

ACADEMIC YEAR 2022/2023

General information	
Name of the integrated course	INFECTIOUS DISEASES 2
Integrated teaching modules	Bacterial Infectious Diseases; Avian Diseases; Epidemiology And Veterinary Law (Animal Health)
Degree course	Veterinary Medicine (LM42)
Academic Year	III
European Credit Transfer and Accumulation System (ECTS):	11 (ECTS lectures: 8; ECTS exe/lab/tutor: 3)
Language	Italian
Period of teaching	Bacterial Infectious Diseases: III 7 weeks period Avian diseases; Epidemiology and Veterinary law: IV 7 weeks period
Attendance	Mandatory

Professors/Lectures Name and Surname	e-mail address	Telephone
Domenico Buonavoglia	domenico.buonavoglia@uniba.it	080 5443818
Grazia Greco	grazia.greco@uniba.it	080 5443818
Antonio Camarda	antonio.camarda@uniba.it	080 5443910

Headquarters	Campus of Veterinary Medicine, S.P. 62 per Casamassima Km 3, 70010 Valenzano
Virtual headquarters	Microsoft Teams
Tutoring (time and day)	Prof. Grazia Greco: Monday-Wensday: 12.30-13.30; Thursday:14.30-16.30 Prof. Antonio Camarda: Monday, Wensday, Friday: 12.00-13.30; Tuesday: 16.00-17.00 Prof. Domenico Buonavoglia: Tuesday, 10.00 to 13.00; Friday 13.00 to 15.00

Syllabus	
Learning Objectives	<p>The objective of the Infectious diseases 2 integrated course is to transfer the knowledge concerning the main infectious diseases of poultry, and the bacterial infectious diseases of domestic animals. Furthermore, a module of the Course is focused on the epidemiology and veterinary law.</p> <p>The etiology, the pathogenesis, the clinical signs, the pathological lesions, the diagnosis and prophylaxis of the main diseases of domestic animals and poultry will be acquired. The student must acquire diagnostic skills, starting from a correct approach to the clinical signs and the pathological lesions, to the diagnostic procedures up to a rational use of laboratory methods.</p> <p>Based on the present course, the Day-One Veterinary Medicine graduate will be able to perform the basic duties of the veterinarians operating in the Veterinary Services of the Animal Health (Document "ECCVT Day One competences" points 1.2-1.4, 2.2, 2.7, 2.9-2.11). The course provides basic notions of veterinary epidemiology aimed at understanding the natural history of communicable diseases (frequency, distribution, risk factors and transmission mechanisms). In addition, the course provides the basis for: designing epidemiological studies; describing and analysing the causes of a disease; designing experimental studies aiming at evaluating the effectiveness of control measures; designing animal health control programs based on scientific evidence. The veterinarians must also be able</p>

