



## CU NAME

### *CU characterization:*

#### *CU name:*

Medical Helminthology

#### *Scientific area acronym:*

MH

#### *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 – 125,5H

#### *Other teachers and respective teaching load in the CU:*

Isabel Larguinho Maurício – 95H

Professor to be hired/invited – 83H

#### *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 is caused by cestodes. Intestinal Cestodes. Tissue cestodes: hydatidosis and cysticercosis.
- C. Helminthiasis is 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 is 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 helminths infections. I – Direct diagnosis methods. II - Immunological and molecular diagnosis methods.
- I.

**Evidence of the syllabus coherence with the CU intended learning outcomes:**

The syllabus includes a broad set of concepts that will encourage students to develop argumentative and reasoning skills, enabling them to acquire essential knowledge in Medical Helminthology. The coherence between the syllabus content and objectives is demonstrated in the following matrix:

1. A, B, C, D, E,
2. A, B, C, D, E,
3. A, B, C, D, E,
4. C
5. A, B, C, D, E,
6. F, H
7. G, H

**Teaching/learning methodologies articulated with pedagogical model:**

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)



**Assessment:**

Student assessment will be based on the following elements:

- A theoretical and practical exam.
- Two theoretical and two practical assessments. The average of the theoretical and practical exams must be equal to or greater than 9.5. If the average of the theoretical or practical component is equal to or greater than 9.5, but one of the exams is below 8, the student may have an oral assessment.
- If the teacher has doubts about the student's final grade, the student may be subject to an oral exam.
- The final grade will be distributed as follows: 5% continuous assessment; 20% seminars; 25% practical exam; 50% theoretical exam.

**Evidence of the teaching methodologies coherence with the CU intended learning outcomes:**

The teaching methodology aims to provide students with knowledge acquisition through an active and dynamic approach, in which the skills developed will be complemented by individual work. In this context, the Medical Helminthology course includes contact hours distributed among primarily expository theoretical classes with encouraged discussion. The theoretical-practical classes will be preferably expository and interactive, while laboratory sessions will be both demonstrative and hands-on. Group seminars will be held on topics covered in the course, where each group will give a short presentation followed by discussion, with emphasis on the ability to present and interpret results. The skills acquired will enable students to develop a critical attitude and scientific rigor.

**References for consultation / mandatory existence:**

**Livros**

- Cook C.G., Zumla A.I. (2008). *Manson's Tropical Diseases*, 22<sup>a</sup> Ed. Elsevier Science, UK: 1800 pp.
- Magill AG, Ryan ET, Solomon T, Hill DR (2012). *Hunter's Tropical Medicine and Emerging Infectious Disease*. Elsevier Inc., 1111 pp.

**Artigos**

- 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.



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