



GLOBAL OUTLOOK OF PARASITIC DISEASES

CU characterization:

CU name:

Global Outlook of Parasitic Diseases

Scientific area acronym:

CB-P

Duration:

Semiannual

Working hours:

112

Contact hours:

38

ECTS:

N

Observations:

Specific from Parasitology specialty

Teacher in charge and respective teaching load in the CU:

António Paulo Gouveia de Almeida, 7h (T, OT, S)

Other teachers and respective teaching load in the CU:

Ana Paula Arez, 7h (T, OT, S)

Carla A. Sousa, 7h (T, OT, S)

Fátima Nogueira, 7h (T, OT, S)

Gabriela Santos-Gomes, 7h (T, OT, S)

Isabel Maurício, 7h (T, OT, S)

João Pinto, 7h (T, OT, S)

Manuela Calado, 7h (T, OT, S)

Sofia Cortes, 7h (T, OT, S)

Invited teacher, 7h (T, OT, S)

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

At the end of this curricular or teaching unit, the students should be able to:



1. describe the importance of Medical Parasitology and vector-borne diseases in International Health, to know the main groups of parasites, vectors and intermediate hosts.
2. Know the latest developments in the field of medical parasitology, in line with the most current trends in the area, tailored to the needs of the student, as well as the general and specific objectives of their doctoral project.
3. In particular, students should know and be able to discuss issues such as:
 - 3.1- main challenges and topical issues in the investigation, diagnosis and treatment of parasitic diseases;
 - 3.2- parasite-host interaction and susceptibility / resistance factors;
 - 3.3- importance of phylogenomics in parasitology and vector populations;
 - 3.4- the problem of pharmaco and insecticide resistance in the control of parasitic and/or vector-borne diseases;
 - 3.6- emerging zoonoses: a One Health approach.
4. Consult the main sources of information in Medical Parasitology, acquiring competence and autonomy in the selection of relevant information, its critical analysis, discussion and exposition.

Syllabus:

1. Medical Parasitology and vector-borne diseases in International Health, the main groups of parasites, vectors and intermediate hosts.
2. most recent developments in the field of medical parasitology, tailored to the needs of the student and the general and specific objectives of their PhD project.
3. In particular:
 - 3.1. the main challenges and current topics in the investigation, diagnosis and therapy of parasitic diseases;
 - 3.2. parasite-host interaction and susceptibility / resistance factors;
 - 3.3. phylogenomics in parasitology and vector populations;
 - 3.4. insecticide resistance in the fight against vector-borne diseases;
 - 3.5. pharmaco-resistance to antiparasitic drugs, namely antimalarials;
 - 3.6. importance of the perceptions of the population in the prevention and control of the diseases transmitted by vectors;
4. Main sources of information in Medical Parasitology, acquisition of competences in the selection of relevant information, its critical analysis, discussion and exposition.

Teaching/learning methodologies articulated with pedagogical model:

Lectures T (20h) keynote lectures with interaction with students stimulating the discussion, and serving as guide for autonomous student's work in the subject addressed or their specialization;
OT (20h) for the monitoring of bibliographical research, scientific articles or other sources, intended for an essay or practical work of analysing the data provided.



Assessment:

- Continuous evaluation, students' participation in the classroom discussions will be assessed, as well as the ongoing complementary tests and exercises for each lecture; it is necessary to have evaluation in each theme; weight in final grade 20%.
- Written assignment, essay or data processing / analysis, focusing on the current lines of research (2000 ± 200 words), referring to the subjects provided by the teachers in the respective lectures. Each student must carry out one (1) written assignment, at his / her choice according to the objectives of his / her thesis. (weight in final mark 60%)
- Seminar presentation of the same work the student has prepared (S = 4 h). (weight in final mark 20%)

Final classification between 0 and 20 points (minimum mark of 10 for approval).

References for consultation / mandatory existence:

- Alum A, Rubino JR, Ijaz MK. 2010. The global war against intestinal parasites--should we use a holistic approach? *Int J Infect Dis.* 14(9):e732-8.
- Basu M K, Ray M. 2005. Macrophage and Leishmania: An Unacceptable Coexistence. *Critical Reviews in Microbiology*, 31:145–154, Beaty B.J. & Marquardt W.C. 1996. The biology of disease vectors. University Press of Colorado, 632 pp.
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- Bueno-Marí R, Almeida APG and Navarro JC (2015) Editorial: Emerging zoonoses: eco-epidemiology, involved mechanisms, and public health implications. *Front. Public Health* 3:157. doi: 10.3389/fpubh.2015.00157).
- Cook G. C., Zumla, A. I. 2003. *Manson's Tropical Diseases*, 21ª edição. London, Elsevier Science, WB Saunders, London, UK, 1864 pp.
- Eziefula AC, Brown M. 2008. Intestinal nematodes: disease burden, deworming and the potential importance of co-infection. *Curr Opin Infect Dis.* 21(5):516-22.
- Fiddock, D A, Richard T Eastman, Stephen Ward and Steven R Meshnick 2008. Resistance highlights in antimalarial drug resistance and chemotherapy research. A Review, *Trends in Parasitology* Vol 24 n. 12
- Garcia CR, de Azevedo MF, Wunderlich G, Budu A, Young JA, Bannister L. 2008. Plasmodium in the postgenomic era: new insights into the molecular cell biology of malaria parasites. *Int Rev Cell Mol Biol.*;266:85-156.
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- Gryseels B., Polman, K., Clerinx J. and Kestens L. 2006. Human schistosomiasis. *The Lancet*, 368: 1106-1118.
- Mersha TT, Mekonnen Wolde B, Shumuye NA, Hailu AB, Mohammed AH, et al. (2021) Prioritization of neglected tropical zoonotic diseases: A one health perspective from Tigray region, Northern Ethiopia. *PLOS ONE* 16(7): e0254071. <https://doi.org/10.1371/journal.pone.0254071>.
- Petters, W and Pasvol, G. 2007. *Atlas of Tropical Medicine and Parasitology*. 6th Edition (Elsevier).



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- Steppek G, Buttle DJ, Duce IR, Behnke JM. 2006. Human gastrointestinal nematode infections: are new control methods required? *Int J Exp Pathol.* 87(5):325-41.
- Taylor M.J. Hoerauf A, Bockarie M. 2010. Lymphatic filariasis and onchocerciasis. *Lancet.* 376:1175-85.
- Torina A, Sole M, Reale S, Vitale F, Caracappa S. 2008. Use of Phlebotomine sand flies as indicator of Leishmania prevalence in an endemic area. *Animal Biodiversity and Emerging Diseases Ann. N.Y. Acad. Sci.*, 1149: 355-357.
- Wongsrichanalai C, Barcus MJ, Muth S, Sutamihardja A, Wernsdorfer WH. 2007. A review of malaria diagnostic tools: microscopy and rapid diagnostic test (RDT). *Am J Trop Med Hyg.*;77(6 Suppl):119-27. Review. PubMed PMID: 18165483.