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## ***Laboratory safety***

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### **IMPORTANT NOTES TO STUDENTS**

Postgraduate Students engaged in laboratory works need to comprehend a broad range of safety related concepts. It is absolutely important for them to be familiar with safe working and basic emergency procedures while conducting laboratory activities that carry safety risks.

The courses offered are to ensure as much as reasonably practicable that students have, and contribute to a safe working environment. Further aim of the courses is to encourage students to be safety conscious so that the opportunity of accident and the severity should one happen can be minimized. The University and students have legal and moral duties to abide by safety rules, and offenders have to face grave consequences, including suspension of research activities, body injuries or even prosecutions by the authority.

### ***Safety Courses and Examinations***

Students who have been advised by their supervisors or departments to take safety courses (excluding the Animal Experimentation at CUHK) are required to **attend the course(s) and pass the corresponding examination(s) in their first year of study, starting from 2022-23 intake onwards.** Courses are offering via face-to-face or online in different dates for selection. Each examination is 45-minute in length, and students can select courses and examination dates that best suit their schedules.

The course and examination schedule is listed [here](#).

### ***Applying for Exemptions***

Students may apply for exemptions from certain safety courses and examinations by writing to the Director of University Safety. For example, it is not normally required for a chemist to attend and pass the biological safety or a robotics student to attend and pass in chemical safety. A reasonable approach will be taken in considering all exemption applications.

Summer safety training courses for undergraduate students are simplified versions of the proper safety courses to prepare students for their final year projects. These summer trainings are not eligible qualifications to apply for exemption from safety examination for postgraduate student.

### ***Further Information***

The CUHK safety policy, lab safety manual and training material are available in USO website :  
<https://useo.cuhk.edu.hk>.

Students are advised to consult their supervisors or departments (or the University Safety Office) to check if they need to take certain safety course.

## General Safety

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### Designed for

**ALL** research students doing laboratory, studio, workshop work.

It is **COMPULSORY** for the students who have been advised by their supervisors or departments to take General Safety, **to attend both Part A & B and pass the examination in their FIRST YEAR of STUDY<sup>1</sup>**.

### Objectives

- to assist students in understanding the CUHK laboratory safety policies, guidelines and emergency procedures
- to promote laboratory safety concepts to students and to encourage them to incorporate safety considerations in their laboratory works

### Structure

Part A: 1.5-hour illustrated presentation

Part B: 1.5-hour illustrated presentation

**Medium of Instruction:** English

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### Brief Description

#### Part A: Foundations of Laboratory Safety

- Overview of Safety Legislation & Institutional Policies: Introduction to Hong Kong's occupational safety regulations and The Chinese University of Hong Kong (CUHK)'s safety policies.
- Emergency Preparedness & Fire Safety: Key principles of fire safety, laboratory security protocols, and emergency response procedures.
- Risk Management: Systematic approaches to hazard identification, risk assessment, and implementation of control measures.
- Safety Information & Resources: Accessing and interpreting Safety Data Sheets (SDS) and other critical safety references.

#### Part B: Laboratory Safety Practices

- Core Laboratory Safety Principles: Essential guidelines for maintaining a safe laboratory environment.
- Personal Protective Equipment (PPE): Proper selection, use, and maintenance of PPE to mitigate workplace hazards.
- Pressure Hazard Management: Safe handling and control measures for pressurized systems and equipment.
- Equipment & Material Safety: Best practices for electrical safety, proper use of laboratory apparatus, and safe glassware handling.

*Remark:*

- 1) Read notes on p.2

## Chemical Safety

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### Designed for

**ALL** research students doing laboratory work.

It is **COMPULSORY** for the students who have been advised by their supervisors or departments to take Chemical Safety, **to attend both Part A & B and pass the examination in their FIRST YEAR of STUDY<sup>1</sup>**.

### Objectives

At the end of Part A, the participant should be able to:

- recognize the hazards in working with chemicals
- know about Hong Kong legislations related to chemicals
- dispose chemical waste safely and comply with legislation
- know how to deal with chemical spillage accidents

At the end of Part B, the participant should be able to:

- know about the ventilation system in laboratory
- use and select appropriate laboratory fume cupboards
- know how to safely store and handle different classes of chemicals
- use and handle compressed gas cylinders and carcinogens

### Structure

Part A: 2-hours illustrated presentation

Part B: 2-hours illustrated presentation

### Medium of Instruction

English

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### Brief Description

Part A:

- Introduction of chemical hazards and Hong Kong legislations on chemicals
- Chemical waste disposal handling and chemical spillage control procedures

Part B:

- Ventilation system in laboratory and laboratory fume cupboards
- Safe handling and storage of chemicals, compressed gas cylinders, carcinogens and cytotoxins in Animals
- Laboratory / Workshop Safety and Site Clearance Arrangement

*Remark:*

- 1) Read notes on p.2

## Biological Safety

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### Designed for

**ALL** research students performing procedures which may handle biological material or have associated biological hazard AND others who work in those laboratories.

It is **COMPULSORY** for the students who have been advised by their supervisors or departments to take Biological Safety, **to attend both Part A & B and pass the examination in their FIRST YEAR of STUDY<sup>1</sup>**.

