

Course Title/Code: Working with Genes and Proteins (MMPH6011)

Department: School of Biomedical Sciences

Objective: To provide students with the basic understanding of the principles and latest developments/techniques in working with genes and proteins

Content:

- Chemical modification of proteins
- DNA sequencing technologies
- Gene expression analysis I
- Gene expression analysis II
- Epigenomics analysis
- Gene therapy: bioethics of molecular medicine
- Oncogenes and tumour suppressor genes
- Manipulation of large DNA fragment, large scale manipulation of genomes
- Physical characterization of proteins
- Preparation of nucleic acid samples: labelling nucleic acids: radioactive and non-radioactive approaches
- Protein-protein interaction
- Proteomics - Protein structure & function

Learning outcomes: On completion of the course, the students are expected to:

- use up to date knowledge of techniques for working with DNA and protein
- apply DNA labelling and sequencing technologies to design experiments for his/her research
- understand the design and application of technologies for genome modification
- understand and apply the technologies for gene expression analysis, epigenomics and protein characterization

Prerequisite: None

Duration: 1 semester; 2 hours/week; 24 contact hours

**Continuous assessment/
examination ratio:** 30% / 70%

**Examination method/
duration:** Written examination / 2 hours

Remarks: The contents taught in this course will enable the students to pass the radiobiological protection test set for applicants seeking designation as a radiation worker.

Also offered to RPg from other Faculties at HKU.