

MSc /POSTGRADUATE DIPLOMA IN MEDICAL MYCOLOGY

by DVD and web-based distance learning
Centre for Medical Microbiology



UCL



British Society for
Medical Mycology

MSc /POSTGRADUATE DIPLOMA IN MEDICAL MYCOLOGY

The MSc/ Postgraduate Diploma in Medical Mycology is designed to provide systematic training in the increasingly relevant subject of fungal infection.

There will be a particular focus on the practical elements of diagnosis, identification of pathogenic fungi and the application of molecular techniques. This programme is intended to provide graduates with the knowledge and skills for working and participating in a broad based mycology service.

Entry requirements

Prospective students should have a minimum of an honours degree (upper second-class) in Microbiology or other biomedical science (including Medicine).

It is a prerequisite of the programme that all students have regular access to a personal computer and the Internet and have acquired basic skills in their use. Please contact the Programme Administrator for further information and required minimum IT specifications.

How is the programme taught?

This programme comprises 9 modules (8 for the Diploma), which are taught through the use of DVDs and the Internet, although there is a strong practical element and the MSc includes a requirement to complete a project based on original research. Though the majority of the programme is delivered via distance learning, support is offered through a supervisory structure of local and UCL-based tutors. There are three practical courses that cover elements across the spectrum of the syllabus. The practical courses also offer the opportunity to meet other students and teachers on the programme.

Using the UCL virtual learning environment (Moodle) and DVDs we have created an interactive course which includes:

- DVD resource media containing structured videoed teaching from subject experts, intercut with audio visuals/slides and incorporating learning activities.
- Informal virtual discussion fora for interaction between students on course topics.
- A private email link to your personal tutor.
- A virtual library, with links to UCL's wide range of online journals and databases;
- Detailed personal feedback on each assignment from a module tutor who is aware of your professional background and priorities.

Interaction using Moodle does not occur in 'real time' - i.e. students are not required to log on simultaneously. We expect students to log on every few days to check their post-box and view the comments of their tutor and fellow students.

Aim of the Programme

The programme aims to enhance the knowledge, skills and experience of individuals working in the field of medical mycology via distance and reflective learning, a series of practical classes and, for the MSc, a research project.

The objectives of this course are to provide knowledge in all aspects of medical mycology including:

- The isolation and identification of fungal pathogens;
- fungal taxonomy;
- superficial and systemic fungal infection;
- diagnosis of fungal infection
- fungal pathogenicity;
- the basics of fungal genetics
- molecular methods for diagnosis, identification, taxonomy and strain typing;
- the epidemiology and changing spectrum of fungal disease;
- antifungal chemotherapy.

On completion of the programme we anticipate that you will be able to:

- access, understand and apply published research evidence as applied to the practice of medical mycology;
- develop, evaluate and maintain best laboratory practice within a diagnostic medical mycology service;
- develop the necessary skills to continue their own professional development.

Programme Structure and Award Offered

Completion of the programme will lead to the award of an MSc or Diploma in Medical Mycology (DipMedMyc). It will take a minimum of three years and a maximum of five years to complete for the MSc and a minimum of two years and a maximum of five years for the Diploma.

The programme consists of 9 modules for the MSc and 8 modules for the Diploma. The first seven of these are compulsory for both courses:

1. Introduction to the Principles and Practice of Medical Mycology
2. Mycoses
3. Therapy of Fungal Infections
4. Molecular Methods in Medical Mycology
- 5-7. Practical Sessions
8. Research Project and Dissertation (MSc module).
9. Research Methodology (MSc module)
10. Portfolio of Yeasts and Moulds Identification (Diploma module)

Module Outlines

1. Introduction to the Principles and Practice of Medical Mycology

This module provides a basic introduction to the principles of fungi and fungal infection. It introduces the concept of fungal taxonomy and identification, characteristics of fungal growth, fungal pathogenicity, and fungal infection and its diagnosis and treatment.

The Syllabus includes:

- Introduction to fungi and fungal taxonomy
- Introduction to fungal infection
- Characteristics of fungal growth
- Fungal pathogenicity and pre-disposing factors
- Changing spectrum of fungal infection
- Diagnosis of fungal infection:
 - Specimen collection, direct examination and culture
 - Serological diagnosis
 - Molecular diagnosis
 - Histological diagnosis
- Taxonomy and identification of fungal pathogens
- Laboratory safety and safe handling of specimens, preservation and storage of fungi
- Introduction to principles and practice of antifungal therapy.

2. Mycoses

This focuses individually on all aspects of the major and some less common mycoses.

