

LIFS 5070 : Workshops in Biosciences (Fall 2021)

Course Instructors :

Background: LIFS3120 *Exclusion:* NANO 5070

Prof. Joseph WONG (course director) : botin@ust.hk
Prof. Tom CHEUNG : tcheung@ust.hk
Prof. Hyokuen PARK : hkpark@ust.hk
Prof. Robert QI : qirz@ust.hk

Week 1 : Introduction to the course

Week 3 / 4 : Flow Cytometry Prof. Joseph WONG
The basics of flow cytometry will be discussed with internet resources. The application of flow cytometry and demonstration of simple sample preparation. A hands-on preparation of samples. Analysis of results and some special applications.

Week 5 / 6 / 7 : Florescence microscopy Prof. Hyokuen PARK
Fluorescence microscopy is one of the most powerful techniques in biology. In particular, immunolabeling is a biochemical process that enables the detection and localization of an antigen to a particular site within a cell, tissue, organ or organism. Antigens can be visualized using a combination of antigen-specific antibody as well as a means of detection. The immunolabeling process reveals information about a cell or its substructures. You will get hands-on experience of immunolabeling.

Week 8 / 9 : Genome analysis Prof. Tom CHEUNG
The bioinformatics section will cover common bioinformatic tools that are publicly available. The goal of this section is to provide skills set for students to perform simple data analysis on publicly available data and extract essential information from these datasets. A hands-on, interactive section will be conducted for the analysis of publicly available microarray data via a problem set. Also, students will acquire a basic understanding of new sequencing technologies, as well as tools for data analysis for this type of data.

Week 11 / 12 : Protein analysis by mass spectrometry Prof. Robert QI
(New section this year)
Biomass spectrometry is a powerful technology for the systematic analysis of proteins

expressed in cells. This section will introduce the principles and applications of biomass spectrometry in protein analysis. A hands-on session will allow students to learn sample preparation for mass spectrometry.