GE2334: SCIENCE VERSUS CRIME

Effective Term
Semester A 2023/24

Part I Course Overview

Course Title
Science Versus Crime

Subject Code
GE - Gateway Education
Course Number
2334

Academic Unit
Chemistry (CHEM)

College/School
College of Science (SI)

Course Duration
One Semester

Credit Units
3

Level
B1, B2, B3, B4 - Bachelor's Degree

GE Area (Primary)
Area 3 - Science and Technology

GE Area (Secondary)
Area 2 - Study of Societies, Social and Business Organisations

Medium of Instruction
English

Medium of Assessment
English

Prerequisites
Nil

Precursors
Nil

Equivalent Courses
CHEM2809/BCH2809 Science Versus Crime

Exclusive Courses
CHEM2808/BCH2808 Forensics and Modern Society

Part II Course Details

Abstract

This course aims to let students have some basic understanding in how science and technology are applied to aid fighting crimes. Besides the general scientific principles, this course will highlight (i) the importance of logical and critical thinking, (ii) how existing knowledge can be applied to new challenges, and (iii) why honesty and ethical behaviour are necessary throughout the processes of criminal investigation.

Teaching is mainly done via formal lectures (2 hr every week). This is supplemented by invited guest lectures and interactive tutorials. These tutorials are arranged to allow students to learn, and discover by themselves, specific skills in crime scene investigation caseworks, and to put them in practical uses.

Course Intended Learning Outcomes (CILOs)

	CILOs	Weighting (if app.)	DEC-A1	DEC-A2	DEC-A3
1	Describe the concepts of the various disciplines of forensic science.	25	x		
2	Describe the various forensic techniques in terms of identification, individualization and reconstruction and recommend or advise on the most appropriate selection for an investigation.	25	x	x	
3	Describe basic techniques in crime scene investigations. Explain the importance of logical thinking and ability to apply this to different forensic scenarios.	50	x	x	x

A1: Attitude
Develop an attitude of discovery/innovation/creativity, as demonstrated by students possessing a strong sense of curiosity, asking questions actively, challenging assumptions or engaging in inquiry together with teachers.

A2: Ability
Develop the ability/skill needed to discover/innovate/create, as demonstrated by students possessing critical thinking skills to assess ideas, acquiring research skills, synthesizing knowledge across disciplines or applying academic knowledge to real-life problems.

A3: Accomplishments
Demonstrate accomplishment of discovery/innovation/creativity through producing /constructing creative works/new artefacts, effective solutions to real-life problems or new processes.

Teaching and Learning Activities (TLAs)

	TLAs	Brief Description	CILO No.	Hours/week (if applicable)
1	Lectures	Formal lectures (including guest lectures introducing the various aspects of crime scene investigations by guest speakers)	1, 2, 3	2 hrs
2	Mock crime scene investigation and CSI report writing	Mock crime scene walkthrough	2, 3	5 hrs (throughout the course)

3	Mock crime scene investigations oral presentation	Oral presentation of observation in mock crime scene walkthrough and respond to queries from instructors	1, 2, 3	1 hr (throughout the course)
4	Tutorials	Tutorials on various practical techniques for crime scene investigations	2, 3	1 hr
5	Multimedia teaching and learning	Multimedia teaching and learning (using materials from TV programmes, newspaper and the internet) of relevant topics in crime scene investigations	1, 2, 3	N.A.

Assessment Tasks / Activities (ATs)

	ATs	CILO No.	Weighting (%)	Remarks (e.g. Parameter for GenAI use)
1	Crime scene investigation oral presentation	1, 2, 3	20	Oral presentation will be conducted in the tutorial session.
2	Essay writing on selected topics in crime scene investigations (CSI)	1, 2, 3	10	Each essay should be shorter than 1000 words
3	Short quiz	1, 2, 3	10	Multiple choice and fill-in-the-blank quiz

Continuous Assessment (%)

40

Examination (%)

60

Examination Duration (Hours)

2

Additional Information for ATs

Starting from Semester A, 2015-16, students must satisfy the following minimum passing requirement for courses offered by CHEM:
"A minimum of 40% in both coursework and examination components."

Assessment Rubrics (AR)

Assessment Task

Crime scene investigation oral presentation

Criterion

Capability in delivering a written report on observations in CSI walkthrough.

Excellent (A+, A, A-)

High

Good (B+, B, B-)
Significant

Fair (C+, C, C-)
Moderate

Marginal (D)
Basic

Failure (F)
Below marginal levels

Assessment Task
Short-essay writing

Criterion
Demonstration of understanding of a variety of topics in modern crime scene investigations.

Excellent (A+, A, A-)
High

Good (B+, B, B-)
Significant

Fair (C+, C, C-)
Moderate

Marginal (D)
Basic

Failure (F)
Below marginal levels

Assessment Task
Short quiz

Criterion
Demonstration of understanding the principles and practice of various topics of forensic and crime scene investigations.

Excellent (A+, A, A-)
High

Good (B+, B, B-)
Significant

Fair (C+, C, C-)
Moderate

Marginal (D)
Basic

Failure (F)
Below marginal levels

Assessment Task
Examination

Criterion
Demonstration of understanding the principles and practice of various topics of forensic and crime scene investigations.

Excellent (A+, A, A-)
High

Good (B+, B, B-)
Significant

Fair (C+, C, C-)
Moderate

Marginal (D)
Basic

Failure (F)
Below marginal levels

Part III Other Information

Keyword Syllabus
Forensics; Crime scene; CSI, Chain-of-custody; Contamination; Pollution; Environment; Explosives; Counter-terrorism; Firearms; Fingerprint; Counterfeit; Narcotics; Dangerous Drugs; Documents; Accuracy; Ethics; Honesty; Dishonesty; Criminal; Identification; Identity; Individualization; Analysis; DNA; Presumptive tests; Matching.

Reading List

Compulsory Readings

	Title
1	Forensic Science: A. R.W. Jackson, J. M. Jackson, (2011 – 3rd Edition) Prentice Hall.

Additional Readings

	Title
1	Forensic Science – An Introduction to Scientific and Investigative Techniques: Stuart H. James and Jon J. Norby (2014 – 4th edition), Taylor and Francis.
2	Criminalistics – An Introduction to Forensic Science: Richard Saferstein (2017 – 12th edition), Pearson.
3	FORENSICnetBase: ~150 entire books covering many different forensic sub-fields, available online. City University is the only university in Hong Kong with this excellent facility that is continually updated as new books are added to the scheme.

Annex (for GE courses only)

A. Please specify the Gateway Education Programme Intended Learning Outcomes (PILOs) that the course is aligned to and relate them to the CILOs stated in Part II, Section 2 of this form:

Please indicate which CILO(s) is/are related to this PILO, if any (can be more than one CILOs in each PILO)

PILO 1: Demonstrate the capacity for self-directed learning

1, 2, 3

PILO 2: Explain the basic methodologies and techniques of inquiry of the arts and humanities, social sciences, business, and science and technology

1, 2, 3

PILO 3: Demonstrate critical thinking skills

2, 3

PILO 4: Interpret information and numerical data

2, 3

PILO 5: Produce structured, well-organised and fluent text

1, 2, 3

PILO 7: Demonstrate an ability to work effectively in a team

3

PILO 9: Value ethical and socially responsible actions

2, 3

PILO 10: Demonstrate the attitude and/or ability to accomplish discovery and/or innovation

3

B. Please select an assessment task for collecting evidence of student achievement for quality assurance purposes. Please retain at least one sample of student achievement across a period of three years.

Selected Assessment Task

Mock crime scene investigation, CSI report writing.