ACADEMIC YEAR 2023/2024

General information	
Denominazione del Corso Integrato	**VETERINARY PATHOLOGY**
Moduli didattici integrati	**Veterinary Pathology I;** **Veterinary Pathology II;** **Veterinary Pathology III;** **Necropsy Technique.**
Corso di studio	Veterinary Medicine LM42
Anno di corso	IV
SSD	VET/03
Lingua di erogazione	Italian
Periodo di erogazione	IV bimestre
Obbligo di frequenza	Yes

Professors/ Lecturers	e-mail address	Phone
Nicola Zizzo	nicola.zizzo@uniba.it	0804679931
Giuseppe Passantino	giuseppe.passantino@uniba.it	0804679842

Sede	Campus of Veterinary Medicine, S.P. per Casamassima km 3, 70010 Valenzano
Sede virtuale	Piattaforma Teams
Ricevimento (giorni, orari e modalità)	Prof. Zizzo: Monday 14,30-16,30 Tuesday 14,30-16-30 Thursday 14,30-16,30 Friday 10,30-12,30 (in presence) Prof. Passantino: Tuesday and Thursday 10.30-12.30 and Wednesday 15.00-17.00 (in presence) Every day by appointment (on Teams platform) Veterinary Pathology: b0nj9a8 Necropsy Technique: 1e408ws

Syllabus	
Obiettivi formativi	The integrated course aims to provide the student with knowledge about the anatomo-histopathological lesions of the organs of various systems, allowing them to acquire accurate methodology and appropriate terminology. The student will be able to perform organ biopsies for histopathological examinations and related research in order to better understand the nature of the lesions and correlate them with the most common diseases in domestic and livestock animals. The student must be able to perform necropsies in accordance with the prescribed biosafety rules (in the field and in the sectorial room) in order to identify, after a differential diagnosis, the cause of death and be able to prepare a report using correct technical-scientific language.
Prerequisiti	Prerequisite: Parasitology and Infectious Diseases 1 and 2 exams; The student must have acquired knowledge related to the lesions found on the organs and the specific cause of death (infectious, parasitic, organ dysfunction, traumatic, metabolic).

U.O. Didattica e servizi agli studenti
Strada prov.le 62 per Casamassima, km. 3,00
70010 Valenzano (Bari) - Italy
Tel. (+39) 080 5443944-41-46 • fax (+39) 080 5443939
didattica.veterinaria@uniba.it

Programma del modulo didattico di:
Veterinary Pathology I
Docente incaricato:
Nicola ZIZZO
 	
Didattica Frontale
CFU: 2
 	
Ore: 26
	The module covers the following areas: Clinical Sciences of Companion Animals (including horses and exotics), Clinical Sciences in Food-Producing Animals (including animal husbandry and herd medicine), and Professional Training. Areas of application for Veterinary Pathology include:
	Respiratory System, Cardiovascular System, Muscular System, Skeletal System, and Joints:
	• **Post-mortem and ontogenetic alterations, metabolic disorders, circulatory disturbances, inflammatory processes, parasitic lesions, neoplasms.**
	Hemolymphopoietic System:
	• **Bone Marrow:**
	  • Aplasia, gelatinous atrophy, hyperplasia, pigmentation, necrosis, hemosiderosis. Anemias: Myeloid and lymphoid pathologies.
	• **Thymus:**
	  • Primary and secondary immunodeficiencies, physiological and pathological involution, circulatory disorders, inflammatory processes. Tumors.
	• **Spleen and Lymph Nodes:**
	  • Post-mortem and ontogenetic alterations, metabolic disorders, circulatory disturbances, inflammatory processes, parasitic lesions, neoplasms.
	Endocrine System:
	• Pathologies of the pituitary and parathyroid glands; Thyroid pathologies (circulatory disorders, thyroiditis, goiters, neoplasms); Adrenal gland pathologies (cortical degenerations, inflammations, hypoadrenocorticism, hyperadrenocorticism, neoplasms); Diabetes mellitus.

