



Medical Helminthology

CU characterization:

CU name:

Medical Helminthology

Scientific area acronym:

HM

Duration:

Semiannual

Working hours:

296

Contact hours:

109

ECTS:

11

Observations:

This school year the distribution of classes are as follows:

T: 24 hours; P: 31 hours; S: 12 hours; OT: 42 hours; Evaluation: 5.5 hours

Teacher in charge and respective teaching load in the CU:

Maria Manuela Palmeiro Calado – 59 hours

Other teachers and respective teaching load in the CU:

Isabel Larguinho Maurício – 56,5 hours

Pedro Manuel Ferreira – 15 hours

Intended learning outcomes (knowledge, skills and competences to be developed by the students):

Upon completion of this UC, the students should be able to

1. Know the main groups of pathogenic helminths, their morphological differences, and their importance in human health.
2. Assess the impact of parasitism on clinical, economic and social level.
3. Understand the various factors involved in the transmission of helminths.
4. Identify the different species of freshwater molluscs, which are important in the transmission of the main helminths.
5. Mention the impact of helminths in Public Health address climate and environmental changes.
6. Select and execute the most appropriate techniques to laboratory diagnosis of helminths.
7. Propose the most appropriate prophylactic and control measures against helminths.



Syllabus:

- A. Introduction to Medical Helminthology. Main groups and their systematics. Morphological, anatomical, and physiological aspects of different phyla. Helminths parasites of man and animals: life cycle and host specificity. Snails, intermediate hosts of helminths parasites and the importance of host-parasite relationship.
- B. Helminthiasis caused by cestodes. Intestinal Cestodes. Tissue cestodes: hydatidosis and cysticercosis.
- C. Helminthiasis caused by trematodes. Hepatobiliary, intestinal, pulmonary and blood trematodes. Their importance in human health. Snails, intermediate hosts of trematodes and the importance of host-parasite relationship.
- D. Helminthiasis caused by intestinal nematodes: cosmopolitan Geohelminthoses. Hookworm and strongyloidiasis
- E. Vector-transmitted helminths: filariasis
- F. Model nematodes: *Caenorhabditis elegans*
- G. Integrated control of helminths
- H. Observation and identification of adult worms, larvae and eggs of helminths. Implementation and interpretation of methods for the laboratory diagnosis of helminth infections. I – Direct diagnosis methods. II - Immunological and molecular diagnosis methods.

Teaching methodologies (including assessment):

Teaching methods to be applied are:

- Lecture (T) - Lecture method with discussion
- Theoretical-practical classes (TP) - Lecture and active method
- Laboratorial practical (PL) – Demonstrative and active methods
- Seminars (S) - Lecture and active method
- Tutorial supervision (OT)

Evaluation methods

Student assessment will be based on the following elements:

- A theoretical and practical exam.
- Continuous assessment in practical classes by completing an individual session record.

The grade for each theoretical and practical examination must be at least 9.5. If the final average is equal to or greater than 9.5, but one of the examinations is below 9.5 but above 8, the student may be given an oral assessment.

If the teacher has doubts about the student's final mark, the student may be subject to an oral examination.

Group seminars on topics related to the lectures, followed by discussion.

- The final mark will be distributed as follows: 10% continuous assessment; 25% seminars; 25% practical examination; 40% theoretical examination.

References for consultation / mandatory existence:

Books



- Cook C.G., Zumla A.I. (2008). *Manson's Tropical Diseases*, 22^a Ed. Elsevier Science, UK: 1800 pp.

References for consultation / mandatory existence (continuation):

- Magill AG, Ryan ET, Solomon T, Hill DR (2012). *Hunter's Tropical Medicine and Emerging Infectious Disease*. Elsevier Inc., 1111 pp.

Papers

- Brunetti E, White AC Jr. (2012). Cestode infestations: hydatid disease and cysticercosis. *Infect Dis Clin North Am.*, 26 (2):421-35.
- Mas Coma S, Valero MA, Bargues MD (2009). Climate change effects on trematodiasis, with emphasis on zoonotic fascioliasis and schistosomiasis. *Vet. Parasitol.* **163**:264–280.
- Hotez PJ, Brindley PJ, Bethony JM, King CH, Pearce EJ and Jacobson J (2008). Helminth infections: the great neglected tropical diseases. *J Clin Invest.* **118** (4): 1311–1321.
- Lustigman S, Prichard RK, Gazzinelli A, Grant WN, Boatman BA, McCarthy JS, Basáñez MG.(2012). A research agenda for helminth diseases of humans: the problem of helminthiasis. *PLoS Negl Trop Dis*, 6 (4):e1582.
- Taylor MJ, Hoerauf A, Bockarie M. (2010). Lymphatic filariasis and onchocerciasis. *Lancet.* **376** (9747):1175-85.