	to evaluate the diagnostic techniques applicable to the medical-veterinary decision-making process and develop skills in Veterinary Public Health for the prevention and control of diffusive infectious diseases according to the standard procedures of UE and International Animal Health organizations (OIE).
Course prerequisites	The student must have previous knowledge on statistics, microbiology, host-pathogen interaction, and diagnostic techniques of viral and bacterial infectious diseases of domestic animals. Prerequisite: exam Infectious Diseases 1.
<p>Contents of the teaching module: BACTERIAL INFECTIOUS DISEASES</p> <p>Teacher: Domenico BUONAVOGLIA</p> <p>Lectures: ECTS:2 Hours: 26</p> <p>Practical activities for the integrated module (laboratory, working groups, seminars):</p> <p>ECTS: 1 Hours: 15</p>	<p>The module refers to Clinical sciences of companion (dog, cat and horse) and Science of food-producing (bovine, sheep, goat and swine) animals:</p> <p>Knowing about etiology-pathogenesis, epidemiology, symptomatology, diagnosis, prophylaxis and therapy about the main bacterial infectious diseases of animals: Glanders and Melioidosis, Rhodococcus equi infection, Strangles, Contagious Equine Metritis, Clostridiosis (Tetanus, Botulism, Gas Gangrene, Enterotoxemias), Listeriosis, Infectious Mastitis of Ruminants, Contagious Agalactia, Enzootic Abortion of Ewes, Coxiella burnetii infection/Q-Fever, Contagious Bovine Pleuropneumonia, Brucellosis, Antrax, Tuberculosis, Johne's Disease, Dog Ehrlichiosis, Leptospirosis, Salmonellosis, Atrophic rhinitis, Erysipelas in swine, Enzootic Swine Pneumonia, Escherichia coli Diseases</p> <p>Biosafety measures for the control of the biological risks in the isolation unit (Isolation Unit of the Veterinary teaching hospital). Implementation of therapeutical protocols against the most common infectious diseases of companion and food-producing animals. Sampling of companion and food-producing animals for the diagnosis of infectious diseases. Implementation of hygienic measures and vaccination protocols against infectious diseases in kennels (MAPIA shelter), horse stables and cattle farms. Laboratory diagnosis of infectious diseases of companion and food-producing animals. Interpretation of serological assays.</p>
<p>Contents of the teaching module: EPIDEMIOLOGY AND VETERINARY LAW</p> <p>Teacher: Grazia GRECO</p> <p>Lectures: ECTS: 3 Hours: 39</p> <p>Practical activities for the integrated module (laboratory, working groups, seminars):</p> <p>ECTS: 1 Hours: 15</p>	<p>The module refers to the Basic Sciences</p> <p>Introduction to veterinary epidemiology in the field of Animal Health. Disease determinants and risk factors. Koch's postulates. Multifactorial Diseases and Evan's Postulates. <u>Descriptive epidemiology</u>. Measures of disease occurrence in populations: prevalence, incidence, morbidity, mortality, lethality, survival, reproduction rate (R0). Describing disease occurrence: epidemic, pandemic, endemic and sporadic disease. <u>Analytical and experimental epidemiology</u>. Data analysis in epidemiology. Association and causality measures. Statistical and biological significance. Sampling aiming at determining / excluding disease in populations: size, estimate precision and confidence interval (CI). Sampling types: simple random, stratified random, systematic, clustered. Performance of diagnostic tests: sensitivity, specificity and predictive values; in series and parallel tests.</p> <p><u>Specific competences in Animal health</u>. Legislation sources: European, Italian, International laws. International Veterinary Public Health Organizations (OIE, EFSA, European Commission). National Veterinary Services. Measures aimed at controlling diffusive animal diseases: animal databases (BDN); identification of farms and livestock animals (cattle, horses, sheep and goats, pigs). National and international movements for trade: certifications, controls, and authorities in charge. Trade of dogs, cats and ferrets. Bio-security. Notification of diffusive</p>

	<p>infectious disease and regulatory references (EU Reg. 429/2016 and s.m., OIE Terrestrial Animal Health Code Art. 1.1.3; DPR 320/54, articles 1-16; Dir 92/119 / EEC; Dir 82/894 / EEC; DEC. 737/2012;). Notification Procedures. Main epidemic-surveillance networks: RASFF, TRACES, VET.INFO, SIMAN, SANAN, WHAID, ADSN. Territorial restriction measures. Communicable infectious diseases at country, European Union and International level. Zoonotic diseases under notification. National and International Plans for Prevention and Control of single diseases: Bovine and buffalo TBC; bovine and buffalo, ovine and caprine brucellosis; Enzootic Bovine Leukosis; Swine vesicular disease; Classical and African Swine fever, Transmissible encephalopathies of cattle, sheep and goats, Equine Infectious Anemia; West Nile disease, Bluetongue (Blue Tongue); Rabies. Infectious diseases of aquatic animals.</p>
<p>Contents of the teaching module: AVIAN DISEASES</p> <p>Teacher: Antonio CAMARDA</p> <p>Lectures: ECTS: 3 Hours: 39</p>	<p>The contents of the course pertain to the area of Clinical Sciences of food-producing animals and, more marginally, to the area of clinical sciences of pets. The topics covered are as follows:</p> <p>Lectures</p> <ul style="list-style-type: none"> ○ Introduction to the course. ○ Organization of the poultry sector and related sanitation issues ○ Biosecurity. Definitions and application in intensive farming ○ Avian Influenza ○ Infectious Laryngotracheitis ○ Newcastle Disease ○ Infectious Bronchitis ○ Fowl Pox ○ Gumboro Disease ○ Avian Adenovirus Infections; EDS 76; Avian Encephalomyelitis ○ Marek's Disease ○ Malabsorption Syndrome ○ Running Stunting Syndrome ○ Avian Coccidiosis, prophylaxis strategy in intensive farming ○ Avian Salmonellosis: Fowl Typhoid and Pullurosis ○ Avian Salmonellosis: Paratyphosis ○ Avian Cholera ○ Mycoplasmosis ○ Avian Colibacillosis and Clostridiosis ○ Avian Anemia ○ Avian Chlamydiosis
<p>Practical activities for the integrated module (laboratory, working groups, seminars): ECTS: 1 Hours: 15</p>	<p>Poultry management. Morphological and Evaluation of chickens Clinical exam of birds; Biossafety in poultry farms: Exam of skin and plumage; detection of injuries;</p> <ul style="list-style-type: none"> ○ Necroscopic examination of poultry and birds ○ The exam of the sinuses and the first airways, sinuses, larynx, pharynx and trachea ○ The deep respiratory apparatus and respiratory diseases ○ The digestive apparatus and related diseases ○ The urogenital system of poultry and related diseases ○ The cardio-circulatory apparatus and related diseases (Sudden death disease; ascites syndrome; Oregon Syndrome) ○ The lymphoid system and related diseases. ○ Sampling techniques: Methods of collection, storage and manipulation of samples