Programma del modulo didattico di: **Veterinary Pathology II** Docente incaricato: **Nicola ZIZZO** **Didattica Frontale** **CFU: 3** **Ore: 39**	The module falls under the following areas: Clinical Sciences of Companion Animals (including horses and exotics), Clinical Sciences in Food-Producing Animals (including animal husbandry and herd medicine), and Professional Training. Areas of application for Veterinary Pathology include: **Gastrointestinal System, Urinary System, Male Genital System, Female Genital System:** • Post-mortem and ontogenetic alterations, metabolic disorders, circulatory disturbances, inflammatory processes, parasitic lesions, neoplasms. **Nervous System:** • Circulatory and traumatic alterations; Degenerations, Lesson 2: Encephalitis, Neoplasms.
Programma del modulo didattico di: **Veterinary Pathology III** Docente incaricato: **Nicola ZIZZO** **Didattica Frontale** **CFU: 1**	The module falls under the following areas: Clinical Sciences of Companion Animals (including horses and exotics), Clinical Sciences in Food-Producing Animals (including animal husbandry and herd medicine), and Professional Training. Areas of application for Veterinary Pathology include: Methods in Veterinary Pathology . Methods for macroscopic interpretation of major lesions: general evaluation of organs (condition of serous membranes, volume, weight, shape); description of lesions (color, shape, surface appearance, consistency, size, distribution); interpretation of lesions (degenerative-necrotic

U.O. Didattica e servizi agli studenti
Strada prov.le 62 per Casamassima, km. 3,00
70010 Valenzano (Bari) - Italy
Tel. (+39) 080 5443944-41-46 • fax (+39) 080 5443939
didattica.veterinaria@uniba.it

Ore: 13	processes, benign and malignant neoplasms, acute inflammatory processes (serous, catarrhal, fibrinous, hemorrhagic, purulent, necrotizing, gangrenous), and chronic ones; formulation of morphological anatomopathological diagnosis; Microscopic examination (Cytological Examination, Histopathological Examination, Histochemical Examination, Immunohistochemical Examination). Integumentary System: elementary skin lesions, congenital diseases, regressive alterations, inflammatory processes, neoplastic processes.
Attività Pratiche ed esercitazioni dei moduli di Veterinary Pathology I – II - III **CFU: 3** **Ore: 45**	**Exercises:** They will take place at the Vinci Pavilion, where students, divided into groups, will practice on pathological organs from the slaughterhouse or from previous autopsies conducted on-site. Students will take samples from the examined organs for histopathological examinations.
Programma del modulo didattico di: **Necropsy technique** Docente incaricato: **Giuseppe Passantino** **Didattica Frontale** **CFU: 2** **Ore: 26**	The module falls under the following areas: Clinical Sciences of Companion Animals (including horses and exotics), Clinical Sciences in Food-Producing Animals (including animal husbandry and herd medicine), and Professional Training. Areas of application for Veterinary Pathology include: - Identification and reporting of the cadaver; - Signs of death and post-mortem phenomena; - External inspection of the cadaver; - Cadaver section, extraction, and examination of the viscera; - Description and interpretation of necropsy findings; - Morphological alterations and their causes; - Pathological processes and their causes; - Sampling for laboratory investigations; - Biosafety and disposal in the sectorial room and in the field.
Attività Pratiche ed esercitazioni **CFU: 1** **Ore: 15**	Practical activities will be conducted at the sectorial Veterinary Pathology room in the Vinci Pavilion one afternoon a week, in groups of up to 8 students. During these activities, theoretical knowledge related to necropsy techniques, post-mortem phenomena, and lesions found on the carcass will be put into practice. At the end of the exercise, groups will compare and report on hypotheses regarding the causes of death.

Norme di Biosicurezza per la frequenza delle attività pratiche	Access to the Sector Room is allowed only to students with protective clothing (coats, greens, rubber boots and disposable latex gloves), who have read the biosecurity manual.

