Module 08

Department	
Program	Doctor of Veterinary Medicine (DVM)
Module Title	Animal Pathogens and Host defense
Module Code	Vetm-M2081
Module ECTS	31
Module Coordinator	
Course Title	**Veterinary Parasitology II**
Course Code	Vetm2082
Instructor's name and Contact Information	Name: Dr. Shimelis D., Dr. Basazinew B., Dr. Moges M., Dr. Abrham A. & Dr. Zewdu S. Office: 46, 61 & 64 Phone: +2510912065499 Email:zewdusagera@gmail.com Office hours:
Course Information	Year: II Semester: II Meeting day: Meeting time: Meeting location:
Course Credit	7 ECTS
Course description	● The course deals with: ✓ Introduction to Protozoology, host-parasite interaction, pathogenic effects on the host, classification, morphology, life cycle, pathogenesis, and control measures of economically important protozoan parasites. ✓ Introduction to Acarology-Entomology, arthropods, structures and functions, host-parasite-environment interaction, life cycle, pathogenic effects, vector role, economic significance, prevention/control strategies and classification will be dealt. **Practical:** ✓ General laboratory practice and biosafety ✓ Demonstration of equipment, chemicals and reagents used in parasitology laboratory. ✓ Preparation of solutions used for protozoan and arthropod parasite examinations ✓ Samples for protozoan and arthropod parasite examination ✓ Collection and preparation of blood sample, PCV determination, blood smears, staining and examination of slides for detecting haemoparasites. ✓ Examination of faecal materials for identification of intestinal protozoa. ✓ Identification of important members of protozoan parasites. ✓ Methods for collection, fixation, preservation and identification of arthropod parasites. ✓ Examination of skin scrapings for mange mites and dipteran larvae ✓ Visits to livestock and poultry farms and research centers for studies of ectoparasites etc.

Course objectives	• **General objective of the course:** ✓ The course aims to provide the student with the theoretical and practical notions to identify the dynamics of animal and zoonotic protozoan and arthropod parasites in the host population, the diseases caused by them and arthropod vector role, to possess skills in techniques of protozoan and arthropod parasites recovery and identification, to predict the impact of parasitism on animal production, to plan control and therapeutical programmes in both domestic and wild animals. • **Goals to achieve:** 1. **Knowledge and understanding**: the students are required to demonstrate exhaustive knowledge of both parasites morphology, lifecycle and parasite-host-environment interaction; the zoonotic risk of some parasites; knowledge of epidemiology, pathogenesis, clinical aspects, diagnosis, control, prophylaxis and therapy of the most important parasitic diseases of domestic and wild animals 2. **Ability to apply knowledge and understanding**: the student must be able to apply the theoretical knowledge to recognize the parasitic agents, pathogenesis, clinical symptoms, diagnosis and treatments of parasitic diseases, in order to prevent them and especially plan prophylaxis programmes of zoonotic parasitic diseases. 3. **Autonomy of judgment**: the student must learn critically and proactively both the information provided by the teacher and those derived from the recommended textbooks 4. **Communication skills**: the student should be able to explain the concepts acquired with appropriate and updated terminology that should be consistent with the terminology used in other disciplines, during the lectures, the practical lessons and the practical test
Prerequisites	Veterinary Parasitology I (Vetm 3071)

Mode of delivery	Semester based/Parallel
Status of the course	Core
Course expectations	**Preparation and participation** ✓ Students are expected to: - Come to class and laboratory prepared with appropriate materials - Complete reading assignments and other activities on time - Plan their own learning - Work hard individually to meet the requirement of the course - Use their time for group work and home study effectively - Make active participation during discussions (must participate in class) - Give constructive feedback to partners/group members and to listen to their comments - Strictly follow safety rules and instructions in the laboratory - Attend 100% of all scheduled classes and laboratory activities. - Be punctual and disciplined at all sessions. **Material availability:** - Equipments, chemicals and reagents are expected to available in the laboratory - Reference materials and teaching aids are expected to be available during the delivery of the course in the library.
Learning teaching methods	• Session-based interactive active learning approaches - Lecture with question and discussion - Reading assignments will be delivered in selected topics • Practical session will be delivered side by side with theoretical session. • Students will prepare presentation on selected topics Students will prepare and submit laboratory reports;

<table>
<tr><td>Assessment methods</td><td colspan="5">• Continuous assessment: 50%
- Tests: 25%
- Quizzes: 5%
- Assignment and Exercise: 10%
- Lab report: 10%
• Final exam: 50%
- Theoretical: 30%
- Practical: 20%</td></tr>
<tr><td rowspan="2">Student work load</td><td>ECTS</td><td>Lecture</td><td>Lab/practical</td><td>Home study</td><td>Total</td></tr>
<tr><td>7</td><td>48</td><td>48</td><td>93</td><td>189</td></tr>
<tr><td>Policy</td><td colspan="5">As per the University’s senate legislation</td></tr>
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Schedule: Schedule for lecture topics and activities

Week	**Activities and hours required**	**Topics to be covered**
I	4 hours lecture 2 hours discussion 6 hours practical	• Definition, basic concepts and terminology • Structure and function: morphology and physiology • Reproduction: ✓ Asexual (Binary fission, Schizogony, budding, Sporogony) ✓ Sexual (Conjugation, Syngamy) • Pathogenic effects and economic importance • Classification of protozoan organisms
II -III	2 hours lecture 1 hour discussion 3 hours practical	• Trypanosomes of Veterinary importance ✓ General account, morphology, biology (life cycle), modes of transmission ✓ Epidemiology and distribution ✓ Classification of trypanosomes ✓ Pathogenic trypanosomes of domestic animals and humans ✓ Effects of trypanosomes: pathogenesis ✓ Clinical features (*Nagana*, *surra*, and *dourine*) ✓ Economic aspects ✓ Diagnosis ✓ Treatment: curative and prophylaxis

