



**UFPR/Curitiba- INTERNATIONAL COURSE OF MEDICAL MYCOLOGY 2023**

Morning sessions: 8.30-12.00; afternoon sessions: 14.00-18.00.

**Lectures (Auditorium Mauricio Bissoli); Practices (laboratories); Campus Jardim Botânico/UFPR).**

**COURSE DIRECTORS AND INSTRUCTION:**

- Prof. Dr. Sybren de Hoog - Center of Expertise in Mycology of Radboudumc / CWZ, Nijmegen, The Netherlands.
- Dr. Roxana Vitale - Ramos Mejia Hospital, Mycology Branch, Buenos Aires, Argentina.
- Prof. Dr. Paul Verweij - Center of Expertise in Mycology of Radboudumc / CWZ, Nijmegen, The Netherlands.
- Prof. Dr. Jacques Meis - Center of Expertise in Mycology of Radboudumc / CWZ, Nijmegen, The Netherlands.
- Dr. Flavio Queiroz-Telles – Department of Public Health, UFPR and INFOCUS LATAM
- Dr. Amir S. Seyedmousavi - National Institute of Allergy and Infectious Diseases, Bethesda, USA
- Dr. Vania A. Vicente - CMRP/Taxonline, UFPR, Curitiba, Brazil.

**Support material:** Electronic version of the Atlas of Clinical Fungi (G.S. de Hoog et al., Edition 4);

**Contact Address:** *Campus Jardim Botânico/UFPR* - Av. Prefeito Lothário Meissner, 632 , Curitiba - PR, CEP: 80210-170. Phone: (41) 3360-5000 – E mail: [colegaocmrp@gmail.com](mailto:colegaocmrp@gmail.com);

**Registrations:** via *online* link: [shorturl.at/bejM5](http://shorturl.at/bejM5);

**Vacancies and Fees:** (1) Theoretical Remote Module (Online) Fees: \$70 dollars – for No ISHAM members \$15 dollars - ISHAM member. (2) Theoretical face-to-face module (vacancies- 140\*) Fees: US\$100 dollars - for no ISHAM members; US\$ 40 dollars – ISHAM members; US\$10 dollars - Younger ISHAM members. (3) Theoretical + Practical module (vacancies 60\*\*) Fees: US\$ 140 dollars - for No ISHAM members, US\$ 60 dollars - ISHAM member, US\$30 dollars - Younger ISHAM member.\*Theoretical face-to-face module vacancies 20 undergraduate students; 60 graduate students and 60 technicians and 60 professors from the associated institutions. \*\*With a selection based on academic output.