### Objectives

- to enable students to develop a high level of awareness on biological hazards and knowledge on biological safety procedures.

### Structure

Part A: 2-hour illustrated presentation

Part B: 2-hour illustrated presentation

### Medium of Instruction

English

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### Brief Description

Part A:

- Basic Principle of Biological Safety
- Risk Group & Biosafety Level
- Biosafety Practices at levels 1 and 2
- Biohazards from Equipment and Techniques

Part B:

- Special topics: Biosafety Cabinet and Sterilization
- Biorisk assessment

*Remark:*

- 1) Read notes on p.2

## Use of Biological Safety Cabinets (Optional)

**Designed for**

**ALL** research students performing procedures which may have an associated biological hazard e.g. bacterial and virus OR which requires clean environment for cell cultures. Preference is given to students whose experience in the culture laboratory was less than 12 months.

## Objective

- to help students develop a high level of awareness on biological/chemical hazards while using the biological safety cabinet.

<b>Structure</b>	3-hour practice session on using Biological Safety Cabinets
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**Medium of Instruction** to be determined based on enrolment

## Brief Description

- Classification of biosafety cabinet
- Correct use of biosafety cabinet
- General maintenance
- Selection of biosafety cabinet
- Interactive demonstration and practices

Places in each group are strictly limited to 4. To register, please obtain a registration form from the speaker after the Biological Safety class. Please complete and return the form to CLEAR for processing. Registrations are entertained on first come first serve basis. There is no examination for this optional course.



## Ionizing Radiation

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### Designed for

**ALL** ionizing radiation users.

It is **COMPULSORY** for the students who have been advised by their supervisors or departments to take Ionizing Radiation, **to attend corresponding session and pass the examination in their FIRST YEAR of STUDY<sup>1</sup>**.

Students who use **unsealed radioactive sources**, e.g., Uranyl compounds for electronic microscope, H3, C14, S35, P32, P33, Fe55, I125, should take **Part A-I and Part B**; students who use **sealed radioactive sources and x-ray machines** should take **Part A-II and Part B**.

### Objectives

At the end of the session, the participant should be able to:

- know the safety procedures on using ionizing radiation (radioactive substances)
- understand the legal requirements in working with ionizing radiation
- know the safety procedures on using X-ray machines (*Part A-II only*)

<b>Structure</b>	Part A (I or II)	1.5-hour illustrated presentation
	Part B	1.5-hour illustrated presentation

<b>Medium of Instruction</b>	English
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### Brief Description

#### Part A-I      Unsealed Sources

- What is ionizing radiation and its hazards
- Units in radiation
- Principle and methods of protection
- Safety rules and University rules
- Techniques in handling unsealed sources (video)
- Rules on purchasing, using and transportation of radioactive sources
- Decontamination methods
- Waste disposal rules

## Part A-II      Sealed Sources & X-Ray

- What is ionizing radiation and its hazards
- Units in radiation
- Principle and methods of protection
- Safety rules and University rules
- Rules on purchasing, using and transportation of radioactive sources

## Part B

- Introduction to radiation monitoring
- Using portable radiation monitors
  - Monitors for radiation level and contamination
  - Interpretation of readings
  - Calibration
- Personal radiation monitoring device (TLD)
  - Introduction
  - Interpretation of readings
- Wipe test

*Remark:*

- 1) Read notes on p.2

## LASER Safety

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### Designed for

Experimentalists using of lasers and equipment with lasers.

It is **COMPULSORY** for the students who have been advised by their supervisors or departments to take LASER Safety, **to attend corresponding session and pass the examination in their FIRST YEAR of STUDY<sup>1</sup>**.

### Objective

- to introduce the hazards of lasers and the means of controlling the hazards.

**Structure** 1.5-hour lecture

**Medium of Instruction** English

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### Brief Description

- The classification of lasers
- The potential hazards associated with lasers
- Means for controlling the hazards
- Administrative aspects of the campus laser safety program

*Remark:*

- 1) Read notes on p.2

## **Animal Experimentation at CUHK**

Speaker

Dr FERNANDO Nimal Martin

Director, Laboratory Animal Services Centre

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### **Designed for**

All postgraduate students carrying out animal experimentation.

### **Objective**

- to give students an understanding about the ethics of animal experimentation as well as legal and University regulations for animal use.

### **Structure**

1.5-hour illustrated presentation

### **Medium of Instruction**

English

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### **Brief Description**

The Chinese University of Hong Kong (CUHK) strives to uphold the highest international standards in animal care and welfare, and thus conducts teaching and research involving live animals in accordance with Cap 340 Animals (Control of Experiments) Ordinance, The Hong Kong Code of Practice for Care and Use of Animals for Experimental Purposes, and The International Guiding Principles for Biomedical Research Involving Animals. Details of Animal Experimentation Ethics and Licensing Procedures, Animal Welfare & Humane Endpoints, Experimental Design, Anaesthesia and Analgesia, as well as Post Approval Monitoring will be presented and discussed. CUHK's ambition for AAALAC International accreditation will be introduced.