Curricular Unit Form

POLITÉCNICO DE PORTALEGRE

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Escola Superior de Biociências de Elvas

Updated On	2024/08/26
Curricular Year / Period	2024/25 / S2
Course	Veterinary Nursing
Curricular Unit	Microbiology and Immunology
Language(s) of Instruction	Português Inglês

ECTS/tempo de trabalho (horas)

ECTS	Total	Horas de contacto semestral								
		T	TP	PL	S	TC	E	O	OT	EC
6	160	32		32						

T - Theoretical; TP - Theoretical and practical; LP - Laboratory Practice; S - Seminar; TG - Tutorial guidance; FW - Fieldwork; T - Training; ; EC - Clinical teaching; O* - Other hours typified as Clinical Training under the Directive 77/453/EEC of June 27, adapted by Directive 2005/36/EC.

Teacher in charge (GDPR consent) [complete name, email]	Nicolas Garrido De La Osa / nicolasosa@ipportalegre.pt
Prerequisites [Curricular Units that must precede and specific entry competences]	
Learning outcomes [Description of the overall and specific objectives] [Knowledge, skills and competences to be developed by students]	The course unit of Microbiology and Immunology component of Microbiology aims to provide veterinary nurses with knowledge about the main microorganisms that cause disease in animals, as well as to make the EV able to work in a Microbiology laboratory and to identify the microorganisms and their main characteristics as well as the its mode of isolation and manipulation "in vitro". The curricular unit of Microbiology and Immunology component of Immunology has as general objectives, to provide the theoretical basis for the student to understand the basic mechanisms of the innate and acquired immune response and its regulation, and to relate them with the binomial health-disease, immunization and immunopathology .
Sustainable Developemnt Goals	
Syllabus	THEORETICAL CLASSES Microbiology: 1. Introduction to microbiology; 2. Bacteriology, classification and bacterial ecology, bacterial infections, Rickettsias, Chlamydia, Mycoplasmas; 3. Virology, characteristics and classification of viruses, viruses, Prions; 4. Mycology, classification, characteristics and biology of fungi, mycoses. Immunology: 1. Immune system; 2. Innate immune response; 3. Adaptive immune response; 4. Antigenic presentation; 5. Immunoglobulins; 6. Deregulation of the immune system (allergies, autoimmunity and immunodeficiency); 7. Prophylaxis. LABORATORY PRACTICES: 1. Biosafety in the laboratory; 2. Sanitizing a laboratory and sterilizing material; 3. Techniques for cultivation of microorganisms and preparation of culture media; 4. Inoculation of microorganisms; 5. Simple coloring and observation of inoculants; 6. Gram stain; 7. Visualization and identification of microorganisms; 8. Antibiogram techniques; 9. Fungal culture; 10. Isolation of leukocytes and establishment of primary cultures; 11. Direct, cultural, immunological and molecular diagnosis of infections.
Teaching methodologies (including assessment) [Specify the types of assessment and the weights and evaluation criteria]	**1 - Teaching methodologies** Theoretical classes in which the concepts are introduced and the fundamentals of the subjects to be explained are explained with the desired level of detail, and practical laboratory classes in which the theoretical concepts are applied and demonstrated. **2 - Period assessment** Assessment methodologies: MICROBIOLOGY: Frequency for the assessment of theoretical subjects with a final grade equal to or greater than 9.5 values (70% of the grade) and written frequency for the evaluation of practical subjects with a grade greater than or equal to 9.5 values (30% of the grade). Attendance at 75% of practical

	classes and reporting of 75% of practical classes is MANDATORY (50% weight in the final grade of the UC; minimum grade 9.5). (50% Weight in the UC Final Grade; minimum grade 9.5). IMMUNOLOGY: Frequency for the assessment of theoretical subjects with a final grade equal to or greater than 9.5 values (70% of the grade) and written frequency for the evaluation of practical subjects with a grade greater than or equal to 9.5 values (30% of the grade). Attendance at 75% of practical classes and reporting of 75% of practical classes is MANDATORY (50% weight in the final grade of the UC; minimum grade 9.5). **3 - Examination assessement** Assessment methodologies: MICROBIOLOGY: Exam to assess theoretical subjects with a final grade equal to or greater than 9.5 (70% of the grade) and oral exam to assess practical subjects with a grade greater than or equal to 9.5 (30% of the grade). Attendance at 75% of practical classes and reporting of 75% of practical classes is MANDATORY (50% weight in the final grade of the UC; minimum grade 9.5). IMMUNOLOGY: Exam to assess theoretical subjects with a final grade equal to or greater than 9.5 values (70% of the grade) and oral exam to assess practical subjects with a grade greater than or equal to 9.5 values (30% of the grade). Attendance at 75% of practical classes and reporting of 75% of practical classes is MANDATORY (50% weight in the final grade of the UC; minimum grade 9.5).
Bibliography	**1 - Main Bibliography** Teacher's manuals and presentations. Ferreira, W. F. C., Sousa, J. C. F., Lima, N., (2010) Microbiologia. Lidel, Lisboa. Willard, M. D., Tvedten, H. (2012) Small animal clinical diagnosis by laboratory methods. 5ª Edição. Elsevier, EUA Tizard, I., (2002) Inmunología Veterinária. Roca, 6ª edição, México. Burton, G. R. W., Engelkirk, P. G., (2005) Microbiologia: para as ciências da saúde. Guanabara Koogan, Rio de Janeiro. Tortora, G. J., Funke, B. R., Case, C. L., (2000) Microbiologia, Artmed, Porto Alegre. Greene, C. E. (2012), Doenças infecciosas em cães e gatos. 4ª edição. Roca, Rio de Janeiro. Bassert, J M.; McCurnin, D. M. (2014). McCurnins: Clinical Textbook for Veterinary Technicians. (8th edition). Elsevier Saunders Orpet, H., Welsh, P., (2011) Handbook of Veterinary Nursing. 2ª Edição. Reino Unido. Joanna M. Bassert, John A. Thomas, 2015, Clinical Textbook for Veterinary Technicians, eight edition, ELSEVIER. **2 - Complementary Bibliography** Janeway, C., Travers, P., Walport, M., Shlomchik, M., Immunobiology. Garland Science; 6ª Edição ISBN-10: 0815341016 ISBN-13: 978-0815341017 Moura, R.A., Purchio, A. (1998) Técnicas de Laboratório. Atheneu, 3ª edição. Outteridge, P.M., (1988) Veterinary Immunology. Academic Press, 3ª edição. Pandey, R., (1994) Infecção e Imunidade em animais Domésticos. Roca, 1ª edição. Recursos disponíveis na Biblioteca do Conhecimento On-line (b-On).
Special Situations [Students with special status]	**1 - Period assessment - Students with special status** Student worker: Oral test to evaluate the practical component (when it is impossible to attend practical classes and / or to carry out laboratory protocol reports) (30% of weight in the final grade). **2 - Examination assessement - Students with special status** Student worker: Oral test to evaluate the practical component (when it is impossible to attend practical classes and / or to carry out laboratory protocol reports) (30% of weight in the final grade).