CHEM2809: SCIENCE VERSUS CRIME

Effective Term
Semester A 2022/23

Part I Course Overview

Course Title
Science Versus Crime

Subject Code
CHEM - Chemistry

Course Number
2809

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

Medium of Instruction
English

Medium of Assessment
English

Prerequisites
Nil

Precursors
Nil

Equivalent Courses
GE2334 Science Versus Crime
BCH2809 Science Versus Crime

Exclusive Courses
CHEM2808/BCH2808 Forensics and Modern Society
Part II Course Details

Abstract
This course aims to let students to have some basic understanding in how science and technology is 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) how 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)

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

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)

<table>
<thead>
<tr>
<th>TLAs</th>
<th>Brief Description</th>
<th>CILO No.</th>
<th>Hours/week (if applicable)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Lectures</td>
<td>1, 2, 3</td>
<td>2 hrs</td>
</tr>
<tr>
<td></td>
<td>Formal lectures</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(including guest lectures introducing the various aspects of crime scene investigations by guest speakers)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Mock crime scene investigation and CSI report writing</td>
<td>2, 3</td>
<td>5 hrs (throughout the course)</td>
</tr>
<tr>
<td></td>
<td>Mock crime scene walkthrough</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ATs</td>
<td>CILO No.</td>
<td>Weighting (%)</td>
</tr>
<tr>
<td>---</td>
<td>----------------------------------------------------------------------</td>
<td>----------------</td>
<td>---------------</td>
</tr>
<tr>
<td>1</td>
<td>Crime scene investigation walkthrough and the preparation of written CSI reports</td>
<td>2, 3</td>
<td>30</td>
</tr>
<tr>
<td>2</td>
<td>Crime scene investigation oral presentation</td>
<td>1, 2, 3</td>
<td>20</td>
</tr>
<tr>
<td>3</td>
<td>Essay writing on selected topics in crime scene investigations (CSI)</td>
<td>1, 2, 3</td>
<td>10</td>
</tr>
<tr>
<td>4</td>
<td>Short quiz</td>
<td>1, 2, 3</td>
<td>10</td>
</tr>
</tbody>
</table>

**Assessment Tasks / Activities (ATs)**

**Continuous Assessment (%)**
70

**Examination (%)**
30

**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 walkthrough and the preparation of written CSI reports
Criterion
Capability in applying proper crime scene investigation (CIS) procedures and techniques to investigate a mock crime scene and respond to queries in a professional manner.

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
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

<table>
<thead>
<tr>
<th>Title</th>
</tr>
</thead>
</table>

Additional Readings

<table>
<thead>
<tr>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 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.</td>
</tr>
</tbody>
</table>