

Course Title	<b>Veterinary Parasitology</b>				
Course Code	<b>VET-204</b>				
Course Type	Required				
Level	Undergraduate				
Year / Semester	Year 2/ Semester 1 (Fall)				
Teacher's Name	<b>Course Lead:</b> Dr Andreas Monoyios <b>Contributor:</b> Dr Eleni Gentekaki				
ECTS	6	Lectures / week	3	Laboratories-tutorials / week	2
Course Purpose and Objectives	<p>The main objectives of the course are:</p> <ul style="list-style-type: none"> <li>• The course focuses on identifying major parasites, the morphology, life cycles, and living needs of parasites in the environment and in animal hosts.</li> <li>• Developing knowledge and understanding in molecular and cellular biology, ecology, and epidemiology relevant to parasitism.</li> <li>• Describing the major parasitic diseases of companion and food producing animals and related parasites that impact on global human health</li> </ul>				
Learning Outcomes	<p>The following list provides the learning objectives (LOBs) that will be covered in the lectures and laboratory practical sessions of each week:</p> <p><b>Week 1</b></p> <p><b>LOBs covered during lectures:</b></p> <ol style="list-style-type: none"> <li>1. Introduction to veterinary parasitology and describe the classification and nomenclature.</li> <li>2. Discuss the common host parasite relationships.</li> <li>3. Describe the differences between ecto- and endo- parasites</li> <li>4. Describe the differences between extracellular and intracellular parasites</li> <li>5. Describe the various kinds of hosts, final, intermediate, transport, reservoir, vector</li> <li>6. Describe what are zoonoses in relation to parasitic diseases</li> <li>7. Describe the host defenses against parasites</li> <li>8. Explicate the importance of veterinary parasites.</li> </ol>				

9. Describe the diverse pathogenic mechanisms of parasites.

10. Describe diagnostic techniques.

### Week 2

#### LOBs covered during lectures:

11. Describe the general characteristics of the Arthropods, discuss how they are the most diverse of all animal life-forms.

12. Describe the insects' class and explain how they are the greatest concern in clinical practice.

13. Describe the body structure and function of insects.

14. Describe the life cycle of insects

15. Describe the Phthirapteran (lice) order, morphology, life cycle, hosts, infection route and diseases they transmit.

16. Describe the Heteropteran (Bugs) order, morphology, life cycle, infection route and diseases they transmit.

17. Describe the Blattaria - Cockroaches order, morphology, life cycle and the veterinary importance

18. Describe the Siphonapteran (Fleas) order, morphology, life cycle, hosts, infection route and diseases they transmit.

### Tutorial

### Week 3

#### LOBs covered during lectures:

19. Describe the Hymenoptera (Ants, bees and wasps) order, morphology, life cycle, hosts, infection route and potential diseases they might transmit.

20. Describe the Coleoptera (Beetles) order, morphology, life cycle, hosts, infection route and diseases they transmit.

21. Describe the Lepidoptera (Butterflies) order, morphology, life cycle, hosts, infection route and diseases they transmit.

22. Describe the Diptera (Flies) order, morphology, life cycle, hosts, infection route and diseases they transmit.

23. Describe the Arachnida class, the Acari (Mites and Ticks) subclass, morphology, life cycle, hosts, infection route and diseases they transmit. Focus on the importance of the sand flies in Cyprus.

24. Describe the Arachnida class, the Araneidae/Araneae (Spiders) subclass, morphology, life cycle, hosts, infection route and diseases they cause.

25. Describe the Arachnida class, the Scorpionida (Scorpions) subclass, morphology, life cycle, hosts, infection route and diseases they cause.

**Tutorial****Week 4****LOBs covered during lectures:**

26. Describe the Psoroptidae family, morphology, life cycle, hosts, infection route and diseases they cause.
27. Describe the Pyroglyphida: family, (house dust mite), morphology, life cycle, hosts, infection route and diseases they cause.
28. Describe the Demodicidae family, (Demodex), morphology, life cycle, hosts, infection route and diseases they cause.
29. Describe the Cheyletiellidae family, (Cheyletiella), morphology, life cycle, hosts, infection route and diseases they cause.
30. Describe the Ixodoidea sub order, (Ticks), morphology, life cycle, hosts, infection route and diseases they cause.
31. Describe the Chilopoda class, (Centipede), morphology, life cycle, hosts, infection route and diseases they cause.
32. Name the different control and eradication treatments for Arthropods.

**LOBs covered during laboratory practical:**

33. Taxonomic characteristics of arthropods under the microscope (using pre-made slides)

**Week 5****LOBs covered during lectures:**

34. Introduction to Helminthology.
35. Cestodes- tapeworms, describe the morphology, life cycle, vector, host, epidemiology treatment and prevention.
36. Trematodes -flatworms, describe the morphology, life cycle, vector, host, epidemiology treatment and prevention.
37. Nematodes – round worms, describe the morphology, life cycle, vector, host, epidemiology treatment and prevention.

**LOBs covered during laboratory practical session:**

38. Visualization of helminth parasites

**Week 6**

Veterinary Services visit: *Trichinella spiralis* practical

**Week 8****LOBs covered during lectures:**

39. Basic terminology in protozoology and diversity of protozoan parasites

40. Basic characteristics of apicomplexan parasites of veterinary importance

41. Babesiosis: discuss the lifecycle, vector, animals affected, clinical signs, pathology, and treatment

42. Theileriosis: discuss the lifecycle, vector, animals affected, clinical signs, pathology, and treatment

43. Hepatozoon: discuss the lifecycle, vector, animals affected, clinical signs, pathology, and treatment.

44. Cryptosporidiosis: discuss the lifecycle, animals affected, clinical signs, pathology, and treatment.

45. Toxoplasmosis: discuss the lifecycle, vector, animals affected, clinical signs, pathology, and treatment.

**LOBs covered during laboratory practical session:**

46. Taxonomic characteristics of microbial parasites under the microscope (using pre-made slides)

**Week 9**

**LOBs covered during lectures:**

47. *Sarcocystis*: discuss the lifecycle, vector, animals affected, clinical signs, pathology, and treatment.

