

### INTRODUCTION TO MEDICAL MYCOLOGY

CU characterization:

CU name: Introduction to Medical Mycology

Scientific area acronym: MM (Medical Mycology)

Duration: Semiannual

*Working hours:* 56

*Contact hours:* 16

*ECTS:* 2

**Observations:** 

*Teacher in charge and respective teaching load in the CU:* Liliana Rodrigues – 16 hours

Other teachers and respective teaching load in the CU: N/A

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

At the end of the Curricular Unit, students should:

1. Understand the classification and evolution of fungi, the importance of these organisms as disease causative agents and the strategies and difficulties associated with their treatment.

2. Demonstrate how to perform laboratory diagnosis of the main fungal infections.

3. Critically discuss the advantages and limitations of laboratory diagnosis strategies currently available in medical mycology.

### Syllabus:

Theoretical contents:

1. Importance of fungi in Nature, in the food and pharmaceutical industry, and as disease causative agents in plants and animals.



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2. Taxonomy and nomenclature of fungi. Fungal physiology, metabolism and cell structure. The human mycobiome.

3. Brief history of medical mycology. Epidemiology, pathogenesis and immunology of fungal infections. Clinically relevant fungi. Strictly superficial, cutaneous, subcutaneous and systemic mycoses. Opportunistic mycoses.

4. Biosafety and quality control in a medical mycology laboratory. Collection and processing of biological samples. Microscopy and culture of fungal organisms. Histopathological, radiological and serological methods for diagnosis of fungal infections.

5. Brief introduction to molecular methods in laboratory mycological diagnosis. Practical contents:

1. Identification of macroscopic and microscopic characteristics of filamentous fungi and yeasts.

2. Determination of susceptibility to antifungal agents.

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

The syllabus of the Curricular Unit Introduction to Medical Mycology was developed so that students acquire knowledge related to the importance of fungi, epidemiology, microbiological characteristics, laboratory diagnosis and treatment of fungal infections. These contents will be taught in theoretical, theoretical-practical and, later, practical classes where students will have the opportunity to use and apply the concepts learned in the execution of various procedures used in laboratory diagnosis in Medical Mycology, thus consolidating their experience of learning.

### Teaching methodologies (including assessment):

The teaching methodologies consist of theoretical classes taught using an expository method, encouraging interaction and dialogue with students. The concepts learned in theoretical and theoretical-practical classes will be applied in practical classes, where students should work individually or in group in the identification of macro and microscopic morphological characteristics, culture of fungal organisms and antifungal susceptibility test.

Students with at least 2/3 of attendance will be evaluated by a written exam with multiplechoice questions about the contents of theoretical, theoretical-practical and practical classes (100% of the final evaluation). Students with a minimum evaluation of 9.5 values (evaluation scale between 0 and 20 values) will be approved.

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

Theoretical presentation classes aim to teach the main concepts related to Medical Mycology: importance of fungi, epidemiology, microbiological characteristics, laboratory diagnosis and treatment of fungal infections. These theoretical contents are taught through an expository method with an incentive to student participation so that they know and understand the topics taught (Learning Objectives 1-3). In order to ensure the alignment of teaching methodologies with learning objectives 2 and 3, practical laboratory classes will be taught, in which students perform and acquire experience in the techniques used in the laboratory diagnosis of fungal infections, consolidating their learning experience.



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*References for consultation / mandatory existence:* 

- BARROSO H, MELIÇO-SILVESTRE A, TAVEIRA N (Eds.) (2014). Microbiologia Médica (vol. 2). Lidel, Lisboa.
- KAUFFMAN CA, PAPPAS PG, SOBEL JD, DISMUKES WE (Eds.) (2011). Essentials of Clinical Mycology. Springer-Verlag, New York.
- KIBBLER CC, BARTON R, GOW NAR, HOWELL S, MACCALLUM DM, MANUEL RJ (Eds.) (2017). Oxford Textbook of Medical Mycology. OUP Oxford, Oxford.
- REISS E, SHADOMY HJ, LYON GM (Eds.) (2012). Fundamental Medical Mycology. Wiley-Blackwell, New Jersey.