ACADEMIC YEAR 2022/2023

General information	
Academic subject	**BIOSECURITY IN LABORATORIES AND IN THE RELATIONSHIP WITH ANIMALS**
Integrated teaching modules	**Biosecurity;** **Stages - Practical Activities 1;** **Stages - Practical Activities 2.**
Degree course	Veterinary Medicine LM42
Academic Year	I
European Credit Transfer and Accumulation System (ECTS)	3
Language	Italian
Academic calendar	III-IV 7 week terms
Attendance	mandatory

Teacher	**Email address**	**phone**
Michele Camero	michele.camero@uniba.it	0804679841
Davide Monaco	davide.monaco@uniba.it	0804679826
Carmela Valastro	carmela.valastro@uniba.it	0804679816

Department	Campus of Veterinary Medicine, S.P.62 per Casamassima km 3, 70010 Valenzano
Virtual room	Platform Teams access code 2aafs26
Tutoring (day, time)	Tuesday, Thursday: 1:30-4:30 pm or by appointment by mail

Syllabus	
Learning Objectives	The integrated Biosafety in Laboratories and Animal Relationships course aims to provide students with knowledge and skills related to risk assessment related to workplaces, handling of biological materials or exposure to physical and chemical agents, and knowledge of environments potentially hazardous to their health. Through a proper approach to facilities (laboratories, clinics, autopsy rooms and stables) and the safe use of machinery, protective equipment or potentially dangerous substances, they will be able to carry out activities in safe conditions, particularly in the approach to animals and related diseases. Under Practical Activities I and II, the necessary tools will be provided for students to acquire the knowledge and skills for the proper approach to farm animals and companion, wild and unconventional animals so as to ensure the safety of the veterinarian in handling these species of animals and, likewise, of the owner and the animals themselves during the clinical examination. Behavioral rules in rooms where healthy and sick animals circulate (examination rooms, shelters, surgical rooms, radiology rooms) for the safety of operators will be explained; the rules of behavior in stables and housing places for farm animals will be also explained.
Prerequisites	There are no propaedeuticities. The student must have the basic concepts of Biology, General and Inorganic Chemistry and Physics and Anatomy I

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Contents of the teaching modules of: **BIOSECURITY** Teacher: **Michele CAMERO** **ECTS: 1** **Lectures** **Hours: 7** **Practical activities** **Hours:8**	Regulatory compliance with the law on workplace safety and biosafety (DL 626/94, DL 81/08 and subsequent updates. Health and safety regulations of Uniba (DR 1144 of 18/04/2018). Collective protective devices (CPD). Personal protective equipment (PPE). Health and safety signage. First aid, behavior in case of emergencies and fire. Definition of risk and hazard (Risk assessment and hazard analysis). Chemical risk: toxicity of substances, short- and long-term effects. Biological risk: pathogens and classification for human risk of zoonotic agents. Risk from genetically modified microorganisms (GMMOs). Categories of individuals at risk. Organization of laboratories for the purpose of handling zoonotic agents. Animal pathogenic but not human pathogenic and diffusible agents that require strict biosafety standards in handling (Veterinary Police Regulations). Physical risk in veterinary laboratories and university facilities (radiation, noise, vibration, electromagnetic fields). Radio-protection. Risk associated with contact with animals and proper approach to the sick and/or hospitalized animal. Biosecurity in veterinary clinics/surgical rooms, necropsy rooms. Enclosures. Waste disposal management. Chemical and biological spill-over. Concept of sustainability in reagent use and disposal: green chemistry. Use of equipment substance safety data sheets. Personal protective equipment. PPE the gloves for chemical and biological hazards. Pictograms. En 374, 388, en 407, en 511. Oms; guidelines; handwashing; soaps; sanitizing gels; surgical masks (en 14683).
Contents of the teaching modules of: **Practical activities I** Teacher: **Davide MONACO** **ECTS: 1** **Practical activity** **Hours: 15**	General aspects about risks associated with with farm animals activities. Specific behavior of different species of livestock animals (equids, cattle, pigs, sheep and goats) and correlation with management and containment methodologies. Hints on approach procedures and clinical evaluation of livestock species of interest. Hints on specimen collection for diagnostic procedures, hints on drug administration.
Contents of the teaching modules of: **Practical activities II** Teacher: **Carmela VALASTRO**	o Proper approach and methods of restraint of the dog. • o Correct approach and methods of containment of the cat, • o Correct approach and methods of containment of wild avifauna, wild and unconventional animals. • o Proper management of animals in conducting clinical examination and performing major diagnostic investigations.

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ECTS: 1 **Practical activity** **Hours: 15**	• o Biosecurity in outpatient clinics and various facilities of veterinary hospitals (examination rooms, operating rooms, hospitalizations)

Biosecurity standards for the frequency of practical activities.	Access to the laboratories, outpatient clinics, surgical rooms, 'Isolation Unit, Veterinary Hospital stables, and Sea Turtle Clinic is allowed only to students who are equipped with the required clothing and devices in the various rooms and who have reviewed the biosafety manuals. Students will only be allowed to participate in hands-on field activities if ~~they are~~ equipped with appropriate protective clothing (lab coat and safety shoes)