Materiale per lo studio personale	
Testi di riferimento	- P.S. Marcato: Patologia sistematica veterinaria. Edagricole, Milano 2015. - M.D. McGavin, J.F. Zachary: Patologia veterinaria sistematica. Elsevier, Milano 2010. - Guarda F., Mandelli G.: Trattato di anatomia patologica veterinaria, IV Edizione.UTET.

U.O. Didattica e servizi agli studenti
Strada prov.le 62 per Casamassima, km. 3,00
70010 Valenzano (Bari) - Italy
Tel. (+39) 080 5443944-41-46 • fax (+39) 080 5443939
didattica.veterinaria@uniba.it

	• E. Taccini, G. Rossi, C. Gili, Tecnica Autoptica e Diagnostica Cadaverica, Milano, Poletto editore. 2006. • S. Biavati, Tecnica delle autopsie e diagnostica cadaverica, Bologna, Girardi, 1999. • P.C. Stromberg, D.R. Rissi, C.S.L. Barros, . B.H. Williams, Gross description and interpretation in anatomic veterinary pathology, Davis/Thompson Foundation, 2019. • Appunti dalle lezioni. • Presentazioni PDF disponibili su piattaforma Google Drive eMicrosoft Teams.
Note ai testi di riferimento	• Color Atlas of Veterinary Pathology-General morphological reactions of organs and tissues.II Edition Van Dijk. J. E.; Gruys, E.; & Mouwen, J. • Donald J. Meuten, Tumors in Domestic Animals (5th edition), Wiley Blackwell, 2017. • R. Munro, H.M.C. Munro, Animal Abuse and Unlawful Killing, Saunders Elsevier, 2008. • M.D. Merck, Veterinary forensics : animal cruelty investigations (2nd edition), Wilwy-Blackwell, 2013. • D. Bailey, Practical veterinary forensics, CABI, 2016. • J.W. Brooks, Veterinary Forensic Pathology, Vol 1-2, Springer, 2018. • E. Rogers, A.W. Stern, Veterinary Forensics Investigation, Evidence Collection, and Expert Testimony, CRC Press LLC, 2018 • J. Dix, Color Atlas of Forensic Pathology, CRC Press LLC, 2000.

Organizzazione della didattica			
Ore			
Totali	Didattica frontale	Pratica (laboratorio, campo, esercitazione, altro)	Studio individuale
300	104	60	136
CFU/ETCS			
12	8	4	/

Metodi didattici	**Veterinary Pathology I-II-III:** The theoretical lessons will be conducted using multimedia tools (PowerPoint slides) and audiovisual materials. Additionally, students will actively participate in activities where they will be divided into study groups and select a single thematic topic to discuss with the class and the instructor. Practical activities will take place in the necropsy room located in the Vinci Pavilion, following the prescribed biosafety procedures. Regarding the practical part of macroscopic Veterinary Pathology , pathological organs from the slaughterhouse or from autopsies conducted in the previous days will be used, with corresponding sampling for histopathological investigations. At the end of the exercises, each group of students will present a written description of the macroscopic lesions found. In the histopathology laboratories of the Comparative Pathology and Oncology section, histological preparations from the samples taken in the autopsy room will be prepared and subsequently examined under the microscope. Additionally, seminars with external instructors on specific topics will be scheduled. **Necropsy Technique:** The theoretical part of the course will be delivered in a blended format (e-learning and in-person) in a classroom equipped with multimedia tools. Practical lessons will be conducted in a technology-enhanced manner in the Sectorial Room of the Veterinary Pathology Section located in the "Vinci" Pavilion. This room is appropriately equipped with necropsy tables and

U.O. Didattica e servizi agli studenti
Strada prov.le 62 per Casamassima, km. 3,00
70010 Valenzano (Bari) - Italy
Tel. (+39) 080 5443944-41-46 • fax (+39) 080 5443939
didattica.veterinaria@uniba.it

streaming services to allow students from the fourth year to follow the exercises in the classroom or from home. Students will be divided into small groups of a maximum of 8-10 people (depending on the assigned table) and will be supervised by the course instructor. Each student will be called upon to individually perform the necropsy for the exercise on a rotating basis. At the end of the week, there will be a session for collective discussion and comparison of the cases encountered during the week. Additionally, students will work in groups of up to 3 people to conduct seminars on specific topics under the supervision of the instructor.

