Information Session:

Chemistry Option and Capstone Course Declaration

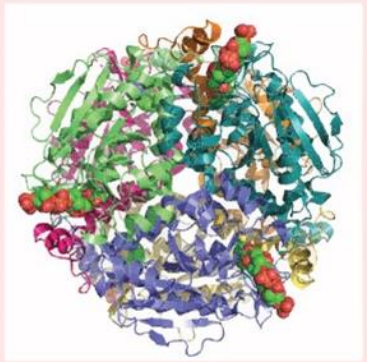
(For students admitted in 2021/22 or after)

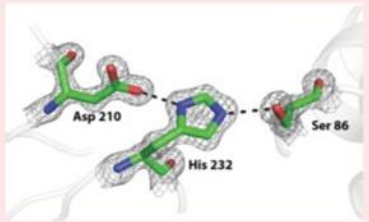
1. Chemistry Options

Choose to Specialize in a Chemistry Option

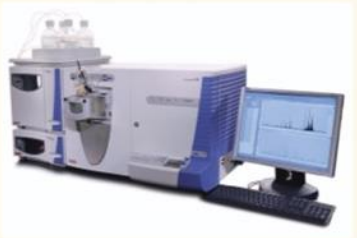
4 CHEM elective courses + 2 lab courses

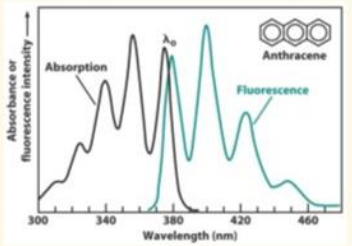
Biomolecular Chemistry Option



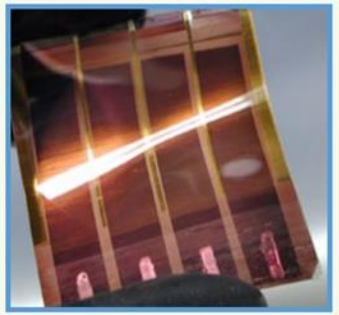


Environmental & Analytical Chemistry Option

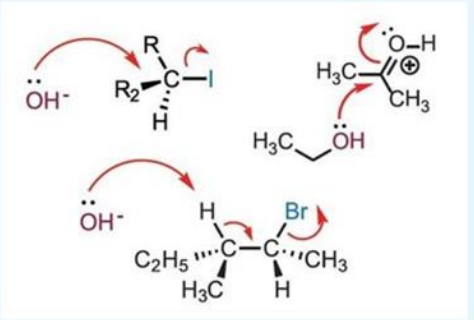


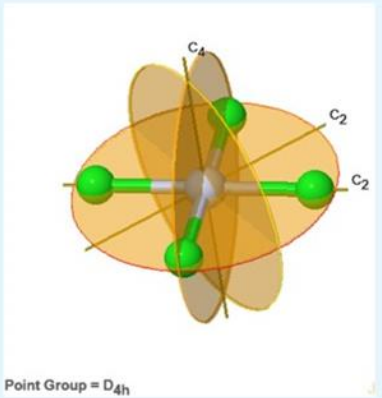


Materials Chemistry Option



Pure Chemistry Option





Without Option

Suggested Study Pathway

for B.Sc. in Chemistry (*with* an Option)

Year 1

Fall (13):

Gen. Chem. I (3)
Gen. Chem. Lab I (1)
Calculus I (3)
Science (3)
Eng. (3)

Spring (16):

Gen. Chem. II (3)
Gen. Chem. Lab II (1)
Eng. (3)
U core (3)
Science (6)

Year 2

Fall (18):

Org. Chem. I (3)
Inorg. Chem. I (3)
Syn. Chem. Lab I (2)
CHEM2409 (4)
U core (3)
Eng. (Science) (3)

Spring (17):

Org. Chem. II (3)
Inorg. Chem. II (3)
Syn. Chem. Lab II (2)
Computer (3)
U. Core (6)

Year 3

Fall (17):

Fund. An. Chem. (3)
P. Chem. I (3)
M.C. Chem. Lab I (2)
Science (3)
U core (6)

Spring (14-17):

Inst. Analysis (3)
P. Chem. II (3)
MC. Chem Lab II (2)
Eng. (Chemistry) (3)
U core (3)
Opt. Chem Elective (3)

Year 4

Fall (11-14):

Capstone (3)
U core (3)
Opt. Adv. Lab (1)
Opt. Adv. Lab (1)
Opt. Chem Elective (3)

Instructor's Approval required

Spring (12-15):

U core (3)
U core (3)
Opt. Chem Elective (3)
Opt. Chem Elective (3)

Total: 121 credits

How to declare a CHEM Option?

