

## **Laboratory safety**

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## ***Laboratory safety***

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### **IMPORTANT NOTES TO STUDENTS**

#### ***Safety Examinations***

Students who have been advised by their supervisors or departments to take safety courses (excluding the Animal Experimentation at CUHK) are required to pass the corresponding examination. Each examination is 45-minute in length, and students can select an examination date that best suit their schedules.

The examination schedule is listed together with the course schedule [here](#).

#### ***Passing the Safety Examinations***

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.

Students may choose to acquire the necessary safety knowledge from the web sites instead of coming to the classes as the majority of information is now on the USO Homepage. However, it is believed that attendance at classes can increase the likelihood of passing the examinations. As assurance that students possess the minimum safety knowledge, the examinations must be passed.

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

Students may apply for exemptions from certain safety examinations by writing to the Director. For example, it is not normally required for a chemist to pass the biological safety examination or a robotics student to 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 lab safety manual and safety policy is [here](#) (accessible via Intranet).

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 work.

It is **COMPULSORY** for the above students to pass the safety examination; therefore this safety module is **HIGHLY RECOMMENDED**<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:

- Safety laws, policy and why safety is important
- Fire safety and emergency procedures
- Risk assessment
- Safety information resources including MSDS

Part B:

- Practicing safe science (video)
- Use of personal protective equipment.

*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 above students to pass the corresponding safety examination; therefore completion of this safety module is **HIGHLY RECOMMENDED**<sup>1</sup>.

### Objectives

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

- know how to safely store different classes of chemicals
- dispose chemical waste safely and comply with legislation
- know how to deal with chemical spillage

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

- recognise the hazards in working with chemicals
- know how to work safely with chemicals
- have a high level of awareness on chemical safety

**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:

- Introduction to legislation in Hong Kong on the safe use and disposal of chemicals
- Chemical storage, waste disposal procedures and chemical spillage control procedure

Part B:

- Ventilation: local exhaust and general safety ventilation problems
- The safe use of chemical fumehood

*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 above students to pass the corresponding safety examination; therefore completion of this safety module is **HIGHLY RECOMMENDED**<sup>1</sup>.

### Objective

- 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

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### 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.

### Objective

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

**Structure** 2.5-hour practice session on using Biological Safety Cabinets

**Medium of Instruction** to be determined based on enrolment

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### Brief Description

- Classification to biosafety cabinet
- Correct use of biosafety cabinet
- General maintenance
- Selection of biosafety cabinet

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.

## Ionizing Radiation

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### Designed for

**ALL** ionizing radiation users.

It is **COMPULSORY** for the above students to pass the corresponding safety examination; therefore completion of this safety module is **HIGHLY RECOMMENDED**<sup>1</sup>.

Students who use **unsealed radioactive sources**, e.g., 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 above students to pass the corresponding safety examination; therefore completion of this safety module is **HIGHLY RECOMMENDED**<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

Professor John Anthony Rudd

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.