	<ul style="list-style-type: none"> ○ Necropsy findings and diagnostic hypotheses
Biosafety rules for the attendance of practical activities.	Access to laboratories, stables, necropsy room, and isolation unit of the veterinary teaching hospital will be allowed only to students wearing protective clothing (disposable coats and gloves and, when required, footwear also), after reading the biosafety manual.
Personal study material	
Books and bibliography	<p>Bacterial infectious diseases Module</p> <ul style="list-style-type: none"> - R. Farina, F. Scatozza, Trattato di malattie infettive degli animali, Torino, UTET, 1998. - Quinn P.J., Markey B.K., Carter M.E. <i>et al.</i> - <i>Veterinary Microbiology and Microbial Disease</i>. Blackwell Science, Oxford UK, 2011 <p>Avian Diseases Module</p> <ul style="list-style-type: none"> - Lecture notes - Asdrubali G., Fioretti, A. Manuale di Patologia Aviare, Ed. Point Veterinaire Italie, 2010 - Diseases of Poultry, 14th Edition- David E. Swayne (Editor-in-Chief), Wiley-Blackwell, 2020 - Calnek B.W. Barnes H.J., Beard C.W., Mc Dougald L.R. and Saif Y.M. Patologia Aviare, 10 edizione, Ed. Piccin, 2001. - Pattison M., McMullin P., Bradbury J., Alexander D., Poultry Diseases, 6th Edition., Saunders Ltd, 2007. - Randall C.J. A Colour Atlas of Diseases and Disorders of Domestic fowls and Turkeys. Mosby, 1990. Link utili <p>Epidemiology and Veterinary Law</p> <ul style="list-style-type: none"> - E. Bottarelli, F. Ostanello EPIDEMIOLOGIA. Teoria ed esempi di medicina veterinaria Edagricole, Milano, 2011, ISBN-978-88-506-5347-8 - M. Thrusfield, Veterinary Epidemiology, Blackwell Science Ltd, Oxford, 3 edition, 2007. - A. Villarroel, <i>Practical Clinical Epidemiology for the Veterinarian</i>, First Edition. © 2015 John Wiley & Sons, Inc. Published 2015 by John Wiley & Sons, Inc. - S. Montinaro, Sanità animale. 1° ed., 287 pagg., Poletto Editore, Ottobre 2012, ISBN: 9788895033518 - P. Benazzi, Il regolamento di polizia veterinaria: aggiornato al 12 gennaio 2010, Esculapio editrice.
Additional materials	<p>The additional teaching material will be provided by teachers at the beginning of the course and will be available in the Microsoft Teams platform or in Google Drive.</p> <ul style="list-style-type: none"> - http://partnersah.vet.cornell.edu/avian-atlas/#/ - http://www.thepoultrysite.com/diseaseinfo/ - http://www.oie.int/ - https://www.vetinfo.it - https://www.quadernodiepidemiologia.it/epi-mobile/libro/present.htm

Work shedule			
Hours			
Total	Lectures	Hands on (laboratory, working groups, seminars, field trips)	Out-of-class study/self-study hours
275	104	45	126
ETCS			
11	8	3	NP