48. *Neospora*: discuss the lifecycle, vector, animals affected, clinical signs, pathology, and treatment.

49. Basic characteristics of flagellate and kinetoplastid parasites of veterinary importance.

50. *Trypanosoma*: discuss the lifecycle, vector, animals affected, clinical signs, pathology, and treatment.

51. *Leishmania*: discuss the lifecycle, vector, animals affected, clinical signs, pathology, and treatment.

52. *Trichomonas*: discuss the lifecycle, animals affected, clinical signs, pathology, and treatment.

53. *Giardia*: discuss the lifecycle, animals affected, clinical signs, pathology, and treatment.

54. *Histomonas*: discuss the lifecycle, animals affected, clinical signs, pathology and treatment.

55. *Naegleria*: discuss the lifecycle, animals affected, clinical signs, pathology, and treatment.

**LOBs covered during laboratory practical session:**

56. Staining and handling of cultured microbial parasites

**Week 10**

**LOBs covered during lectures:**

57. Basic characteristics of amoebozoan parasites of veterinary importance

	<p>58. <i>Entamoeba</i>: discuss the lifecycle, animals affected, clinical signs, pathology, and treatment.</p> <p>59. <i>Acanthamoeba</i>: discuss the lifecycle, animals affected, clinical signs, pathology, and treatment.</p> <p>60. <i>Blastocystis</i>: discuss the lifecycle, animals affected, clinical signs/controversial pathogenicity, and treatment.</p> <p>61. Ciliates: discuss their lifecycles, animals presence, clinical signs, and their role in the microbiome and the environment.</p> <p>62. Basic characteristics of fungal parasites of veterinary importance</p> <p>63. Microsporidia: discuss the lifecycle, animals affected, clinical signs, pathology and treatment.</p> <p>64. <i>Pneumocystis</i>: discuss the lifecycle, animals affected, clinical signs, pathology and treatment.</p> <p><b>LOBs covered during laboratory practical sessions:</b></p> <p>65. Visualisation and molecular identification of parasites from blood and feces (1)</p> <p>66. Molecular identification and of parasites from blood and feces (2)</p>		
Prerequisites	None	Required	None
Course Content	<ul style="list-style-type: none"> <li>● Entomology</li> <li>● Helminthology</li> <li>● Protozoology</li> <li>● Ectoparasites of veterinary importance:</li> <li>● Introduction to arthropods of veterinary importance (learn all relevant species and recognise appearance for each ectoparasite)</li> <li>● Mites I</li> <li>● Mites II</li> <li>● Ticks</li> <li>● Fleas</li> <li>● Lice</li> <li>● Myiasis I</li> <li>● Myiasis II and other flies</li> <li>● The control of ectoparasites – insecticides and endectocides</li> <li>● The control of ectoparasites – control and alternative approaches</li> <li>● Helminths (learn all relevant species and recognise appearance of each):</li> <li>● Nematodes</li> <li>● Flatworms (tapeworms and flukes)</li> <li>● Control of endoparasites with special reference to anthelmintic resistance</li> <li>● Protozoa (learn all relevant species and recognise appearance of each):</li> <li>● Apicomplexans: Coccidia</li> <li>● Apicomplexans: Piroplasms</li> </ul>		

	<ul style="list-style-type: none"> <li>● Flagellates and kinetoplastids</li> <li>● Amoebozoans</li> <li>● Ciliates</li> <li>● Microsporidia and other fungi</li> </ul>
Teaching Methodology	Lecture based teaching combined with practical and tutorial sessions
Bibliography	<p><b>Required</b> M. A. Taylor, R. L. Coop, R. L. Wall <b>Veterinary Parasitology</b> 3rd Wiley-Blackwell 2007 978-1405119641</p> <p><b>Required</b> Dennis Jacobs, Mark Fox, Lynda Gibbons, Carlos Hermosilla <b>Principles of Veterinary Parasitology</b> 1st Wiley-Blackwell 2015 978-0470670422</p> <p><b>Recommended</b> S.C. Mandal <b>Veterinary Parasitology at a Glance</b> 1st CBS Publishers and Distributors PVT 2013 978-8181895097</p> <p><b>Recommended</b> Dickson D Despommier, Daniel O Griffin, Robert W Gwadz, Peter J Hotez, Charles A Knirsch <b>Parasitic Diseases</b> 7th 2019 978-1097115907</p> <p><b>Recommended</b> James Armour, J. L. Duncan, A. M. Dunn, F. W. Jennings, G. M. Urguhart <b>Veterinary Parasitology</b> 2nd Wiley-Blackwell 1996 978-0632040513</p> <p><b>Recommended</b> Richard L. Wall, David Shearer <b>Veterinary Ectoparasites: Biology, Pathology and Control</b> 2nd Wiley-Blackwell 2001 978-0632056187</p>
Assessment	<p>Participation= <b>10%</b></p> <p>Practical examination= <b>30%</b></p> <p>Final examination= <b>60%</b></p>
Language	English