

出國報告（出國類別：其他：參訪）

赴美國加州大學洛杉磯分校、爾灣分校  
及加州州立大學富爾頓分校學術交流

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## 摘要

近年國內外校園危害化學品及實驗室事故頻傳，本人於1月6日至14日前往美國加州大學洛杉磯分校、爾灣分校及加州州立大學富爾頓分校，吸取實驗室化學品管理、應變處理及實作演練等應用知識，作為化學品災害應變資訊及預防之參考，也作為執行中區技職校院區域教學資源中心計畫-化學品危害知識及安全訓練之使用。於訪視過程，深入了解事故發生後採行之改善措施及平日訓練情形，攜回緊急應變計畫內容，作為我校建立緊急應變計畫、實驗室安全管理之參考依據。另鑒於美國校方掌握各種網路工具以適時回應重要訊息，值得我國大專校院學習，建議未來可加入我校演練過程，期能在危害化學品事故發生時，可將人員傷亡及財產損失降至最低，亦可妥善應變。

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## 一、目的

因在執行中區技職校院區域教學資源中心計畫-化學品危害知識及安全訓練計畫業務時，國內學校化學品災害資訊較少，需要蒐集國外化學品管理趨勢及實驗室災害案例引入，並赴美國數所大學參觀實驗室化學品管理所用教材及實作之學術交流，並建立與美國知名大學之聯絡管道，拓展交流。

## 二、過程

本人於 103 年 1 月 6 日至 14 日前往美國參觀加州大學洛杉磯分校(UCLA) (附件一)、加州大學爾灣分校(UC at Irvine, UCI)(附件二)以及加州州立大學富爾頓分校(CSU, Fullerton)(附件三)，吸取實驗室化學品管理、災害應變處理及實作課程(如成立校園應變小組)等相關教材及應用知識，以提昇學校化學品災害應變資訊及預防量能。

表 1 拜訪行程表

日期		行程
1 月	6 日	去程。台灣→美國 LA
1 月	7-8 日	參觀 UCLA 實驗室，並蒐集災害應變資訊。美國 LA
1 月	9-10 日	參觀 UCI 實驗室，並蒐集災害應變資訊。美國 LA
1 月	11-12 日	周末
1 月	13-14 日	參觀 CSU, Fullerton 實驗室，蒐集災害應變資訊。美國 LA
1 月	19-20 日	回程。美國 LA→台灣

### 1. 參訪加州大學洛杉磯分校(UCLA)

UCLA 近年發生實驗室嚴重事故，導致加州大學系統(UC)注重實驗室安全，其事故發生於 2008 年 12 月 29 日，UCLA 化學系 Harran 教授的助理 Sangji 操作叔丁基鋰與溶劑混合時意外灑出(此時未穿戴實驗衣)，由於該物質屬自燃性物質，Sangji 遭深度燒傷而致死。2011 年 12 月 27 日 UC 遭起訴求償美金 4 百 50 萬元，Harran 教授也被求刑 4 年半，其後 UC 與法庭達成以下協議：

- (1) 所有 UC 化學及生化系須：

- 提供所有實驗室物質清單給加州勞工局；
- 執行實驗室安全手冊及化學衛生計畫；
- 要求所有計畫主持人完成實驗室安全訓練及承擔責任；
- 要求所有實驗室使用者皆須受過訓練且了解其權益；
- 確保所有標準程序(SOP)被遵守；
- 遵從 UCLA 的「安全使用自燃性液體的程序」；
- 通報所有職業傷害給加州勞工局及保存現場

(2) UCLA 化學及生化系須：

- 遵從實驗室防護設備標準；
- 未穿戴實驗室者不准進入實驗室，並紀錄之；
- 執行化學安全稽查

(3) 訂定需 SOP 的化學物群：

- 自燃化學品
- 禁水性物質
- 可能爆炸物質
- 急毒性化學品
- 有毒氣體
- 強腐蝕性化學品
- 強氧化劑
- 強還原劑
- 致癌物質

隨後法庭不起訴 UC，但仍要追究 Harran 教授的刑責，目前案件仍在審理。美國其他州的大學亦將這些程序納入其實驗室安全計畫內，Massachusetts Institute of Technology (MIT)、University of Illinois (UI, Urbana-Champaign)等大學也開始積極發展各種化學物質操作 SOP、計畫主持人訓練等。