Risultati di apprendimento previsti	
Conoscenza e capacità di comprensione	At the end of the course, the student will acquire knowledge and understanding of: • Recognize anatomo-histopathological lesions, understanding the etiology and pathogenesis of organ lesions (DOC 1.24, 2.5, 2.6, 2.7, 2.10) • Carry out anatomo-histopathological diagnosis and elaboration of the diagnostic report (DOC 1.4) • Knows the common cytological and histopathological diagnostic techniques (DOC 1.21, 1.23) • Techniques necessary to carry out a necropsy, know the postmortal phenomena and their causes, know the useful tools for a necropsy, know the possible causes of death (external and internal injuries) (DOC 1.21, 1.33) • Collateral tests useful for a correct diagnosis (DOC 1.22) • Sanitation and biosecurity requirements according to current regulations in order to carry out the activity safely (DOC 1.28)
Conoscenza e capacità di comprensione applicate	At the end of the course, the student must be able to: • Recognize and adequately interpret the nature of the lesions described, using the classical morphological parameters to detect and describe them (shape, volume, color, consistency, distribution) and hypothesize the diagnosis (DOC 2.5) • Can apply tissue sampling methods for cytological and histopathological diagnostic investigations (DOC 1.21) • Carry out a necropsy using the most suitable tools and techniques (DOC 1.33) • Carry out a differential diagnosis on the possible causes of death by relating them to the lesions found • Dispose of the material according to law (DOC 1.28) • Draw up a report with related cause of death (DOC 1.4)
Competenze trasversali	**Autonomy of judgment** • Have learning, adaptation, analysis, synthesis and work planning skills (DOC 1.8) • To apply the acquired knowledge • The student is able to recognize and describe with technical terminology the main macroscopic lesions observed on organs and tissues and is able to set up a differential diagnosis • Obituaries • Study and comparison of the cases observed during the exercises (DOC 2.1) • In-depth study through seminars (DOC 2.11) **Communication skills** • Have the ability to reason, argue and present in a clear and coherent way the topics of anatomy-histopathology • Will be able to argue with autonomy of judgment on the merits and limits of

	the various diagnostic methods; is capable of evaluating their accuracy and predictive value
	• Expresses himself with scientifically appropriate terminology in the discussion and description of the lesions (DOC 1.4)
	• Presentation in the classroom of the reports drawn up after the necropsy carried out during the exercises (DOC 1.6, 1.15)
	• Presentation of the seminars (with the support of power-points); students engaged in this activity also answer questions from their fellow auditors (DOC 1.11, 2.11)
	Ability to learn independently
	• Consult texts and publication and extrapolate the contents necessary to address the topic of interest (DOC 1.11)
	• Is able to use complementary resources (veterinary pathology sites) to integrate, complete and enhance their training (DOC 1.11)
	• Independent research and study prepares the student to be able to extend their study to topics and topics not covered during the course (DOC 1.13)
Sintesi delle conoscenze e delle competenze che il corso integrato concorre a fare acquisire agli studenti (Day One Competence) previste dall'EAEVE	*Knowledge:* 2.1 2.5 2.6 2.7 2.10 2.11 *Skills:* 1.4 1.6 1.8 1.11 1.13 1.15 1.21 1.22 1.23 1.24 1.28 1.33

Valutazione	
Modalità di verifica dell'apprendimento	The integrated course of "Veterinary Pathology " allows students to earn 12 CFUs as outlined in the study plan. The examination consists of a partial practical and oral assessment related to the modules "*Veterinary Pathology I-II-III*," as well as a final assessment of "*Necropsy Technique*." The 9 CFUs are considered acquired only after successfully passing both parts and recording the results on the ESSE3 portal. The practical assessment for the partial exam involves a 15-minute oral examination conducted in the sectorial room, where the student must recognize the species of origin of the organ, identify the lesions present, and connect them to an etiopathogenic event. Additionally, the student will be shown a histological section of a pathological organ and asked to identify the organ and the lesion