Teaching strategy	Modules of Avian Diseases and bacterial infectious diseases
	<p>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.</p> <p>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.</p> <p>During the practical activities, a greater weight will be attribute to the problem solving and learning by doing in order to improve the acquisition of skills and competences.</p> <p>The practical activities will be performed in the fully equipped laboratories of the Section of Infectious Diseases, in the stables, in the necropsy room of avian diseases and in the Isolation Unit of the Department, as well as in kennels/shelters, horse stables and cattle farms. Small groups of students (maximum 8-10 students per group), supervised by the teachers and their collaborators, will participate to clinical visits and will take and analyze clinical samples, performing individually or in small groups the diagnostic procedures in the lab and discussing the results with the teachers and their collaborators. Each student will individually carry out the practical activities and discuss the results with the teacher and/or his collaborators.</p> <p>Module of Epidemiology and Veterinary law</p> <p>The course consists of theoretical lectures and practical works in computer room. The <i>in-class</i> lessons are performed in classrooms equipped with multimedia tools such as PC, projector, internet connection, using PowerPoint slides and networking with sites of National and International Health Organizations. Practical works are carried out in the computer room. For training activities, the students will work in student groups (no less than 3 groups). Each student is required to perform 1) exercises on topics related to theoretical activities; 2) self-assessment exercises and questionnaires administered during the course (as <i>blended learning</i> on Teams platform); 3) a project (in cooperation with other 5-6 students) with value of <i>self-assessment e flipped-classroom</i>; 4) field trials in livestock farms.</p> <p>For the field training, the students must be protected by lab coat, gloves, mask and shoe's gloves. To attend to the informatic room, the students need of a notebook including the Microsoft Office package (available on ESSE3 platform).</p>

Expected learning outcomes	
<p>Knowledge and understanding on:</p>	<p>At the end of the course, the student will have knowledge and understanding ability related to:</p> <ul style="list-style-type: none"> • The aetiology, pathogenesis, clinical signs, diagnosis and treatment of the common diseases and disorders that occur in the common animal species (DOC 2.5) • The principles of disease prevention and the promotion of health and welfare. (DOC 2.9). • Veterinary public health issues, e.g. epidemiology, transboundary epizootic diseases, zoonotic and food-borne diseases, emerging and re-emerging diseases, food hygiene and technology (DOC 2.10) • Context and duties of the veterinarians operating in the Veterinary Services of the Animal Health Area (Area A) including the main disease frequency indicators used in descriptive epidemiology; association measures used in analytical epidemiology, causal reasoning, risk analysis; performances of diagnostic tests; sampling criteria. • Learning of dedicated software. • Italian, European and international veterinary health organizations and related regulatory references. • The prevention and control plans for diffusive infectious diseases in accordance with the National, the European Union and the World Organization of Animal Health (OIE) Regulations
<p>Applying knowledge and understanding on:</p>	<p>At the end of the course, the student will be able to:</p> <ul style="list-style-type: none"> • To Apply principles of bio-security correctly (DOC 1.28) • To Collect, preserve and transport samples, select appropriate diagnostic tests, interpret and understand the limitations of the test results (DOC 1.21) • To Recognise signs of possible notifiable, reportable and zoonotic diseases as well as abuse and take appropriate action, including notifying the relevant authorities (DOC 1.24) • To Advise on, and implement, preventive and eradication programmes appropriate to the species and in line with accepted animal health, welfare and public health standards (DOC 1.36) • To Communicate clearly and collaborate with referral and diagnostic services, including providing an appropriate history (DOC 1.22) • To Perform epidemiological investigations at the population level; disease estimation, with main focus on those diffusive ones; • To prepare graphic representation of diseases and give a correct interpretation of descriptive statistical data. • To carry out sampling surveys aimed to estimate the disease prevalence and incidence in populations. • to identify the Risk factors and plan prevention and control measures. • To Select of appropriate diagnostic tests according to the frequency of diseases and the objectives of the control plans.
<p>Soft skills</p>	<p>Making informed judgments and choices The student will be able:</p> <ul style="list-style-type: none"> • to review and evaluate literature and presentations critically (DOC 1.8). • to Understand, and have competence in the logical approaches to both scientific and clinical reasoning. The student will be able also to distinguish