☐ During Course Registration Period for Year-4 Fall semester (mid-August of Year-3 Summer)

You **MUST** submit ***Course Enrollment Requests* via SIS** for the corresponding **Option Lab courses**:

Biomolecular Chem. Option	**CHEM 4150 & CHEM 4155**
Envmt. & An. Chem. Option	**CHEM 4350 & CHEM 4355**
Materials Chem. Option	**CHEM 4250 & CHEM 4255**
Pure Chem. Option	**CHEM 4550 & CHEM 4555**

Depending on enrolment quota, students might be selected based on their GPA ranking.

- **Successful enrolment into the lab courses means you are eligible to fulfill that Option.**
- For the other **CHEM Elective courses**, you need to register them by yourself (no instructor's approval required).
- For an estimation of enrolment figures, a ***Preliminary survey*** (hard or soft copy) will be conducted **in March/April of Year-3 studies**. Please return the completed survey.

2. Capstone Project

CHEM Capstone Courses

- **ALL CHEM students** (*with/without Options*) are eligible for:

1) CHEM 4689 - Capstone Project

OR

2) CHEM 4691 - Capstone Research I

- **ALL CHEM students simply indicate their three preferred choice(s) of Faculty Supervisors in the Form. There is no need to choose CHEM 4689 OR CHEM 4691. The assignment of CHEM 4689 or CHEM 4691 and the term of enrolment is subject to the mutual agreement between the student and faculty supervisor, and the final decision by faculty Supervisor.**

CHEM 4689 – Capstone *Project*

- Offered in **Fall and Spring** only
- Course Pre-enrolment will be done for students concerned.
- Subject to mutual agreement and the decision by Research Faculty concerned, enrolment semester will be assigned.
- **Course Requirements:** *students will carry out a* ***literature review*** *on a mutually agreed chemistry topic.*
    - (i) Library Workshops (database, referencing, poster design, structure drawing)
    - (ii) Individual Consultation Sessions
    - (iii) Literature Review Report
    - (iv) Oral Presentation
    - (v) Poster Presentation

Grading:

Participation	**(10 %)**
Poster and Library Training	**(20 %)**
Literature Review Report	**(30%)**
Oral Presentation	**(40 %)**

CHEM 4691 – Capstone *Research I*

- Offered in **Fall, Spring, and Summer.**
  - Course Pre-enrolment will be done for students concerned (EXCEPT Summer Term).
  - Subject to mutual agreement and the decision by faculty supervisor concerned, enrolment semester will be assigned.
- **Course Requirements:** *students will carry out a* ***practical research project*** *in a* ***Research lab*** *under the guidance of a research faculty supervisor.*

  (i) 9-hrs (minimum) per week lab participation

  (ii) Library Workshops

  (iii) Oral presentation

  (vi) Written research thesis

Grading:

Lab Participation	**(50%)**
Research Thesis	**(30%)**
Oral Presentation	**(20%)**