**Duration:** 60 hours/number of credits: 4 considering Theoretical and Practical modules.

**INVITED SPEAKERS**

- **HC/UFPR**- Sergio Almeida - CV: <http://lattes.cnpq.br/7654951924169912>
- **UNESP/Botucatu** - Eduardo Bagagli - CV: <http://lattes.cnpq.br/3320327570429539>
- **UnB** - Anamélia Bocca - CV: <http://lattes.cnpq.br/7426592963217111>
- **HC/UFPR**-Flávio Queiroz Telles - CV: <http://lattes.cnpq.br/0111936868262951>
- **Instituto Adolfo Lutz** - Marcia S.C.Melhem - CV: <http://lattes.cnpq.br/2132609720093419>
- **UFPR/Biochemistry Dept.** - Emanuel M. Souza – CV: <http://lattes.cnpq.br/7436135069574190>
- **UNIFESP** - Arnaldo L. Colombo - CV: <http://lattes.cnpq.br/4512261018429681>
- **HC/UFPR** - Marisol D. Muro - CV: <http://lattes.cnpq.br/9690678154653832>
- **HC/UFPR** - Sonia Raboni - CV: <http://lattes.cnpq.br/1117884700210763>
- **UFPR/Basic Pathology Dept.** - Renata R. Gomes - CV: <http://lattes.cnpq.br/4672669767697565>
- **Hospital Universitário Osvaldo Cruz/HUOC** - Filipe Prohaska Batista, - CV: <http://lattes.cnpq.br/6474513941865537>
- **Instituto D'Or de Pesquisa e Ensino/IDOR** - Daniel W. C. L. Santos - CV: <http://lattes.cnpq.br/9535568373737991>
- **Center of Experimental and Molecular Medicine/AMC** - Leandro F. Moreno - CV: <http://lattes.cnpq.br/3120240292844089>
- **UFPR/Bioinformatics Dept.** - Mauro A. A. Castro - CV: <http://lattes.cnpq.br/6484877487662355>
- **Medical Mycology Lab./UEM**; Dr. Terezinha I. E. Svidzinski –CV <http://lattes.cnpq.br/9325751411452030>
- **HC/UFPR** - Francelise Bridi Cavassin – CV: <http://lattes.cnpq.br/8238999725547723>
- **HC/UFPR** - Regielly C. R. Cogniali – CV: <http://lattes.cnpq.br/3504797067064893>
- **CMRP/Taxonline/UFPR** – Maria E. Grisolia – CV: <http://lattes.cnpq.br/5857201821285682>
- **UFPR/PPGMPP** – Gabriela X. Schneider – CV: <http://lattes.cnpq.br/1911503557488733>
- **CMRP/Taxonline** – Emanuel L Razzolini – CV: <http://lattes.cnpq.br/2133664065574688>
- **PPGEBB/UFPR** – Bruna Jacomel F S Lima – CV: <http://lattes.cnpq.br/1882480602815005>
- **National Institute of Allergy and Infectious Diseases, Bethesda/USA** - Amir S. Seyedmousavi:  
ORCID: <https://orcid.org/0000-0002-6194-7447>
- **People's Hospital of Suzhou National New & Hi-Tech Industrial/China** – Shuwen Deng – ORCID: <https://orcid.org/0000-0002-9256-3868>
- **Biochemistry, Molecular Biology and Biophysics Dept., University of Minnesota/USA** - Cláudia Schmidt-Dannert -ORCID: <https://orcid.org/0000-0002-0559-3656>
- **Ramos Mejia Hospital, Mycology Branch, Buenos Aires, Argentina** – Roxana G. Vitale - ORCID- <https://orcid.org/0000-0001-8425-0856>

**TECHNICAL AND ADMINISTRATIVE ASSISTANCE:**

- Prof. Dra. Izabella C. R. dos S. Weiss, UFPR, Curitiba, Brazil;
- Prof. Dra Marisol D. Muro; Regielly C. R. Cogniali and Adriana de F. Gabriel (HC/UFPR);
- Prof. Dra Renata R. Gomes; Bruno P. R. Lustosa; Juliana Thaler, Géssica S. de Deus; Dra. Flávia de F. Costa;
- Prof. Dra. Lorena C. Peña and Emanuel L. Razzolini (CMRP/Taxonline – UFPR);
- Prof. Dr. Wesley M. de Souza UFPR, Curitiba, Brazi



**ATLAS** of  
CLINICAL FUNGI

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HUMAN AND ANIMAL MYCOLOGY



**Infocus**



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**COURSE PROGRAM – from Thursday March 1<sup>st</sup> /2023 to Saturday 10<sup>th</sup> /2023**

**Wednesday – March 1<sup>st</sup>, 2023**

**Lectures: Auditorium Mauricio Bissoli/ Campus Botânico**

**14.00-14.15:** Vania Aparecida Vicente - opening ceremony **INTERNATIONAL COURSE OF MEDICAL MYCOLOGY 2023**

**14.15-14.30:** Sybren de Hoog - **Overview of the course.**

**14.30-15.15:** Sybren de Hoog - General taxonomy; sexual life cycles.

**15.15-16.00:** Flavio Queiroz-Telles - Neglected endemic mycoses in the clinical practice.

**16.00-16.15:** Break

**16.15-17.00:** Jacques F. Meis – World Emergence of mycoses casual agents

**17.00-17.45:** Amir S. Seyedmousavi - Neglected fungal zoonoses: hidden threats to man and animals

**17.45-19.00:** Happy hour

**Thursday - March 2<sup>nd</sup>, 2023**

**Lectures: Auditorium Mauricio Bissoli/ Campus Botânico**

**8.30-10.00:** Sybren de Hoog - Pleomorphism and nomenclature; biosafety classifications; introduction to microscopical methods; Introduction to the electronic Atlas of Clinical Fungi. The ultimate bench tool diagnostics 4<sup>th</sup> edition <https://webshop.atlasclinicalfungi.org/>

