ACADEMIC YEAR 2023/2024

General information	
Academic subject	**PARASITOLOGY, MYCOLOGY AND MANAGEMENT OF SINANTROPIC ANIMALS**
Degree course	Animal Sciences L38
Academic Year	II year
European Credit Transfer and Accumulation System (ECTS)	9
Language	Italian
Academic calendar (starting and ending date)	I Semester 02/10/2023 – 26/01/2024
Attendance	Mandatory

Professor/ Lecturer	
Name and Surname	Riccardo Paolo Lia; Claudia Cafarchia
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Department and address	Campus di Medicina Veterinaria, S.P. 62 per Casamassima km 3, Valenzano (BA)
Virtual headquarters	Microsoft Teams platform if necessary (Teams code: k5twsl6**)**
Tutoring (time and day)	Monday and Wednesday, 14:30-16:30

Syllabus	
Learning Objectives	The goal of this teaching activities provides: • the acquisition of general concepts and theoretical bases relating to taxonomy, morphology, biological cycle of the main parasites and fungi causing diseases in pets, livestock and wild animals as well as their epidemiology, clinical manifestations, diagnosis and prophylaxis. • 2) the acquisition of technical and professional skills useful for assessing the impact of fungi and parasites on animal welfare trough a correct diagnosis, a prompt treatment as well as prophylaxis plans for the correct management of pets, livestock and synanthropic animals.
Course prerequisites	The student must have basic knowledge of biology, physiology, endocrinology immunology of domestic animals.
Contents	**Course program** The teaching contents will be divided into three modules: Parasitology, Parasitic Diseases and Mycology. **Parasitology** General aspects on parasites and vectors and their interactions with hosts. Parasites and parasitism. Elements of taxonomy, morphological characteristics and biological life cycles of: Protista: (Euglenozoa; Apicomplexa). Animalia: Platyhelminthes, Digenea, Cestoda (Cyclophyllidea and Pseudophyllidea). Nematoda (Strongylida, Ascaridida, Rhabditida, Spirurida e Trichocephalida). Insecta: Diptera, Siphonaptera. Arachnida: Argasidae and Ixodida. **Parasitic diseases** Definition of parasitic disease. Damage caused by parasites to livestock. Role of parasitic populations on animal welfare and on quantitative-qualitative food production. Socio-economic aspects of parasitic diseases. Protozoan diseases: Babesiosis, Coccidiosis,

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	Toxoplasmosis, Neosporosis, Giardiosis, Cryptosporidiosis and Trypanosomosis, Leishmaniasis. Flatworm diseases: Dicroceliosis, Fasciolosis and Paramphistomatosis. Infestation by larval stages (metacestodoses) and adult cestodes. Nematode diseases: Ascaridosis, Ancylostomosis, broncho-pulmonary Strongilosis and gastrointestinal and intestinal strongilosis of ruminates and equines respectively. Thelaziosis. Arthropod-borne diseases: Flea Infestation, Tick infestation and tick-borne diseases (TBDs). *Phlebotomus* spp. and culicides. Main parasitic zoonoses. Laboratory diagnosis: detection of haemoprotozoa, coprological diagnosis, qualitative and quantitative methods (i.e., traditional and innovative techniques such as Flotac group. Morphological identification of ticks and insects of veterinary concern. Prophylaxis and control measures of fungal and parasitic diseases. Health education. **Mycology** Fungi Kingdom: The fungal cell wall. Vegetative system. Reproduction: spores of sexual origin, spores of asexual origin. Classification of fungi of medical and veterinary concern: Zygomycota, Ascomycota and Basidiomycota. The yeasts. Black Yeast and black moulds. The life of fungi, pathogenesis of infections, host risk factors, virulence factors of fungi. Diagnosis of fungal infections: clinical diagnosis, sampling and laboratory diagnosis. The cutaneous mycoses: *Malassezia* spp and *Candida* spp infection; Dermatophytoses. Subcutaneous mycoses: Sporotrichosis, Mycetoma, Hyalophomycosis, Phaeohyphomycosis. Deep mycoses: Cryptococcosis and Aspergillosis.
Books and bibliography	-Ambrosi M. (1995). "Parassitologia zootecnica", Edagricole, Bologna. AA.VV. (1998) "Parassitologia dei ruminanti". Summa. Anno XV, n° 9. -Taylor M.A., Coop R., Wall R. (2022). "Parassitologia e Malattie Parassitarie degli Animali", Edizione italiana, EMSI. -Bowman D.D. (2022). "Georgis' Parassitologia Veterinaria". Antonio Delfino Editore. -Cafarchia C. e Mancianti F. (2022). Micologia Veterinaria e Comparata. Aracne Editore, Roma.
Additional materials	

Work schedule			
Total	Lectures	Hands on (Laboratory, working groups, seminars, field trips)	Out-of-class study hours/ Self-study hours
Hours			
225	***64 (8x8)***	***10***	***151***
ECTS			
9	***8***	***1***	