因而於 1 月 7-8 日參訪 UCLA 實驗室時，蒐集該校緊急應變計畫清單，清單包括 (詳見附件四)：(1) 校的緊急應變計畫 Emergency Operations Plan (EOP)，針對學校整體，規劃於緊急事故時，人員的安排與分工；(2) 系所的緊急應變計畫 Departmental Emergency Response Plan (DERP)，針對系所建立，為 EOP 下分的

緊急應變計畫，主要為協助支持 EOP 的執行，在校園的整體應變中是不可或缺的一塊；(3) 工作場所的緊急行動計畫 Emergency Action Plan (EAP) ；(4) 空間樓層及設備管理手冊 Area, Floor & Facility Warden Manual ；(5) 危害物質應變計畫 Hazardous Materials (Hazmat) Response Plan ；(6) 校園緊急應變小組手冊 Campus Emergency Operations Group (CEOG) Handbook 詳細介紹人員的權職分配；(7) 緊急管理決策小組手冊 Emergency Management Policy Group (EMPG) Handbook ；(8) 就地避難計畫 Shelter-in-Place Plan ；(9) 封校計畫 Lockdown Plan 等等。內容不僅詳細介紹計畫的意涵，還有分節為：誰需要使用、如何使用、與我何干等答覆，校園應變結構清楚明瞭，值得我校學習。

## 2. 參訪加州大學爾灣分校(UCI)

2001 年 7 月 23 日下午 3 點 43 分，UCI 化學實驗室一名博士生因苯蒸氣引爆受傷，火勢延燒了兩個半小時，造成 350 萬元的損失，在搶救過程中有 2 名消防人員受傷。事後 UCI 檢討報告指出：

- (1) 須加強實驗室裡危險活動的監察以符合安全衛生政策及程序。
- (2) 須改善實驗室裡危險活動的危害辨識及控制手段。
- (3) 須評估易燃及可燃性化學品的儲存及其他危害物。
- (4) 須改進對類似事故之緊急應變程序。
- (5) 須確保及加強安全訓練及訓練文件。
- (6) 釐清系的責任及安衛人員的職責，確保安全檢查後之改善及可用資源。

於 1 月 9-10 日參訪 UCI 發現，校方早已全面訂定出所有需要改善的需求，檢視所有相關文件，並於其網站放上了各種安全注意和教訓(附件五)，其獨立調查及檢討方式相當值得效法，是未來我們可採行的方式。美國其他大學在事故發生後也都採行類似的方式，如 Texas Tech University、UC-Berkeley、UC-Davis 等，非常值得我國校園參考。UCI 更於今年 5 月將舉辦「研究實驗室的安全研討會 (Safety in Research Laboratories)」(附件六)，由該校副校長主持，其目的在於辨識研究實驗室危害相關的安全挑戰、建立實驗室安全與研究優先事項、研究者與安衛人員的互動交談。

### 3. 參訪加州州立大學富爾頓分校(CSU, Fullerton)

Fullerton 分校過去於 2012 年 12 月 12 日之下午 3 點曾因附近發生 5 名持槍搶犯飛車進入校區事件，3 名疑犯當場捕獲，其中 2 名則深入校區。校方命令學生及教職員留在室內或疏散，特勤隊(SWAT)進去校區逐棟搜索，許多學生以電子郵件、臉書(Facebook)、Twitter 向外通報消息，學校也進行多元的通訊及回應，直至晚上 9 點，經當地警察與 SWAT 數小時搜查未果，校方以 Twitter 於午夜宣告校區再度恢復正常。在此次校園遭持槍疑犯入侵事件，校方能及時發出警告，使得全校師生安然無恙，其行動能力令人讚許。於 1 月 13-14 日訪視該校並與相關人員討論後得知，其歸因於每學期均會進行白天及夜晚之疏散演練。CSU 與加州防震演習常同步進行大規模校園疏散演練，在火災警報系統被啟動約 10 分鐘(或直至所有建築物都被疏散)，師生須獲得校園駐警和廣播器通知後，才可再回到建築物內。此外，校方能掌握各種網路工具、新聞媒體以適時回應對此事件之消息，值得我國大專校院學習。有關 CSU 的緊急運作計畫、疏散指引及開學準備指引(給老師及學生等)(附件七)，是有效並可執行的方式。