The Syllabus includes:

- Dermatophytosis
- Other superficial infections
- Candidosis and other yeast infections
- Aspergillosis
- Cryptococcosis
- Zygomycosis
- Pneumocystis jiroveci pneumonia
- Hyalophomycosis
- Phaeohyphomycosis
- Dimorphic fungal infections
- Subcutaneous fungal infections.

3. Therapy of Fungal Infection

This module provides a broad understanding of the complex issues relating to antifungal chemotherapy.

The Syllabus includes:

- Potential targets for antifungal agents

- Antifungal agents' modes of action
 - Established
 - Developmental
- Antifungal agents in clinical practice
 - Established
 - Developmental
- Susceptibility testing
- Antifungal drug resistance
- Monitoring antifungal therapy
- Immunotherapy and surgery
- Critical appraisal of published studies.

4. Molecular Medical Mycology

The aim of this module is to offer an understanding of the principles and application of molecular methods in the field of medical mycology.

The Syllabus includes:

- Fungal genetics
- Theory of molecular methods in medical mycology
- Molecular methods in the diagnosis of fungal infection
- Molecular methods in taxonomy and for the identification of fungal pathogens.
- Strain typing techniques, sampling techniques and epidemiology.

5-7. Practical Courses

The practical courses build on the theoretical foundation provided by modules 1-4 and extend the principles into the laboratory practice of medical mycology. This will enable participants to develop confidence in handling routine laboratory mycology and to ultimately provide and take responsibility for a broad-based routine mycology service.

The Syllabus includes:

- Module 5: An intensive residential five-day practical course on all aspects of the diagnosis of fungal infection conducted by the Mycology Reference Laboratory, University of Leeds.
- Module 6: A three-day course on the identification of pathogenic fungi conducted by the National Mycology Reference Laboratory, University of Bristol.
- Module 7: Four-day bench-teaching sessions on molecular methods at the Mycology Reference Laboratory, University of Leeds.

8. Project Dissertation (MSc module)

This module will help students acquire the skills and confidence to undertake supervised original research in the field of medical mycology and to formulate their ideas and communicate their findings effectively through the production of a report. Students will undertake critical reading, appraisal and analysis of the research literature and be expected to produce a dissertation of approximately 10,000 words.

The project should be original work conducted in the student's base laboratory but involving close supervision by their tutor and a local supervisor.

9. Experimental design and research methods for medical mycology (MSc module)

Students are taught the principles of research methodology in medical mycology and are then required to undertake a selection of guided reading exercises.

Assessment

For all modules coursework will be submitted electronically and all final-year assessments will require attendance at UCL.

Course work:

- Diploma: Four 2000 word structured essays (one following each lecture-based module).

One portfolio of relevant fungi of up to 10,000 words

- MSc: Five 2000 word structured essays (this includes one additional essay following the research methodology module).

One 10,000 word dissertation based on original research

Practical Assessment:

- At the end of each practical course there will be an unseen practical examination

Final Assessment:

- Unseen written examination (MSc only)

Supervision

Supervision is provided by two individuals – a Supervisor approved by the British Society for Medical Mycology (BSMM) and a Tutor nominated by the Centre for Medical Microbiology, UCL.

Your BSMM Supervisor will be located within a reasonable travelling distance of your locality and will provide:

- specialist advice;
- tutorial support;
- review of self-evaluation exercises;
- project supervision.

Your UCL Tutor, located at University College London, will act as an Academic tutor and provide:

- non-specialist advice
- project advice.

In addition, we ask students to identify a person who works in their own department or institution who can act as their local mentor. The mentor should be someone with whom the student is in regular if not daily contact in the context of their normal working environment; for example,

Laboratory Manager, Senior BMS or Clinical Scientist, or Consultant Microbiologist. The responsibilities of the Mentor should include:

- general facilitation;
- non-specialist technical advice;
- possible facilitation of the student's project.

Further details of the mentoring role are available on request to the Programme Administrator.

The Course Team

University College London

Professor Chris Kibbler (Programme Director)

Dr Tim McHugh

Ms Anne Dickens (Programme Administrator)

BSMM

Professor Neil Gow

Dr Elizabeth Johnson

Dr Ruth Ashbee

Dr Rosemary Barnes

Dr Gillian Shankland

Dr Richard Barton

Fees

The fees for the MSc Programme are set by a central UCL committee and adjusted every year. Please contact the Programme Administrator for up-to-date information.

How to Apply

For further information and application forms please contact:

Anne Dickens, (Programme Administrator), Centre for Medical Microbiology, Royal Free and University College Medical School, Royal Free Campus, Rowland Hill Street, London NW3 2PF.

EMAIL a.dickens@medsch.ucl.ac.uk

TEL +44 (0)20 7794 0500; Ext 33546

Further details may be found at www.ucl.ac.uk/prosp-students/gradprospectus/biomedical-sciences/infection/taught or www.BSMM.org