**10.00-10.15:** Break

**10.15-12.00:** Sybren de Hoog - Taxonomy of the zygomycetes and infections by zygomycetes.

**12.00-14.00:** Lunch

**Practice: Lab. Pharmacy Dept. Part I**

**14.00-16.00:** Identification of Zygomycetes down to genus level; Microscopy Zygomycetes (*Lichtheimia corymbifera*, *Basidiobolus ranarum*, *Cunninghamella bertholletiae*, *Mucor hiemalis*, *Rhizopus oryzae*)

**16.00-16.15:** Break

**Practice: Lab. Pharmacy Dept. Part II**

**16.15-18.00 Practice:** Identification of Zygomycetes down to genus level; Microscopy Zygomycetes (*Lichtheimia corymbifera*, *Basidiobolus ranarum*, *Cunninghamella bertholletiae*, *Mucor hiemalis*, *Rhizopus oryzae*)

**Friday - March 3<sup>rd</sup>, 2023**

**Lectures: Auditorium Mauricio Bissoli/ Campus Botânico**

**8.30-9.15:** Sybren de Hoog - Introduction to Ascomycota; Conidiogenesis in Hyphomycetes and Coelomycetes.

**9.15-10.30:** Sybren de Hoog - Eurotiales: Taxonomy of *Aspergillus*, *Penicillium*, *Talaromyces*, and relatives.

**10.00-10.15:** Break

**10.15-11.00:** Flávio Queiroz-Telles & Regielly Cogniali - Aspergillosis: Mold Infections in immunocompromised patients: Focus in Aspergillosis, Fusariosis and Mucormycosis

**11.00-11.45:** Sonia Raboni - SARS-CoV-2; Influenza and human respiratory infections associated to fungal opportunistic infection: a new Challenge. Department of Public Health and Hospital de Clínicas, UFPR

**12.00-14.00:** Lunch

**Practice: Lab. Pharmacy Dept.**

**14.00-16.00:** Emanuel Razzolini, Flavia Costa, Renata Gomes and Vania Vicente - Identification based on DNA: DNA extraction, PCR and Sequencing.

**16.00-16.15:** Break

**16.15-18.00:** Microscopy of Eurotiales (*Aspergillus flavus*, *Aspergillus fumigatus*, *Aspergillus niger*, *Aspergillus terreus*, *Aspergillus nidulans* (*Emericella nidulans*), *Paecilomyces variotii*, *Talaromyces marneffeii*, *Aspergillus lentulus*)

**20:00:** Dinner

**Saturday – March 4<sup>th</sup>, 2023**

**Molecular clinical mycology: Fungal Genomic analysis - Sybren de Hoog, Vania Vicente and Emanuel**

**Lectures: Auditorium Mauricio Bissoli/ Campus Botânico**

**08.30- 9.15:** Sybren de Hoog - Molecular clinical mycology and Genomic sequencing of filamentous and yeast-like fungi.

**9.15-10.00** Leandro F Moreno - Comparative genomic analysis and Mitochondrial genomes; Genome expansions and contractions based on functional domains and Gene prediction and annotation

**10.00-10.15:** Break

**10.15-11.00:** Mauro Castro - Transcriptome as a tool in fungal study.



Sociedade  
Brasileira de  
Infectologia



**11.00-11.45:** Emanuel M. de Souza - New methods of diagnosis in fungi: diagnosis MALDI-TOF.

**11.45-12.30:** Cláudia Schmidt-Dannert - Structural and functional comparative genomics analysis in the evaluation of biosynthetic genes of fungal species with antagonistic and pharmaceutical potential.