開學準備指引如下分節：

- (1) 老師－授課大綱要易讀且有聯繫信息。
  - －在上課前已確認教室地點，並知道逃生路線。
  - －檢查教室，若上鎖了，通知系辦處理。
  - －檢視網頁，了解最近的疏散地點在哪？如何去？
  - －提供學生如何準備的提示
  - －在第一天告訴學生緊急程序，這不但是重要的知識，也告訴學生如發生緊急狀況時，會主導並保障他們的安全。
- (2) 學生：注重自己的安全並積極參加校園演習。
- (3) 其他校園人員：負責自己的安全，並藉準備工作指引你於危機前、中、後期之行動。

疏散指引：

- (1) 知悉校園疏散地圖，不同顏色代表不同集合區
- (2) 疏散前注意事項：

- 看好疏散計畫及您的所在
  - 知道至少兩個以上出口及路線
  - 在警鈴響時，停止手邊工作，關閉附近可能導致危害的設備開關
  - 迅速拿好你的物品(不要收拾其他的零碎物品)
  - 不要等，立即前往最近的出口
  - 如被阻塞，改換至另一個出口
- (3) 教師的指引：在緊急狀況或演練時，學生將倚仗你的指引，須提前確認鄰近你教學/辦公位置的出口。
- (4) 疏散前：在第一天及課程大綱裡提醒學生教室的疏散路線，並建議逃脫後之集合地點。有問題時，可私下討論。
- (5) 警鈴響時：
- 要學生立即停止手邊工作，開始疏散
  - 不准任何人逗留於教室或其他室內
  - 如有人需要幫助，通知建物管理人，需協助救助
  - 以身示範離開建築物至少 50 呎(16 公尺)以上，或更遠(依指示)
  - 建物管理人會指引你到安全地點
  - 晚間或週末課程，建物管理人不在時，你要主動導引學生離開建築到安全地點

### 三、心得

本次行程拜訪美國加州大學洛杉磯分校(UCLA)、加州大學爾灣分校(UCI)及加州州立大學富爾頓分校(CSU, Fullerton)等曾有緊急事故之學校，藉此吸取實驗室化學品管理、災害應變處理、疏散及準備等相關應用知識，俾利改善學校現有化學品災害應變資訊及預防方式。彙整心得如下：

1. 對於過去曾發生實驗室重大事故之 UCLA 與 UCI，許多美國知名大學均以其為案例教材，並汲取經驗教訓。此次訪視過程，深入了解其於事故發生後採行之改善措施，並攜回該校緊急應變計畫內容及相關範例，作為我校後續建立相關緊急應變計畫、實驗室安全管理之參考依據。
2. 綜觀國內外事故案例，許多案例雖然無人傷亡，但深感實驗室安全之重要性。美國各校也非常重視，如 UCLA 將於今年 5 月舉辦「研究實驗室的安



全研討會(Safety in Research Laboratories)」，並由其副校長主導，強化及辨識研究實驗室危害相關議題、建立實驗室安全與研究優先事項等。

3. Fullerton 每學期均會進行白天及夜晚之疏散演練，以備緊急狀況或天然災害的發生時，可有效降低人員與財產損失。我校過去也曾經辦理過各學院之疏散演練，但與 Fullerton 相比，並未給定師生遵行法則規範或指引，其做法值得我校學習。

#### 四、建議事項

1. 鑒於美國校方也能掌握各種網路工具、新聞媒體以適時回應各種校園事件之消息，值得我國大專校院學習。建議後續我校可於演練過程中，加強此部分，且應將全校區疏散演習加以深化，以期能在各種事故發生時，將人員傷亡及財產損失降至最低。
2. 美國各校皆對實驗室之各種事故或安全關切整理為各種指引、注意事項，在執行中區技職校院區域教學資源中心計畫-化學品危害知識及安全訓練計畫時，將陸續採用其資訊，化為我國教材，俾提升對實驗室或各種危害事故之安全知識及妥善應變之程序。
3. 美國加州各大學之緊急應變計畫，從校至系，從應變人員至協助教師、學生均有指引，並律定就地避難、疏散、封校之準備工作。在事故發生後，全面性檢討其採行措施等等，皆值得我國及我校學習。