Personal study material	
Reference texts	Legislative decrees 626/94, 81/08. Health and safety regulations of Uniba (DR 1144 of 18/04/2018). Handbook for laboratory safety in the Department of Veterinary Medicine, edited by Dr. Costantina Desario. Laboratory Biosafety Manual, 3rd edition (www.who.int/csr/resources/publications/biosafety/Biosafety7.pdf). Chemical risk in laboratories Inail Handbook. Inail Editions 2015 (https://www.inail.it/cs/internet/docs/rischio_chimico_manuale_laboratori.pdf SOP of biosafety applied to the Faculty of Veterinary Medicine, University of Liege. 2010 (http://www2.fmv.ulg.ac.be/actualites/Biosecurity_Manual_Final_6Jan10.pdf) Websites: Center for Disease Control (CDC, www. Cdc.gov), World Health Organization (www. who.int), International Office of Epizootics (www.oie.int). International Working Group on Veterinary Biosecurity (http://ivbw.camp9.org). Veterinary Hospital Biosecurity Manual. Sea Turtle Clinic Biosecurity Manual. Chapman S.J. Safe handling and restraint of animals, a comprehensive guide. John Wiley & Sons Ltd 2018. Rockett J, Boosted S. Veterinary clinical procedures in large animal practice. 2nd edition. Cencage Learning 2016. Ballard B, Rockett J. Restraint and Handling for veterinary technicians and assistants, Cengage Learning Delmar 2009.
Notes to the reference texts	*Additional lecture materials are provided by the lecturers at the beginning of the course and are available on the TEAMS platform ~~of the teaching~~* *Supplementing the indicated/provided lecture material with field lecture notes is recommended. The lecturer will indicate from time to time the most appropriate bibliographic references in relation to the topics covered or provide additional material*

Work schedule			
Hours			
Total	Lectures	Hands on	Individual study
75	7	38	30
ETCS			
3	0,5	2,5	

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Teaching metodologies	Teaching will be delivered through lectures; problem solving and role-playing, will be added in order to integrate information and foster learning. The entire teaching process will be implemented through iconic, verbal and graphic communication models, making use of available teaching resources and technologies. Infectious disease laboratory simulations of risk situations or emergencies. Practical classes will be conducted in the laboratories of the Infectious Diseases Section and Isolation Unit of the Veterinary Hospital and, if necessary, on the farm. Students will be divided into groups, supervised and guided by the lecturer and staff members. In hands-on activities I and II, the lecturer will explain the techniques of animal approach and handling in order to perform the clinical examination. Students will apply the techniques, supervised by the lecturer, until they achieve sufficient dexterity of animals of different species to safely perform the main diagnostic procedures.

Expected learning outcomes	
Knowledge and understanding on:	Upon completion of the course, the student will gain knowledge and understanding of: - recognize and assess chemical hazards; - recognize and evaluate exposure to physical and biological agents; - recognizing hazardous situations in the work environment, with particular reference to facilities where biological materials are handled or where there is contact with animals. In the Practical Activities modules, in line with the "First Day Competencies" adopted by the ECCVT, the student should know: o The Risks associated with activities with companion, wild and unconventional and farm animals (DOC 1.3, DOC 2.9) o The Techniques and tools for containment of different species in relation to operator safety and animal welfare. (DOC 1.3, DOC 1.16) o The Techniques of containment in different clinical circumstances (examination, instrumental and non-instrumental diagnostic investigations (DOC 1.16) o The Biosecurity Standards in places where animals circulate (clothing, handwashing, norms of behavior and management of animal kits) and proper waste management (DOC 1.28)
Applying knowledge and understanding on:	Upon completion of the course, the student should be able to: - to apply the knowledge independently in interpreting safety signs, safety data sheets of chemical reagents, and forms related to biological and physical hazards. - Of applying knowledge in the proper use of collective and individual protective equipment. - To apply knowledge in the correct approach to animals and to their diseases transmissible to humans. - Demonstrate knowledge and application of the correct approach to the different species considered (dog, cat, wild birds of prey and non-prey, sea turtles, unconventional mammals, farm animals) • - Demonstrate knowledge of how to dispose of various types of medical and non-medical waste in the appropriate containers.
Soft skills	**Autonomy of judgment** - Ability to analyze critical issues in a laboratory operational process (sterilization,

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	disinfection etc); - Ability to apply knowledge to work safely. - Ability to interact with colleagues in compliance with common rules during work phases; - Acquire the appropriate preparation for possible emergencies in laboratory activities; - Ability to propose solutions in problem situations - Ability to assess the correct approach and the most appropriate restraint in relation to the emotional state of the patient (calmness, aggressiveness etc) and to the possible presence of the owner **Communication skills** Ability to work in a team, adopting appropriate communication and interaction strategies. - Know how to explain to the owner the need for patient restraint to ensure the safety (of the patient, the veterinarian, and the owner himself) and instruct him/her if his support is needed. • Ability to learn independently
Summary of the knowledge and skills that the course helps students acquire (Day One Competence) provided by the EAEVE.	***Competence:*** *1.3* *1.4* *1.6* *1.16* *1.28* *2.9*

Assessment and feedback	
Methods of assessment	*Verification of achievements will be conducted through the final examination, which will ascertain knowledge and understanding of the topics covered and acquisition of the skills described with any species of animal through theoretical questions and practical demonstrations of the procedures.*
Evaluation criteria	• *- Knowledge and comprehension skills:* *o Ability to express acquired knowledge in an organic and thorough manner.* *o Demonstrated knowledge of biosecurity regulations in places frequented by animals of various species* • *- Applied knowledge and understanding skills:* *o Demonstration of containment techniques of various species in relation to clinical needs.* *o The student will be expected to properly approach animals of livestock interest and demonstrate mastery of the various techniques of conduction and physical restraint by description and execution of the maneuvers*

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	- Autonomy of judgment: *o Ability to analyze, synthesize and manage risk.* • *- Communication skills:* *o Expository skills and clarity.*
Criteria for assessment and attribution of the final mark	Final proficiency in the Biosafety in Laboratories and Animal Relationships exam will be acquired by ascertaining and/or demonstrating hands-on learning of Biosafety, Practical Activities I and Practical Activities II
Additional information	

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