**12.30-13.30:** Lunch

**13.30- 14.15:** Maria Eduarda Grisolia – Metagenomic on Clinical Mycosis

**14.15-14.30:** Break

**14.30 – 16.30: Practice - Analyzes exercises via web**

- Genomic DNA extraction, sequencing and assembly
- Comparative genomic analysis
- Mitochondrial genomes
- Orthologous gene comparison
- Genome expansions and contractions based on functional domains
- Prediction of genes related to pathogenicity

**Monday- March 6<sup>th</sup>, 2023**

**Lectures: Auditorium Mauricio Bissoli/Campus Botânico**

**8.30-10.00:** Roxana Vitale and Sybren de Hoog - Taxonomy, identification, and clinical aspects of dermatophytes.

**10.00-10.15:** Break

**Practice Lab. Pharmacy Dept.**

**10.15-12.00:** Microscopy of dermatophytes (*Epidermophyton floccosum*, *Microsporum canis*, *Trichophyton rubrum*, *Trichophyton schoenleinii*, *Trichophyton tonsurans*, *Trichophyton verrucosum*, *Trichophyton erinacei*). Microscopy non-dermatophytic skin infections.

**12.00- 13:30:** Lunch

**Lectures: Auditorium Mauricio Bissoli/Campus Botânico**

**13.30-14.15:** Francilise Bridi Cavasin - Systemic Antifungals drugs in the clinical practice

**14.15-15.00:** Jacques F. Meis: Genetic and Phenotypic Characterization of in-Host Developed Azole-Resistant *Aspergillus* Isolates

**15.00-15.45:** Sybren de Hoog - Taxonomy of yeast fungi.

**15.45-16.00:** Break

**16.00-16.45:** Arnaldo L. Colombo - *Candida* genus: candidiasis and Invasive candidiasis: Epidemiology, diagnosis and clinical manifestations and therapeutic approach.

**16.45-17.30:** Shuwen Deng: Antifungal susceptibility testing: summary of laboratory procedures.

**20.00:** Dinner

**Tuesday - March 7<sup>th</sup>, 2023**

**Lectures: Auditorium Mauricio Bissoli/ Campus Botânico**

**8.30-9.15:** Sybren de Hoog - Introduction to Onygenales; practical demonstration of identification keys.

**9.15-10.00:** Eduardo Bagagli - Systemic infections: Histoplasmosis, Coccidioidomycosis, Paracoccidioidomycoses, Blastomycosis and Epidemiology of the endemic systemic mycoses in Latin America

**10.00-10.15:** Break

**10.15-11.00:** Flávio Queiroz Telles – Paracoccidioidomycosis yesterday and today

**11.00-11.45:** Sergio Almeida - Fungal infections of the Central Nervous System: Focus on Diagnosis

**12.00-14:00:** Lunch

**Practice: Lab. Pharmacy Dept.**

**14.00-16.00:** Histopathology and microscopy systemic infections (*Blastomyces dermatitidis*, *Histoplasma capsulatum*, *Emergomyces pasteurianus*, *Coccidioides immitis*, *C. posadasii*, *Paracoccidioides brasiliensis*).

**16.00-16.10:** Break

**Lectures: Auditorium Mauricio Bissoli/ Campus Botânico**

**16.10-16.55:** Gabriela X Schneider - Molecular tools in the diagnosis of mycoses: Specific primers; RCA, LAMP.

**16.55-17.15:** Break

**Practice Lab. Informatics**

**17.15-19.30:** Renata Gomes and Vania Vicente - Clinical cases: sequences analysis, identification of species and phylogenetic analysis.

**Wednesday - March 8<sup>th</sup>, 2023**

**Lectures: Auditorium Mauricio Bissoli/ Campus Botânico**

**8.30-9.15:** Marcia S. C. Melhem - Cryptococcosis: *Cryptococcus neoformans* and *C. gattii*

**9.15-10.00:** Anamélia Bocca - The intracellular life of *Cryptococcus neoformans*





10.00-10.15: Break

10.15-11.00: Daniel W. C. L. Santos - Invasive fungal infections in transplant and HIV patients

11.00-11.10: Break

11.10-13.10: Practice Lab. Pharmacy Dept.