Timeline for Declaration of Capstone Course

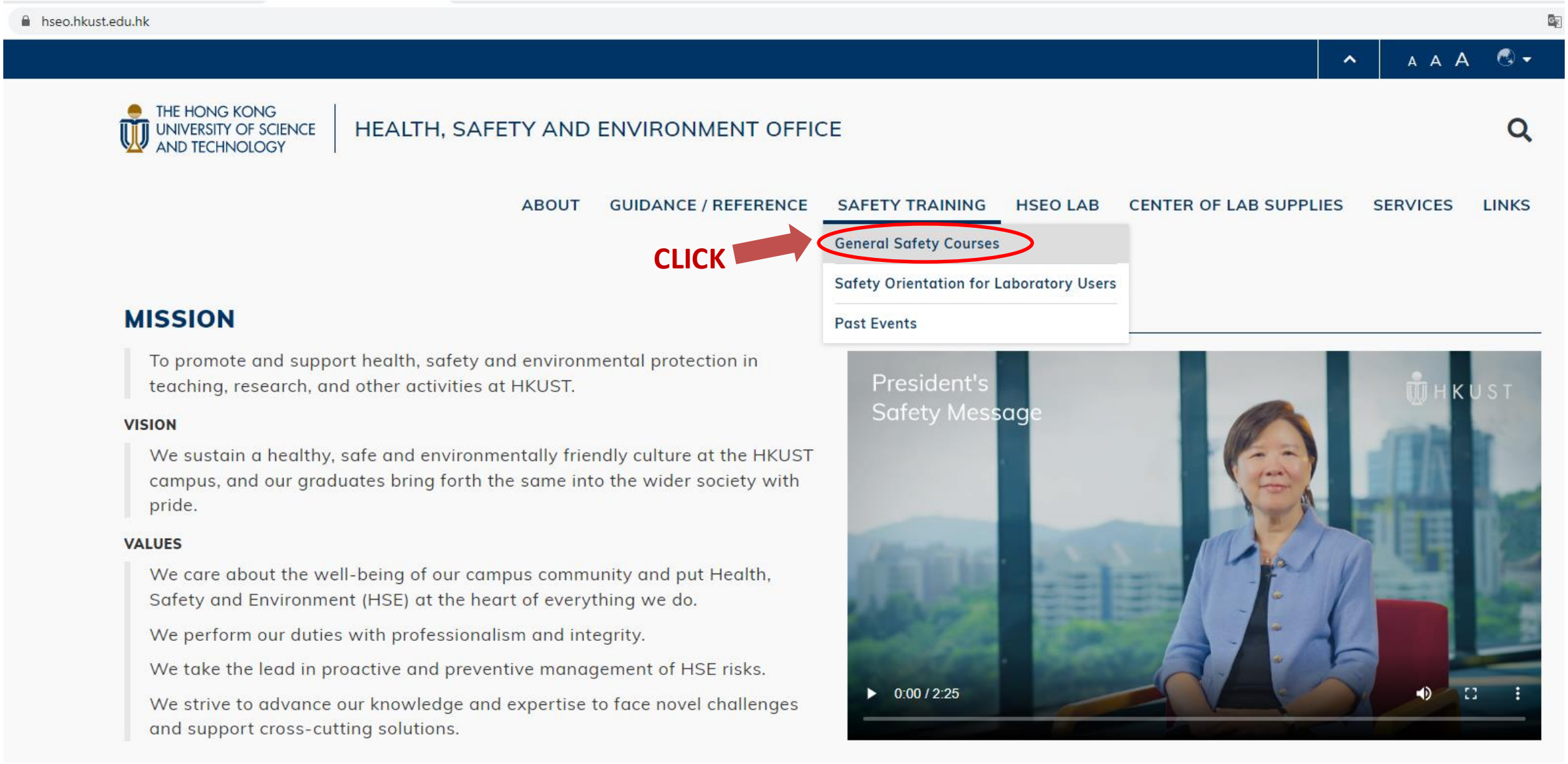
March – mid-April:

- ☐ Browse Departmental Website for research areas of our faculties.
- ☐ Meet with target faculties to learn about their current research projects.

If you plan to/interested in taking **CHEM 4691 – Capstone Research I**:

- ☐ **Complete *On-line Lab Safety Training and Written Exam from HSEO (details shown on next slides):***
  - ☐ **Go to HSEO website: *https://hseo.hkust.edu.hk/***
    - ☐ ***MC03 – Chemical Safety II***
    - ☐ ***MC07 – Chemical Safety I***

☐ https://hseo.hkust.edu.hk/



For enquiry on safety training and tests, please email to communal@ust.hk

THE HONG KONG UNIVERSITY OF SCIENCE AND TECHNOLOGY | HEALTH, SAFETY AND ENVIRONMENT OFFICE

ABOUT GUIDANCE / REFERENCE SAFETY TRAINING HSEO LAB CENTER OF LAB SUPPLIES SERVICES LINKS

GENERAL SAFETY COURSES

CLICK

>>>LINK to E-LEARNING MATERIALS<<<

>>>APPLY FOR MCs and DCs ONLINE TEST NOW<<<

For enquiry, please email to communal@ust.hk.

