



Postgraduate

MSc in Molecular Toxicology

Introduction

This taught master's programme is intended to provide training in the area of toxicology, which begins with an introduction to the basic concepts of how chemicals injure cells and how the resultant changes alter cellular function. The course will progress to more advanced areas related to the professional applications of the subject, such as regulatory, forensic, clinical and mechanistic toxicology.

Students will be taught by researchers with established international reputations with wide theoretical and applied experience in the various aspects of the subject area. The course leader is Professor M.D. Coleman, author of the successful text *Human Drug Metabolism: an introduction* (2006: Wiley International).

This qualification is intended to provide a suitable grounding for a professional career in the area of applied toxicology, as well as for further postgraduate study.

Outline of programme

The programme consists of 6 modules and a research project:

Drug Discovery

The aim of the module is to provide an overview of the drug discovery process from target to market, including basic pharmacological assessment lead discovery and optimization; combinatorial chemistry and high throughput synthesis; absorption, distribution, metabolism, elimination and clearance; including the role of toxicology in drug development.

Chemotherapy & Selective Toxicity

Covers the mechanisms of action of antibiotics and antineoplastic agents, with reference to molecular targets and the action of therapeutic agents and the molecular biology of the cancer cell.

Basic Toxicology

Covers fundamental concepts, such as change in structure leads to change in function. Also included are cellular mechanisms of toxicity and protection,

biotransformation's role in toxicity, major classes of toxic chemical agents, necrotic, immune and neoplastic toxicology.

Advanced Toxicology

The application of the basic concepts of toxicology to the various subject sub-areas, such as regulatory, forensic, mechanistic, occupational and clinical toxicology. Case histories and examples will be employed.

Research Methods 1:

Professional Development. The professional skills taught in this module will equip you with general and transferable talents with broad application both within and outside of academia.

Research Methods 2:

Communication Skills. Includes critical analysis of published work, reviewing papers; writing abstracts, writing research papers, preparing poster presentations and oral presentation skills.

Research Project

The research project involves experiential learning with the completion of a comprehensive literature review appropriate to the project. This involves the preparation of a detailed project plan, including study design, ethical and logistic considerations.

The research project that includes practical work may involve data production, processing and analysis. The preparation of a detailed final project report (mini-thesis) and the preparation of a poster is required to illustrate the main findings from the project to an audience of fellow students and staff.

Assessment

The course is assessed by a combination of coursework, examinations, practical work, oral and written presentations. The research project is assessed on the basis of a preliminary literature review, a project plan, the written project and a poster presentation.

Entry requirements

Potential students must hold at least a 2nd class honours degree in a biochemistry, biotechnology, biology, chemistry, chemical engineering, genetics, medicine, microbiology or a related fieldbased subject from a UK University, or when outside the UK a degree or qualification deemed to be at least of equivalent standing.

Students whose first language is not English must demonstrate a satisfactory command of written and spoken English.

For international students this is demonstrated by an IELTS score of 6.5 or higher overall, but with no score below a 6.0

There is no specific application deadline. Once the course becomes full, we cannot consider additional applicants. We recommend applicants to apply before the end of March 2009.

Fee & financial support

Please refer to our web site for the current fee and financial support information.

For further information please contact

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