## 五、附錄

### 附件一、加州大學洛杉磯分校 (UCLA)

#### 簡介

加州大學洛杉磯分校 (UCLA) 是一所研究性公立大學位於洛杉磯市中心西邊的西木區 (Westwood)，鄰近著名的高級住宅區比佛利山與度假聖地 Santa Monica 海灘，融合了東西方文化，很容易看到各個不同種族與文化背景的學生們走在一起，因而造就了獨特的校園人文風格。UCLA 不但是全美國最受推崇的研究型大學，而且擁有最美麗的校園，內有令人印象深刻的義大利文藝復興時代建築、平和的花園和熱鬧的學生商店和飲食場所。成立於 1919 年，是加州大學 10 所分校中，歷史第二悠久的校區。占地 419 英畝的廣大學園裡，有超過 282 棟大樓，所在地距離太平洋沿岸只有五哩。提供超過 300 個學位，研究生項目涵蓋範圍廣泛。現有來自世界及美國各地超過三萬五千名學生，11,000 名研究生。大學部提供百餘種不同科系的學士、碩士學位以及博士和專業學院。

紐約時報給予 UCLA 五顆星的最高學術評分，UCLA 隸屬加州大學系統之一，提供超過 100 個科系選擇，歷年來投入於研究上的經費是其他學校的三倍以上，平均 140 個市的洛杉磯市民就有一位是從 UCLA 畢業的，該校的教師多位是古根漢研究的會員及富爾布萊特 (Fulbright) 機構的學者，更有些是國家科學機構和美國人文及自然學科機構的會員。任教的老師中諾貝爾得主分別隸屬於化學、經濟、和平等獎項，UCLA 為全美國家級大學排名第 26 名，專屬機構 ISA 提供獎學金，其中有 80% 給研究所的同學，圖書館有六百多萬冊的藏書。該校為泰晤士報世界大學排行第 13 名。

在美國新聞和世界報導 2010 年的全美學校排名中，加州大學洛杉磯分校被評為公立大學第二位，全世界排名為 32 名。學校在其他排名中也一直名列前茅。在華盛頓月報的全美大學排名中，名列第三；在新聞週刊 2007 年全球前 100 名大學排行中，名列第 12；在泰晤士報高等教育雜誌 2010 年世界最佳大學排名中，名列第 11；在中國上海交通大學高等教育研究中心的年度世界大學排名中，名列 13 位元 (北美地區第 11 位元)。加州大學洛杉磯分校的教師獲獎數量，也名列全球大學第 10 位。在普里斯頓評論的 2010 年“關於大學的希望和疑慮調查”中，學校被評為公立學校中最想就讀學校。

## 學校成就

### 強勢專業

加州大學洛杉磯分校提供 146 種專業，其中：

商學院專業——全美前 15;

工程學院專業——全美前 20;

教育學院專業——全美第 6;

法學院專業——全美前 15;

醫學院專業——全美前 15;

藝術學院專業——全美第 4;

### 教學品質

UCLA 本科提供 130 種不同學科的學士學位，碩士有 86 種，還有其他 108 種不同的博士和專業學位。UCLA 著名的理由很多，其中包括它擁有 800 萬冊以上藏書的圖書館，獲獎連連的體育團體(UCLA 的籃球隊在美國大學生聯賽 NCAA 中獲得冠軍最多，號稱籃球學校)；2006 年為止 UCLA 贏得 99 次美國全國大學生體育協會冠軍，是美國所有大學中最多的;以及它的表演藝術課程。這間大學是一間廣泛的文化中心，涵蓋了劇場、舞蹈、音樂和兩間主題博物館。UCLA 傳統的運動項目，如籃球、田徑及美式足球的成績更可說是冠于全美，如果您所想要找的是一所擁有高知名度的大學、優良的學術水準及瘋狂的美式運動項目，UCLA 絕對是全美國您最好的選擇。UCLA 課程的多樣化也是冠于全美。從熟知的社會學科、商業學科、工程生化、法律醫學外、UCLA 有關於電影電視製作、行銷公關及廣告的科系是全美國最好的，是好萊塢娛樂圈的精英搖籃。

## 附件二、加州大學爾灣分校 (UCI)

### 簡介

加州大學爾灣分校隸屬於加州大學 (The University of California, 簡稱 UC) 的一支, 成立於西元 1965 年, 算是一所很新的大學。在介紹 UCI 之前, 我們先介紹加州大學的系統 (UC System)。加州大學成立於 1868 年, 是屬於加州州立系統的高等教育機構。UC 至今已經有 10 個校區, 除了最讓人耳熟能詳的柏克萊分校 (UC-Berkeley) 以外, 還有洛杉磯分校 (UCLA)、戴維斯分校 (UC-Davis)、聖地牙哥分校 (UC-San Diego)、聖塔芭芭拉分校 (UC-Santa Barbara) 等。這些學校的名字對於台灣學生可能都不太陌生, 而這些學校的高品質研究、教學成果也往往讓 UC 系統在 US News and World Report 每年的美國最佳大學排名中拿下不少席次的名額, 成為美國學界一股不可小覷的學術勢力。