A. Mandatory Courses Details

MC01 Radiation Safety With unsealed Radioactive Materials (e-learning materials)
This course covers general radiation safety, regulatory requirements, HKUST radiation safety policy and precautions in handling unsealed radioactive materials.

MC02 Radiation Safety with Sealed Radioactive Materials and Irradiating Apparatus (e-learning materials)
This course covers general radiation safety, regulatory requirements, HKUST radiation safety policy and precautions in handling sealed radioactive sources and irradiating apparatus.

MC03 Chemical Safety II / Hazardous Waste Management (e-learning materials)
This course covers regulatory requirements, HKUST waste management policy, technical issues and disposal of hazardous wastes.

MC04 Laser Safety (e-learning materials)
This course covers classification of lasers, potential beam and non-beam-related hazards of laser operations and the safety management of these equipment.

MC05 Pressure Safety (e-learning materials)
This course describes potential hazards, safety measures and procedures for operating different types of pressure systems (boilers, air receivers, gas cylinders

Access to e-learning materials for MC03 & MC07

Download Pre-class assignment

MC AND DC E-LEARNING MATERIALS

1. MC01 Radiation Safety With unsealed Radioactive Materials (2.5 hours)
2. MC02 Radiation Safety with Sealed Radioactive Materials and Irradiating Apparatus (2.5 hours)
3. MC03 Chemical Safety II / Hazardous Waste Management (3 hours)
4. MC04 Laser Safety (2.5 hours)
5. MC05 Pressure Safety (2.5 hours)
6. MC06 Biological Safety (3 hours)
7. MC07 Chemical Safety I / Chemical Safety for Laboratory Users (3 hours)
8. MC09 Respiratory Protection (2 hours)
9. DC04 Electrical Safety

DOWNLOAD AND COMPLETE MC03 AND MC07 PRECLASS ASSIGNMENT AND BRING THE COMPLETED ASSIGNMENT TO HSEO WHEN YOU TAKE THE EXAMINATION. IF YOU ARE TAKING BOTH MC03 AND 07, YOU ONLY NEED TO COMPLETE ONE ASSIGNMENT.

Things to note for the assessment:

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- Please bring along your student/staff ID card for our verification purpose if you are coming to take the test(s) in person.
- Please write your name (in English) and staff/student no. on the question paper.
- HSEO will inform you by email within 3 working days about the test result. You may provide the completion email to your supervisor as proof of completing the course(s)

Name: _____ Staff/Student ID#: _____ Department: _____
(Surname, other names) Email Account : _____ Exam Date : _____

Chemical Safety for Laboratory Users ***(Pre-class Assignment)***

- Select ONE chemical that you will frequently use. Write down the name of the chemical, and how it is used in your work.

- Get a container of the selected chemical, read the label, and answer the following questions:
  1. What are the major hazards of this chemical (e.g. flammable, toxic, corrosive…etc)?

  2. What other specific warnings are found on the container?

- On a campus computer, go to *Library On-line System--Databases, under Science* or *Engineering,* access either the *Sigma-Aldrich* or *CCINFO* Material Safety and Data Sheet (MSDS) database, and find the chemical you selected.

- Answer the following questions:
  1. List the synonyms of this chemical (see Section 1 or 2).

  2. What are the major hazards according to the MSDS (Sect 3)?

  3. What are the first aid measures for inhalation or skin contact (Sect 4)?

  4. If the chemical is identified as "flammable", list the flash point, lower explosive limit (LEL) and upper explosive limit (UEL) (Sect 5).

