Giuseppe Crescenzo** **Lectures ECTS: 1** **Hours: 8** **Practical activities:** **ECTS: 1** **Hours: 10**	General Concepts Definition of residue Classification of residues Factors influencing the formation of residues in animal species of zootechnical interest Toxicological risk assessment Acceptability and tolerability of toxicological risk Current EU and national regulations on residues Special Part Residues of substances used voluntarily: Acceptability of toxicological risk Definition of Maximum Residue Limits (MRLs) for residues deriving from voluntary use substances (Drugs; Food supplements; Additives) Residues of accidental substances: Tolerability of toxicological risk PTWI (Provisional Tolerable Weekly Intake) for residues from environmental contaminants and biocontaminants Dioxins Heavy metals Mycotoxins Detection methods used for the determination of residues in foodstuffs of animal origin (O.A.) of: Pesticides Environmental contaminants Mycotoxins Veterinary drugs

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Biosafety rules for the attendance of practical activities.	Access to laboratories will be allowed only to students wearing protective clothing (disposable coats and gloves and, when required, also footwear) and that have read the biosafety manual.

Material for the personal study	
Books and bibliography	Antonello Paparella, Maria Schirone, Pierina Visciano. Igiene nei processi alimentari. Progettazione della sicurezza degli alimenti. Hoepli, 2023 Cenci Goga – Ispezione e controllo degli alimenti. Point Veterinaire Italie. Watson D.H. "Pesticide, veterinary and other residues in food". Woodhead Publishing Limited and CRC Press LLC (2004) Gupta R.C. "Veterinary Toxicology, Second Edition: Basic and Clinical Principles". Academic Press-Elsevier, 2nd Edition (2012) Shibamoto T., Bjeldanes L. "Introduction to Food Toxicology", 2nd Edition. Academic Press-Elsevier (2009) Gupta R.C. "Biomarkers in toxicology". Academic Press-Elsevier (2014) Jinap Selamat J., Iqbal S.Z. "Food Safety. Basic Concepts, Recent Issues, and Future Challenges" Springer International Publishing Switzerland (2016)
Additional materials	Slides of the lessons (on Microsoft teams). Lecture notes. Other additional sites will be suggested by the teachers during the Course

Work schedule			
Hours			
Total	Lectures	Hands on (Laboratory, working groups, seminars, field trips)	Individual study
125	*24*	*20*	*81*
ECTS			
5	*3*	*2*	*/*

Teaching strategy	The course will be carried out in a frontal mode. At the beginning and during the Course several tests will be administered for self-evaluation. Other interactive methods such as Kahoot! will be utilized. The teaching activities will consist of lectures the twill be enhanced with active learning methods, such as problem solving, case studies and role play, in order to implement the knowledge and increase the learning ability. The complete teaching process will be implemented with the aim of iconic, verbal and graphic communication models, taking advantage of the available teaching resources and technologies. Self-learning activities will be also realized through audiovisual materials and footages that will be uploaded on Microsoft Teams, as well as by means of self-evaluation tests elaborated by the teachers. Practical activities will be done in the University and in public and private facilities.

Expected learning outcomes	
Knowledge and understanding ability	At the end of the course, the student will be able to have: ○ knowledge concerning the health and hygiene aspects of food and primary production and risks associated with the intake of food of animal origin;

	○ knowledge of EU legislation on food of animal origin and knowledge aimed at the methods of prevention, management and control in primary production ○ principles that regulate the interaction of xenobiotics with living organisms that are exposed to these substances (animal DPA and NDPA, human operator, human consumer of food of animal origin, pathogenic, environmental and technological micro-macroorganisms ○ processes of interaction and origin of the various xenobiotic substances ○ principles that regulate the movement of pollutants along the trophic chains ○ factors that contribute to determining and influencing the type and intensity of the effects resulting from the xenobiotic-organism interaction ○ main national and community legislative references governing the presence of residues of xenobiotic substances in food intended for or produced by animals DPA NDPA
Applied knowledge and understanding ability	At the end of the course, the student will be able to: ○ assess hazards, risks, and prevention methods related to different types of primary foods; ○ evaluate the hygienic and sanitary quality of primary food products; ○ draft and implement manuals of good hygiene practices for primary production; ○ adopt conscious, responsible and virtuous approach to the activities linked to production and industrial practices that imply or could imply the presence of xenobiotic residues in food intended for or produced by animals DPA and NDPA, whether of natural and/or anthropic origin, concomitant with contamination of the trophic or productive chains of the target species.
Soft skills	• *Making informed judgments and choices* At the conclusion of the teaching, the student should be able to: ○ recognize health hazards within the primary productions of interest. ○ demonstrate autonomy of analysis and propose methodologies for prevention and management of identified hazards ○ predict and recognize the situations in which animal exposure to toxic xenobiotics of natural or anthropogenic origin may occur, identifying the most critical activities that are carried out in a geographic area (e.g. presence of factories, garbage dumps, agricultural activities, urban maintenance); ○ choose and implement the most appropriate remedial actions in case of animal exposure to toxic xenobiotics (to the extent of what the professional figures formed by this Bachelor degree course are allowed to do) • *Communicating knowledge and understanding* At the conclusion of the teaching, the student should be able to: • demonstrate competence in the use of relevant scientific terminology • be able to explain clearly the topics acquired. • communicate with local authorities in case of environmental contamination that may put at risk wildlife species (particularly the protected ones); • communicate with colleagues (i.e. other technicians) in order to share professional experiences involving drugs or toxicants and/or to express personal opinions in a discussion about drugs, toxicants and their management strategies. • *Capacities to continue learning*

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	○ At the conclusion of the teaching, the student should be able to independently deepen his or her knowledge by consulting scientific publications, texts relevant to food safety and attendance of advanced courses and training periods at companies in the food supply chain

Assessment and feedback	
Methods of assessment	Acquired skills will be assessed during the course through questions on topics related to the course.
Evaluation criteria	*Knowledge and understanding* ○ Knowledge of the main the health hazards in primary production. ○ to know the concepts and principles underlying the interaction of toxic substances with living organisms, the interaction of drugs and toxic substances with DPA species and the principles that regulate the movement of pollutants along the trophic chains. *Applying knowledge and understanding* ○ Make critical considerations on the hygienic and sanitary aspects of primary production. ○ understanding how to intervene to reduce the exposure of DPA species to toxic substances of natural or anthropic origin and / or reduce the contamination of food chains, as well as assist the staff in production chains *Autonomy of judgment* ○ critical reasoning skills on the study carried out. ○ ability to autonomously formulate one's own opinion *Communicating knowledge and understanding* ○ Capacity to communicate with clear, effective and technically appropriate terminology *Capacities to continue learning* ○ To improve his knowledge of the topics through advanced courses and training periods in food production facilities
Criteria for assessment and attribution of the final mark	The assessment of learning in order to ensure the acquired knowledge of the topics discussed in the course and the achievement of the teaching objectives consists of oral test. The interview on the topics in the program will be based on 2-3 questions, aimed at ascertaining the achievement of the teaching objectives. The grade is expressed in thirtieths. The minimum grade to pass the exam is 18/30. Higher marks will be awarded to students with good expository skills, high critical level and able to use appropriate scientific terminology.
Other comments	

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