



## ENTOMOLOGICAL TECHNIQUES IN EPIDEMIOLOGICAL ASSESSMENT

### *CU characterization:*

**CU name:**

Entomological Techniques in Epidemiological Assessment

**Scientific area acronym:**

EM

**Duration:**

Semiannual

**Working hours:**

58

**Contact hours:**

30.8

**ECTS:**

2

**Observations:**

Optional CU

### *Teacher in charge and respective teaching load in the CU:*

Luis Filipe Lopes - 30h (24h presencial; 6h não-presencial - coordenação e avaliação)

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

Paulo Almeida - 19h

Maria Teresa Novo - 20h

Carla Sousa - 12h

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

At the end of this module, students should be able to:

1. Define the objectives of a culicideological screening and the respective field work aimed at capturing mosquitoes;
2. Select mosquito capture techniques (adult and immature forms);
3. Choose methods of preserving mosquitoes for transport to the laboratory;



## ENTOMOLOGICAL TECHNIQUES IN EPIDEMIOLOGICAL ASSESSMENT

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

4. Plan and prepare the logistics for a field trip;
5. Carry out the field trip, using the selected mosquito capture techniques;
6. Process the captured material in order to identify it;
7. Morphologically identify the captured mosquitoes;
8. Process the material according to the various screening purposes;
9. Organize, process and analyze the obtained data;
10. Critically discuss the results obtained, the methodologies used and propose adaptations or improvements.

*Syllabus:*

- I. Screening of mosquito populations: its objectives and planning of the respective field work;
- II. Adequacy of different collection methods for adult and/or immature mosquitoes. Advantages, disadvantages and limitations. Their selection;
- III. Preservation methods for captured specimens, for their transport to the laboratory, in accordance with the screening objectives;
- IV. Planning and logistics for the field – collect and preserve collected specimens;
- V. Execution of the field trip;
- VI. Processing of captured material- sorting and preparation for long-term preservation;
- VII. Morphological identification of the collected specimens;
- VIII. Processing of the material in accordance with the other screening purposes;
- IX. Prepare a database with compiled information from collections and collected specimens;
- X. Statistical analysis;
- XI. Critical discussion of the results obtained, the methodologies used and proposals for eventual corrections.



## ENTOMOLOGICAL TECHNIQUES IN EPIDEMIOLOGICAL ASSESSMENT

### *Teaching methodologies (including assessment):*

- theoretical classes (3h)
- fieldwork (7h)
- laboratory practical classes (12h)
- tutorial guidance (5h)
- autonomous work (32h).

1. Continuous assessment based on presence and active participation in classes and fieldwork - 50%.
2. Evaluation of a written report with around 2000 words (except graphics and bibliography) - 50%.

### *References for consultation / mandatory existence:*

- Barker, C. M., & Reisen, W. K. Christopher M. Barker, William K. Reisen. Chapter 4 - Epidemiology of Vector-Borne Diseases. In: Gary R. Mullen, Lance A. Durden (Eds.). Medical and Veterinary Entomology (Third Edition). Academic Press, 2019 (pp. 33–49).
- Gillies, M. T. 1988. Anopheline mosquitoes: vector behaviour and bionomics. Malaria, principles and (Wernsdorfer W.H. & McGregor, I. eds., pp. 453-485). Churchill practice of Malariology Livingstone Inc., New York, USA.
- Molineaux, L., Muir, D. A., Spencer, H.C. & Wernsdorfer, W. H. (1988). The epidemiology of malaria and its measurement. Malaria, principles and practice of Malariology. (Wernsdorfer W.H. & McGregor, I. eds., pp. 999-1090). Churchill Livingstone Inc., New York, USA.
- Reiter, P. & Gubler, D. J. (1997). Surveillance and control of urban dengue vectors. Dengue and Dengue Hemorrhagic Fever (Gubler, D.J. & Kuno, G. eds., pp. 425-462). CAB International, Wallingford, UK.
- Ribeiro, H. & Ramos, H.C. (1999). European Mosquito Bulletin Service, M.W. (1993). Mosquitoes (Culicidae) in Medical Insects and Arachnids. (Lane, R.P. & Crosskey, R.W. eds., pp. 120-240) Chapman & Hall, UK.
- Service, M.W. (1999). Mosquito Ecology: Field sampling methods. Chapman & Hall, London, UK.