LKCMedicine PhD Programme

Core Modules

- **MD9001 Epistemology and Ethics of Research (Semester starting in August)**
  This core module aims to introduce fundamental issues in the field of history and philosophy of science and practical ethics. It enables students to critically evaluate key arguments in these fields.

- **CE7412 Computational and Systems Biology (Semester starting in January)**
  This core module equips graduate students with advanced computational techniques that are necessary to resolve problems in computational and systems biology. Students gain knowledge in bio-sequence analysis, handling gene and protein expression data, and modelling biological networks. This module is an e-module.

Elective Modules (choose to read any two)

Semester starting in August

- **MD9103 Biological Imaging**
  This module provides students with a foundation in the basic physics of optics and optical microscopy, and introduces the wide variety of non-optical imaging modalities in use in modern laboratories. Students get acquainted with the most prominent modern imaging techniques currently in use, including NMR/MRI, PET and X-rays.

- **MD9104 Introduction to Neuroscience**
  This module provides a general introduction to neuroscience to students during the first year of their studies. Both those students who plan to specialise in neuroscience research in their PhD studies and those who are going to work in other areas are welcome to participate.

- **MD9105 Systematic Reviews and Evidence Synthesis**
This module introduces systematic reviews and evidence synthesis to students for the evaluation of clinical research. They will learn how to synthesise information and assess the strength of the evidence from research publications.

Semester starting in January

- **MD9101 Biostatistical Methods and Basic Epidemiology**
  This module provides students with a strong understanding of the basic principles and measures used in epidemiology. The course covers the fundamental concepts and statistics in epidemiology including important topics such as causality and disease surveillance. Real-world cases and data are used to illustrate key principles, concepts, and techniques.

- **MD9102 Bio-entrepreneurship**
  This module focuses on drug development from academia to final approval of a new drug entity.

- **CH7102 Cell Therapeutics Engineering**
  This module focuses on the principles and approaches of tissue engineering. Topics to be covered include the objectives and fundamentals of tissue engineering, cell and tissue properties, cell-ECM interactions, host reactions to tissue-engineered implants, cell-implant interactions, practical approaches and experimental techniques commonly used in tissue engineering, biomaterials and drug delivery.

- **BS7001 Molecular and Cell Biology**
  This module aims to ensure that students have a fundamental knowledge of molecular and cell biology. Topics covered include: molecular and cellular mechanisms, genomic manipulations, control of gene expression, molecular immunology, virology, cancer biology, and hereditary diseases.