  5. List three things you should do in case of a spill of this chemical (Sect 6).

  6. What are the occupational exposure limits (Sect 8 or 15)?

  7. What personal protective equipment is recommended for handling this chemical (Sect 8)?

  8. List three of the toxicity data for this chemical (Sect 11).

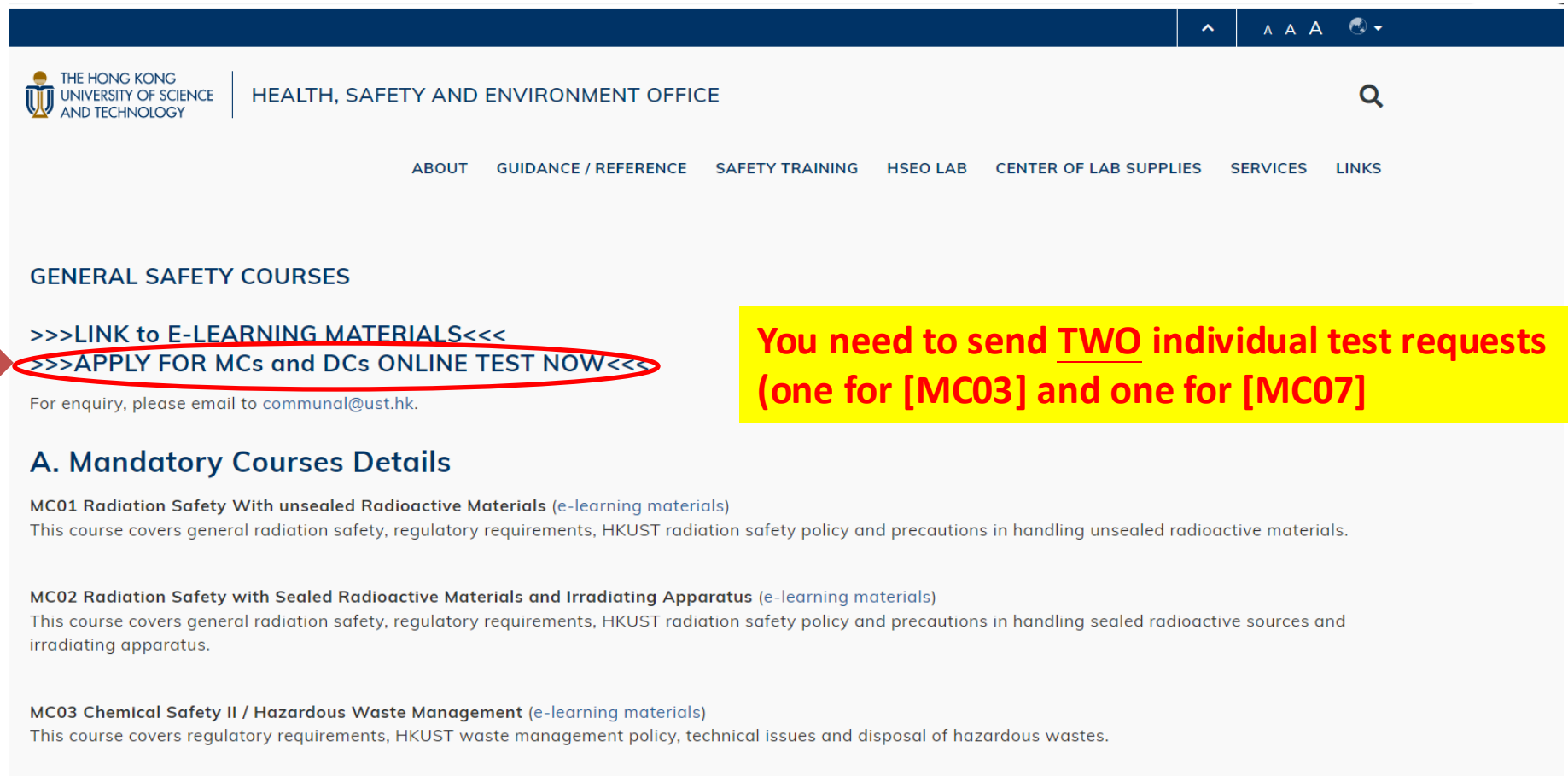
On a campus computer, go to the G/F *Library Reference Standalone On-line System -- Databases*, under *Science*, access *Instant Glove + CPC Database*, or access to the following link https://onlinelibrary.wiley.com/doi/book/10.1002/0471721689 to the Section IV Selection Recommendations of Quick Selection Guide to Chemical Protective Clothing and find a glove material that suits the chemical you selected. Record the breakthrough time for the chemical to penetrate the glove material.