U.O. Didattica e servizi agli studenti
Strada prov.le 62 per Casamassima, km. 3,00
70010 Valenzano (Bari) - Italy
Tel. (+39) 080 5443944-41-46 • fax (+39) 080 5443939
didattica.veterinaria@uniba.it

	present. A level of proficiency deemed insufficient in this part prevents the student from proceeding to the next phase of the exam.
	Following the partial exam, students will undergo an oral assessment focusing on topics covered in the program. In both parts of the exam, students must demonstrate the skills acquired and proficiency in describing anatomopathological lesions.
	The final assessment, contingent upon passing the partial exam, consists of a practical and an oral examination. During the practical assessment, candidates, divided into groups of a maximum of 8 people, will have 2 hours to perform an autopsy and formulate a differential diagnosis. If deemed eligible in the practical assessment, individual students will then undergo an oral assessment with questions related to the program.
Criteri di valutazione	*Knowledge and Understanding:* - The student will be evaluated on their ability to express themselves using appropriate terminology. - They will be assessed on their knowledge of cytological and histopathological techniques. - Their knowledge of pathological alterations of the integumentary system will also be evaluated. - The ability to independently perform a necropsy will be assessed. - Knowledge of the correct phases for conducting a necropsy will be evaluated. - Familiarity with support tools useful for defining a correct cause of death diagnosis (histopathological and laboratory exams) will also be assessed. *Applied Knowledge and Understanding:* - Particular attention will be given to verifying the student's ability to describe lesions using appropriate terminology. - The student will be assessed on their ability to recognize and interpret lesions adequately during the examination of organs and tissues in the practical test. - Their ability to apply tissue sampling methods for cytological and histopathological diagnostic investigations will be evaluated. - The capacity to use the available tools critically will also be assessed. *Autonomy of Judgment:* - Special attention will be given to the student's ability to think transversally and connect the knowledge from various parts of the course with information derived from previous years' courses. - Their ability to formulate diagnostic hypotheses after recognizing and describing lesions on organs will be evaluated. - The ability to perform proper case summaries (epicrisis) and draft a report correctly with critical thinking and reasoning will also be assessed. *Communication Skills:* - The quality of specialized vocabulary and the clarity of expression will be appreciated. - The student's ability to autonomously discuss the merits and limitations of various diagnostic methods and evaluate their accuracy and predictive value will be evaluated.

U.O. Didattica e servizi agli studenti
Strada prov.le 62 per Casamassima, km. 3,00
70010 Valenzano (Bari) - Italy
Tel. (+39) 080 5443944-41-46 • fax (+39) 080 5443939
didattica.veterinaria@uniba.it

	• The capacity to draft a report and competence in using correct scientific terminology to present the results obtained during the autopsy will also be assessed. • The ability to work in a group setting will be taken into consideration. *Learning Abilities:* • The student will be presented with a pathological organ or a photographic image reproducing a lesion: they must recognize the organ and species of origin, identify the lesion, and describe it using the standard international descriptive methodology presented during the course. • The ability to propose possible causes of death based on in-depth individual research or information from other disciplines will also be assessed.
Criteri di misurazione dell'apprendimento e di attribuzione del voto finale	The results of the Veterinary Pathology I-II-III and Necropsy Technique assessments will contribute to the final grade for the Veterinary Pathology exam. The final grade is determined by a collegial evaluation of the two assessments (partial and final) in which the student must demonstrate critical thinking regarding the topics studied. The final evaluation will be on a scale of thirty; the exam will be considered passed if the grade is greater than or equal to 18. It will be possible to award honors (cum laude) to students who demonstrate exceptional skills, articulate presentation, and completeness in addressing the required topics.
Altro	

U.O. Didattica e servizi agli studenti
Strada prov.le 62 per Casamassima, km. 3,00
70010 Valenzano (Bari) - Italy
Tel. (+39) 080 5443944-41-46 • fax (+39) 080 5443939
didattica.veterinaria@uniba.it