Teaching strategy	The teaching activity includes oral and practical lessons. The oral lessons will be held in classrooms equipped with multimedia tools through the projection for power point presentations. Innovative and interactive teachings will be held through online search in specific parasitology websites. The Mycology lessons could be held through the Microsoft Teams Platform, using Power Point presentations. Practical lessons will be hold in a didactic laboratory equipped with specific instruments such as optical microscopies (microscopical classroom). The practical exercises (5 hours of mycology and 5 hours of Parasitology) will take place in the optical microscopy classroom (room n.6) of the Normal Anatomy Section at Lot 2. Students will be divided into groups and will be followed by the teacher in charge or by the researchers and the technicians of the section. Each student will play individually the practical activities consisting in the identification of fungi and parasitic organisms by the

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	macro- and microscopic examinations. The practical lessons will be also delivered by using Video focused on the identification of organisms and on the techniques useful to isolate etiological agents.
Expected learning outcomes	At the end of the course, the student will acquire knowledge on: 1) General concepts relating to taxonomy, morphology, biological cycle of the main parasites and fungal microorganisms causing diseases in pets, livestock and wild animals as well as their epidemiology, clinical manifestations, diagnosis and prophylaxis. 2) the acquisition of technical and professional skills useful for assessing the impact of fungi and parasites on animal welfare trough a correct diagnosis and a prompt prophylaxis plans for the correct management of pets, livestock and synanthropic animals.
Knowledge and understanding on:	Students will be able to identify fungi and parasites, causing animal infections and those of zoonotic concern, at genus and species level. They will know the: a) biological aspects of interaction between microorganisms and host (commensalism, saprophytism, and parasitism); b) pathogenetic mechanisms of parasites and fungi in the host and the main clinical aspects of the studied diseases; c) methods and tests for performing a correct diagnosis and the good laboratory practices. Finally, they have to be able to recognize parasites and fungi causing zoonosis by using a "One Health" approach as well as studying the close relationship between human and animal health and the ecosystems.
Applying knowledge and understanding on:	The course promotes the acquisition of skills useful for the identification at genus and/or species level of parasites and fungi of medical-veterinary concern (i.e., pets, livestock and synanthropic animals) as well as the development and management of prophylaxis plans in the livestock with particular regards to the improvement of primary productions.
Soft skills	• **Making informed judgments and choices** This teaching will help the student to achieve a growing degree of autonomy in judging the activities related to fungal and parasitic diseases by: (i) the identification the sources of a parasitic and fungal infections and their etiological agents; (ii) carrying out prophylaxis and control plans for reducing the risks of infection; (iii) organizing knowledge independently for making simple interdisciplinary connections with related subjects. • ***Communicating knowledge and understanding*** Students must be able to: (i) fully frame their work in wider contexts and motivate the choices made in an understandable and convincing way; (ii) transfer their knowledge adapting the communication method to the needs of the interlocutor; (iii) cooperate effectively in the activities of homogeneous and heterogeneous working groups; (iv) to easily start working and social relationships. These objectives will be pursued and constantly verified during the teaching activity, favoring the active participation of students during oral and practical activities. Students divided in working groups will collaborate in presenting specific topic (i.e., case report, epidemiological studies) trough power point presentations. Students will be encouraged to communicate and improve their skills during the lessons and lab activities provided by the course. • **Capacities to continue learning** At the end of the course the student must be able to broaden their knowledge and update themselves by independently drawing on texts, scientific articles and databases.

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Assessment and feedback	The exam of the course of "Parasitology, Mycology and Management of synanthropic animals" allows the acquisition of 9 CFU of the study plan.
Methods of assessment	The exam could be divided in the partial exams: 'Mycology' and 'Parasitology'. The assessment of knowledge takes place through an oral exam on program topics. The student will have to know the morphological and biological aspects of parasites and fungi causing diseases and describe how to prevent them. The students must use the appropriate terminology and must be able to critically discuss the contents of the subject.
Evaluation criteria	• **Applying knowledge and understanding** The student must demonstrate that she /he has acquired an autonomy of judgment in recognizing fungi and parasites. In addition, during the interview, the examiner will verify that the student has acquired an appropriate scientific language. • **Autonomy of judgment** The student must demonstrate that she /he has acquired an autonomy of judgment in describing the fungal and parasitic disease, adequate diagnostic procedures useful to confirm the suspicion of infection and the measures useful for their prevention. • **Communicating knowledge and understanding** During the oral exam, the scientific terminology used by the student and the presentation of the program contents; will be evaluated: • **Communication skills** Students must be able to: (i) fully frame their work in wider contexts and motivate the choices made in an understandable and convincing way; (ii) transfer their knowledge adapting the communication method to the needs of the interlocutor; (iii) cooperate effectively in the activities of homogeneous and heterogeneous working groups; (iv) easily start working and social relationships. • **Capacities to continue learning** During the oral exam, the examiner will assess whether the learning of knowledge has been sufficiently thorough and guided by a critical spirit.
Criteria for assessment and attribution of the final mark	The final grade of the exam will be the average of the marks obtained from the two partial exams. The exam is passed when the grade is greater than or equal to 18/30. The maximum score (30/30) will be assigned in cases all the evaluation parameters outlined according to the so-called Dublin Descriptors will be fully satisfactory
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