		- Problem of drug resistance (detection, control and prevention) ✓ Prevention and control strategies - Current concepts on immunology
IV	2 hours lecture 1 hour discussion 3 hours practical	• Trichomonas ✓ General description, Morphology, reproduction, transmission, epidemiology ✓ Bovine trichomonosis: symptoms, pathogenesis, immunity, diagnosis, treatment, control and prevention, ✓ Brief account on human trichomonosis • Brief review on *Leishmania*, *Malaria*, *Amoeba* and *Giardia*
V - VII	4 hours lecture 2 hour discussion 6 hours practical	• Coccidia ✓ General description and classification - *Eimeria*, *Isospora*, *Cryptosporidium*, *Sarcocyst, Neospora* and *Toxoplasma* • Coccidiosis: avian and ruminant coccidiosis - Etiology, Life cycle, Epidemiology, Pathogenic effect, Clinical features, Diagnosis, Treatment, Prevention/ control strategies and significances • Cryptosporidiosis, Toxoplasmosis**,** Neosporosis and Sarcosporidiosis - Etiology, Life cycle, Epidemiology, Pathogenic effect, Clinical features, Diagnosis, Treatment, Prevention/ control strategies and significances (economic and public health aspects)
VIII-IX	4 hours lecture 2 hour discussion 6 hours practical	• Babesiosis, Theileriosis, Anaplasmosis and Cowdriosis ✓ Etiology, Life cycle and transmission pattern, Epidemiology, Pathogenic effect, Clinical features, Diagnosis, Treatment and Prevention/ control strategies ✓ Economic significances (emphasis to Ethiopian context)
X- XII	9 hours lecture and discussion 3 hours practical	**Part II. Veterinary Acaro-entomology** • Anatomy and physiology of arthropods • Classification • Class arachinida - General considerations, anatomy, physiology and classification • **Ixodidae** (hard ticks) and **Argasidae** (Soft ticks) ✓ Biology of ticks: Intrinsic factors and Extrinsic factors ✓ Pathogenic role of ticks and their significance in skin diseases ✓ Major ticks (hard and soft) species of domestic animals

		in Ethiopia – *Amblyomma*, *Boophilus*, *Hyalomma*, *Haemaphysalis*, *Rhipicephalus* and others – *Argas* and *Ornithodorus* ✓ Tick control (long- and short-term objectives). – Acaricides and their methods of application – Recent advances – Acaricides resistance development • **Mange Mites**: ✓ Morphology, ✓ Biology: life cycle ✓ Host range and response ✓ Classification: – *Demodex, Sarcoptes, Psoroptes, Chorioptes, Notoedres, Cnemidocoptes, Otodectes, Psorergatus, Dermayssus* ➢ Clinical features, pathology, diagnosis, treatment and control
XIII - XVI	12 hours lecture and discussion 4 hours practical	• **Class Insecta** ✓ General considerations, anatomy, physiology and classification • **Anoplura (s**ucking lice) and **Mallophaga** (biting lice) ✓ General account, morphology and life cycle ✓ Pathogenic effects ✓ Treatment and control approaches • **Siphonaptera**- Flea ✓ General account, morphology and life cycle ✓ Pathogenic effects and their vectoral roles ✓ Treatment and control approaches • **Dipteran flies**: ✓ General account, structure and function and significance ✓ Classification: – Horse flies, Stable flies, Tsetse flies, Sheep ked, Mosquitoes, Sand flies, Biting midges, Black flies • **Myiasis causing flies**: ✓ General account, life cycle and clinical features, ✓ Treatment and control. ✓ Classification: –*Oestrus*, *Gastrophilus*, *Hypoderma*, Screwworm and Blow flies
XVII-XVIII	3 hours	Final examination

Course evaluation:

At the end of the course, students will be encouraged to evaluate the relevance and content of course as well as its compatibility to the module to which it is clustered. To this effect discussions with students will be held. Strong and weak points of the course and possible solutions will be considered critically to enrich the course content. Moreover, semi-structure questionnaire will be developed. The questionnaire will include both closed and open ended (but short answers) type of questions. Questionnaire based opinion survey, analysis of assessment results.

References

- Foreyt, W.J. 2001. Veterinary Parasitology. Reference Manual. 5thed.
- Gary Mullen and Lance Durden 2002. Medical and Veterinary Entomology
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- Levine, N. D. 1985. Veterinary Protozoology.
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- Seifert, H. S. H. 1992. Tropical Animal Health. CTA Publication
- Shah-Fischer, M. & Say, R.R. 1989. Manual of Tropical Veterinary Parasitology. English edition.
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- Soulby, E.J.L., 1982. Helminthes, Arthropods and protozoa of domestic animals, 7th edition, Baillier Tindall, London, Lea and Febiger, Philadelphia.
- Urquhart, G.M. *et al*. 1996. Veterinary Parasitology, 2nd edition.
- Taylor, M.A. *et al*. 2007. Veterinary Parasitology, 3rd edition, Blackwell Science Limited.