	<p>between the two, and recognize the strengths and limitations of each (DOC 2.1)</p> <ul style="list-style-type: none"> To be able to analyze with a critical approach the operating procedures of a process (diagnostic, preventive, therapeutic, etc.) To be able to propose adequate solutions to problematic situations <p>Communicating knowledge and understanding The student will be able to:</p> <ul style="list-style-type: none"> work effectively as a member of a multi-disciplinary team in the delivery of services (DOC 1.6.) communicate effectively with clients, Animal Health authorities and animal keepers. using language appropriate to the audience concerned and in full respect of confidentiality and privacy (DOC 1.4) <p>Capacity to continue learning The student will 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).</p>
<p>Summary of the knowledge and competences that the integrated course concurs to let the students acquire (Day One Competences) as scheduled by EAEVE</p>	<p>Knowledge: 2.9 2.5 2.10</p> <p>Competences: 1.4 1.6 1.8 1.13 1.21 1.22 1.24 1.28 1.36</p>

Assessment and feedback	
<p>Methods of assessment</p>	<p>The exam of the integrated course "Infectious diseases 2" allows the acquisition of 11 ECTS of those included in the study plan. The exam consists of partial examinations for the three modules forming the course, i.e., "Bacterial Infectious diseases", "Epidemiology and veterinary legislation" and "Avian Pathology". The ECTS will be obtained after the positive outcome of the three partial examinations and the registration of the final outcome in the ESSE3 platform.</p>
<p>Evaluation criteria</p>	<p>Knowledge and understanding ability: The verification of results will be performed:</p> <ul style="list-style-type: none"> during the course by means of: i) flip teaching sessions during which the autonomy of judgement of the student and his/her ability to take advantage of the previously acquired knowledge will be evaluated; ii) a written exam <i>in itinere</i>, consisting of a multiple-choice questionnaire regarding topics of the lectures (a single correct answer has to be selected per each question). <p><u>Modules of Bacterial Infectious diseases and Avian Diseases:</u></p> <ul style="list-style-type: none"> a final oral examination will be performed at the end of the modules. The

	<p>skills detailed in the teaching course's objectives will be assessed. The exam will be passed after the correct discussion of at least two topics for each module of the programme.</p> <p><u>Module of Epidemiology and Veterinary law</u> The assessment of the knowledge, skills and abilities takes place through written examinations consisting of:</p> <p>1) multiple exercises covering epidemiology subjects by using Excel spreadsheets; to perform these tasks students will receive a set of data related to a disease or disorder of a population from which students will have to find causation, identify which factors are influencing, statistically prove and report recommendations adequate to solve the problem. Students that fail this component will not be able to apply for the second part.</p> <p>2) solving of a questionnaire including questions, based on multiple choice (50%) / open answers (50%), on both Epidemiology and Animal Health subjects.</p> <p>Evaluation methods: for each wrong answer (multiple-choice questions) there will be a penalty; for open questions, the consistency of the answers with the questions, the clarity of presentation and the ability to summarize will be assessed. Each test must be passed with a grade of at least 18 out of 30.</p> <p><i>Applied knowledge and understanding ability:</i></p> <ul style="list-style-type: none"> - Ability to connect different topics and use appropriate examples - Ability to evaluate a clinical picture and elaborate a diagnostic algorithm - Ability to critically evaluate different control strategies and vaccine prophylaxis <p><i>Autonomy of judgment:</i></p> <ul style="list-style-type: none"> - Analytical skills and critical sense with respect to the studied topics - Ability to express a comprehensive and uniform evaluation of the most common clinical and epidemiological features of food-producing and companion animals <p><i>Communication skills:</i></p> <ul style="list-style-type: none"> - Ability and clarity of speech - Appropriateness of expression, with particular regards to the specialised terminology <p><i>Capacity to continue learning:</i></p> <ul style="list-style-type: none"> - Ability to elaborate the notions and transfer them to new and differentiated situations
<p>Criteria for assessment and attribution of the final mark</p>	<p>The outcome of the partial examinations of "Bacterial Diseases", "Epidemiology and Veterinary legislation" and "Avian Diseases" will contribute to assign the final marks of the teaching module "Infectious Diseases 2. The examinations of "Bacterial Diseases", "Epidemiology and Veterinary legislation" precede "Avian Diseases" in sequence. The final mark is the result of a collegial evaluation of the all partial examinations, during which the student must demonstrate to have acquired critical sense in relation to the topics of the course.</p> <p>The final assessment, expressed in thirties, will be passed with marks equal or greater than 18 and will be made on the basis of the correctness of the answer, the communication skills, the clarity of the presentation, the disciplinary competence, and the level of detail.</p>
<p>Additional informations</p>	<p>The Attendance to the practical classes is compulsory.</p>