Please bring the completed assignment sheet to the class. This is one of the requirements to pass the Chemical Safety Training. If you have any questions about this assignment, please contact Dr Yip Wing Ping at Ext 6456 or email WPYIP.

(Revised 4/2020)

IMPORTANT NOTE:

- **Pre-class Assignment must be completed before the written safety exam and be submitted it to HSEO staff on exam day.**
- **Download the assignment from HSEO Website.**



CLICK

You need to send TWO individual test requests (one for [MC03] and one for [MC07]

- ***Send the two requests on the same day so that you will write both exams on the same date.***
- **Receive e-mail notification on exam time and venue (usually held every Friday morning)**
- **Complete Pre-class Assignment (see previous) before the exam and submit to HSEO staff on the day of examination.**
- **HSEO will first inform you of your examination results after about 3 working days. However, it may take 2 - 3 weeks for HSEO to send you your Safety Courses Certificates (pdf format) by email to you. For inquiries of Safety Courses, you may contact Mr. Ming Chow of Chemistry Administration Office by email: ccming@ust.hk**

The Hong Kong University of Science and Technology
Health, Safety and Environment Office

This is to certify that

CHAN Tai Man

has successfully completed a course in

Chemical Safety I

on

2015/02/10

Director of Health, Safety and Environment

香港科技大學 Health, Safety and Environment Office HKUST

***attach hardcopies of your safety certificates to your Capstone Declaration Form or e-mail to Ms. Vera Tang (chvera@ust.hk)**

The Hong Kong University of Science and Technology
Health, Safety and Environment Office

This is to certify that

CHAN Tai Man

has successfully completed a course in

Chemical Safety II

on

2015/02/26

Director of Health, Safety and Environment

Health, Safety and Environment Office HKUST

***attach hardcopies of your safety certificates to your Capstone Declaration Form or e-mail to Ms. Vera Tang (chvera@ust.hk)**

Timeline for Declaration of Capstone Course

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If you plan to/interested in taking **CHEM 4691 – Capstone Research I**:

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  - ☐ **Go to HSEO website: *https://hseo.hkust.edu.hk/***
    - ☐ ***MC03 – Chemical Safety II***
    - ☐ ***MC07 – Chemical Safety I***
  - ➢ ***Send Request to HSEO to arrange for safety exams. Please write both exams on the same date.***
  - ➢ ***Download and complete the MC03 and MC07 Pre-Class Assignment at HSEO website and bring the completed Assignment to HSEO when you take the examination. If you are taking both MC03 and MC07, you only need to complete ONE Assignment and submit to HSEO staff on the exam date.***
  - ➢ ***Obtain your HSEO Safety Certificates (pdf format) via email sent from HSEO (available in 2 – 3 weeks after passing the examination). For enquiries of Safety Courses, please contact our colleague Mr. Ming Chow by e-mail: ccming@ust.hk)***

Timeline for Selection of Capstone Course

March – mid-April: Lab Safety Courses and Exams (CHEM 4691 only)

Mid-April: Deadline for Capstone Declaration Form

- ☐ Downloadable from Chemistry Departmental Website
- ☐ Put down 3 choices for faculty supervisor
- ☐ Important: For those planning to/interested in taking CHEM 4691 only, attach hardcopies of your HSEO Safety Certificates

(NOTE: if you haven't completed the safety courses and exams at this stage, please do so before your enrolment into CHEM 4691, otherwise you will be denied from accessing the research laboratory.)

The Hong Kong University of Science and Technology
Department of Chemistry

Capstone Declaration Form for Students in the BSc. Chemistry Program (B4201)

This form is to be completed by ALL current Year-3 students ___(in Academic Year 202X-2X)

I. Student Particulars

Student Name		*HKUST Email*	
Student No.		*Mobile Phone No.*	

To fulfill the Chemistry Capstone requirement, students of the 202X-2X cohort may choose from:

CHEM4689 - 'Capstone Project' (Literature Research under research faculty supervisor) (offered in Fall and Spring terms only)

OR

CHEM4691 - 'Capstone Research I' (Practical Experimental Research conducted in a research laboratory under a research faculty supervisor) (offered in Summer, Fall, and Spring terms)

Please LIST YOUR TOP THREE CHOICES of Capstone Course Supervisors in the table below:

i. Assignment to CHEM 4689 OR CHEM 4691 is subject to mutual agreement of Faculty and Student concerned. Please browse the research of our Faculty at: https://chem.hkust.edu.hk/people

ii. Each Research Faculty Supervisor can only be ranked ONCE (i.e., can only be listed one time).

iii. Please indicate your preferred enrollment term (*if any*) and provide a justification. We will try our best to accommodate your preference, but no guarantee.