- Microscopy of yeasts (*Candida albicans*, *C. dubliniensis*, *C. glabrata*, *C. parapsilosis*, *C. krusei*, *Clavispora lusitaniae*, *Cryptococcus neoformans*, *Geotrichum capitatum*, *Malassezia furfur*, *Pichia anomala*, *Saccharomyces cerevisiae*, *Sporobolomyces roseus*, *Trichosporon inkin*, *Yarrowia lipolytica*): Identification with chromogenic agars; physiology with API, gel electrophoresis, genotyping.

13.10- 14.30: Lunch

Lectures: Auditorium Mauricio Bissoli/ Campus Botânico

14.30-15.15: Sybren de Hoog - Ophiostomatales: *Sporothrix* species: Phylogeny Species delimitation, new markers and molecular epidemiology.

15.15-16.00: Sybren de Hoog - Microascales: *Scedosporium* and *Scopulariopsis*.

16.15-16.30: Break

16.30-17.15: Daniel W. C. L. Santos - Hypocreales: *Fusarium*, *Acremonium* and relatives.

17.15-18.45: Sybren de Hoog - Practical demonstration of identification keys.

20.00: Dinner

### Thursday - March 9<sup>th</sup>, 2023

Lectures: Auditorium Mauricio Bissoli/ Campus Botânico

8.30-9.15: Filipe Prohaska Batista - Immunology of fungal infections.

9.15-10.00: Anamélia Bocca - chronic infection development associated with innate recognition characteristics.

10.00-10.15: Break

10.15-11.00: Flavio Queiroz-Telles & Regielly Cogniali – Sporotrichosis: One Health Approach

11.00-11.10: Break

11.10-12.00: Sybren de Hoog - Black yeast and related opportunists, taxonomy and clinical aspects.

12.00- 13.30: Lunch

Lectures: Auditorium Mauricio Bissoli/ Campus Botânico

14.00-14.45: Anamélia Bocca: Pathogenicity and Growth Conditions Modulate *Fonsecaea* Extracellular Vesicles' Ability to Interact with Macrophages

14.45-15:30 Amir S. Seyedmousavi: Cold-adapted Yeasts: Biodiversity and Adaptation Strategies

15.30-15.45: Break

15.45 -17.30: Practice Lab. Pharmacy Dept.

- Microscopy of Ophiostomatales (*Sporothrix schenckii*, *S. brasiliensis*, *S. globosa*), Microascales (*Scedosporium*), Hypocreales (*Fusarium oxysporum*, *Acremonium kiliense*, *Trichoderma harzianum*).

### Friday - March 10<sup>th</sup>, 2023

Lectures: Auditorium Mauricio Bissoli/ Campus Botânico

8.30-9.15: Sybren de Hoog - Opportunistic filamentous fungi (Pleosporales: *Alternaria*, Dothideales: *Phoma*, Calosphaeriales: *Phaeoacremonium*; Basidiomycetes: *Coprinus*, *Schizophyllum*, *Tritirachium*).

9.15-10.00: Flavio Telles - Clinical aspects of mycetoma and mycetoma agents.

10.00-10.15: Break

10.15-11.15: Microscopy of black yeasts and related fungi (*Cladophialophora carrionii*, *Cladosporium cladosporioides*, *Exophiala dermatitidis*, *Exophiala jeanselmei*, *Fonsecaea monophora*, *Fonsecaea pedrosoi*, *Hortaea werneckii*, *Verruconis gallopavum*, *Phialophora (Cyphellophora) europaea*, *Phialophora verrucosa*).

12.15-16.30: Microscopy of Pleosporales and Coelomycetes (*Alternaria alternata*, *Curvularia geniculata*, *Bipolaris spicifera*)

12.300-13.30: Lunch

Practice Lab. Pharmacy Dept.

13:30-14.30: Mycetoma demonstration (*Neotestudina rosatii*, *Madurella mycetomatis*);

14.30-15.30: Microscopy of filamentous basidiomycetes: *Schizophyllum commune*

15.30-16.45: Break

17:00 - Final examination and closure of activities

18:00 – Close Section and Happy Hour