Choice	*Prior Discussion with Faculty: Yes or No*	*Research Faculty Supervisor's Name (for CHEM4689 OR CHEM 4691)*
1st Choice (most preferred)		
2nd Choice		
3rd Choice		
Preferred Enrollment Term (*if any*) for CHEM 4689 OR CHEM 4691		
Justification for preferred term:		

II. This section is to be completed by students planning to take CHEM 4691 only:

Mandatory Chemical Safety Courses for Taking CHEM4691 'Capstone Research I':

In compliance with University Safety Regulations, students who plan to take CHEM4691 'Capstone Research I' MUST attend and pass in advance TWO Mandatory Online Safety Courses offered by the Health, Safety and Environment Office (HSEO). You are required to attach photocopies of your Safety Certificates* along with this Capstone Declaration Form before submission. For online safety courses and exam requests, please visit the following link: *https://hseo.hkust.edu.hk/*.

The TWO Mandatory Safety Courses are:

(i) Chemical Safety I / Chemical Safety for Laboratory Users (MC07)
(ii) Chemical Safety II / Hazardous Waste Management (MC03)

- Important Note: a Pre-Class Assignment must be completed before the Safety Examination day (available from Chemistry Departmental Website). *You are strongly advised to write both exams on the same date.*

Please indicate the examination dates of your Safety Exams below:

Safety Course Code	Examination Date
MC07	
MC03	

*** HSEO will first inform you of your examination results in about 3 working days. However, it may take 2 – 3 weeks for HSEO to send your Safety Courses Certificates (pdf format) via email. When you receive your Safety Courses Certificates from HSEO, please print and attach your certificates with your Completed Capstone Course Declaration Form and return to Ms. Vera Tang in person. Alternatively, you may email the certificates to chvera@ust.hk.

****For inquiries of Safety Courses, you may contact Mr. Ming Chow of Chemistry Administration Office by email: ccming@ust.hk.

Please *return the completed Capstone Declaration Form (with printed copies of Safety Courses Certificates if applicable) in person to Chemistry Administration Office Room 4512, 4/F, Lifts 25/26 OR by returning the soft copies by e-mail to* Ms. Vera Tang at chvera@ust.hk *no later than xxxxxx, xx th April 20XX* ***

- ☐ Put down 3 choices for faculty supervisor
- ☐ Important: For those planning to/interested in taking CHEM 4691 only, attach photocopies of your HSEO Safety Certificates

(NOTE: if you haven't completed the safety courses and exams at this stage, please do so before your enrollment into CHEM 4691, otherwise you will be denied from accessing the research laboratory.)

Timeline for Selection of Capstone Course

March – mid-April: Lab Safety Courses and Exams (CHEM 4691 only)

Mid-April: Deadline for Capstone Declaration Form

Late-May: Announcement of Results

Depending on availability, the earliest term to enroll into CHEM 4691 is Summer Term of Yr-3 of study.

Notes: **CHEM 4691** is offered in **Summer, Fall & Spring**

CHEM 4689 is offered in **Fall & Spring only**.

Further Information

- Prof. Jinqing Huang, UG Coordinator
  e-mail: jqhuang@ust.hk

- Prof. Emily Tsang, Deputy UG coordinator
  e-mail: chetsang@ust.hk

- Dr. Frederick Sheong, Deputy UG coordinator
  e-mail: chemfksheong@ust.hk

- Ms. Vera Tang, Chemistry Administration Office (UG matters)
  e-mail: chvera@ust.hk

- Mr. Ming Chow (Lab Safety Course Enquiry)
  e-mail: ccming@ust.hk