UC 系統現在擁有 5 個醫學院 (Medical schools)、3 所法學院 (Law schools) 與 100 間以上的圖書館, 其中館藏之豐富, 只有美國國會圖書館 (the Library of Congress) 可以媲美。在師資上, 有 23 位教師曾經獲得諾貝爾獎 (Nobel Prizes)、320 位身為美國國家科學協會的成員。

### 爾灣分校

爾灣分校 (UCI) 位於洛杉磯 (Los Angeles) 南方 40 哩, 而該校距離太平洋 (Pacific Ocean) 只有 5 公里, 是一所依山傍水、學習環境優良的學校。除了優良的地理位置與學習環境之外, UCI 堅強的研究團隊與良好的學術聲望更是許多美國高中畢業生爭相申請該校的原因。

根據 U.S. News and World Report 在 2002 年依科系對美國各大專院校所做的評比中, UCI 的管理學院 (School of Management) 在全美排名第 40 名; 文學藝術研究所 (School of the Arts graduate program) 在全名排名第 45 名, 其中的英語系與比較文學研究 (Comparative Literature) 更是高居全美第 8 名, 而法國文學研究是全美第 10 名。如果以學校知名度來看, UCI 除了在 US News and World Report 2003 得到全美第 45 名, 全美公立大學 (Public Schools) 第 20 名的好名次外, 也曾在約翰霍普金斯 (Johns Hopkins) 的書—美國研究型大學的興起 (The Rise of American Research Universities: Elites and Challengers in the Postwar Era.)

中被點名為全美第 17 名的公立研究型大學（public research universities）；如果單從科學類學科來評比，UCI 排名更躍居為第 3 名。

UCI 在今年統計的數據中顯示，全校總共有 2 萬 1 千多位學生，其中有 1 萬 7 千多位是大學部學生，7 千 9 百多位是研究生。校內每年的可運用資金是 1.2 億，提供研究經費與校內設備補充之用。

以校內學生種族（Student Ethnicity）分析，亞洲學生總共有 1 萬 1 千多位，比白人裔的學生數（5,958 人）還要更多，是該校學生族群的主體。而在亞洲人中，中國（包括台灣、香港）佔所有人數的 3,299 位；韓國學生佔 1,624 位，而日本學生只有 548 位。在 UCI—[校院研究中心（Office of Institutional Research）](#)的網站上，有不少相關於這所學校的統計資料，對 UCI 有興趣的學生，不妨登入查看。

#### 重要排名如下：

- \* US News & World Report 2013：商學（Business）研究所第 49 名
- \* US News & World Report 2013：教育（Education）研究所第 37 名
- \* US News & World Report 2013：工程（Engineering）研究所第 37 名
- \* US News & World Report 2010：電腦科學（Computer Science）研究所第 28 名
- \* US News & World Report 2013：全美國家級大學排名第 44 名

## 附件三、加州州立大學富爾頓分校（Fullerton）

### 簡介

位於美國加州南部的加州州立大學富爾頓分校成立於 1957 年，座落在高科技公司雲集、文化豐富多彩的南加州橙縣富樂敦市，隸屬加州第一大城洛杉磯地區(人口 360 萬)，是美國大型大學之一，校園占地 96 公頃，共有 30,000 名學生，為一州立綜合大學，四季天氣熱，該地區全年陽光普照,有全美最佳沙灘及渡假勝地，該校是加州州立大學 23 個校區主中離狄斯奈樂園最近的校區，Anaheim 則是 LA 地區發展最快速的都市，自成立之初至今，已成為加州州立大學 23 個校區中成長的最快的校區。

科系有：最熱門的電腦系，其他熱門科系還有會計、財務、經濟、行銷、資管、MBA、諮商、教育行政、心理、教學、教育、特教、生物、化學、電腦、電機、地理、地質、數學、公衛、護理、家庭研究、傳播、體育、社工、非洲研究、藝術、英文、電影、政治、歷史、新聞、廣播、現代語、人類學、音樂、哲學、宗教、社會學、Tesol、戲劇、舞蹈等。

### 獨特的學習環境

美國加州富樂敦州立大學為國際學生提供了一個獨特的學習環境。這是一所將教學型大學和科研型大學的最佳品質有機結合的學校。大學擁有九個學院，提供 105 個學位。學院包括：藝術學院、Mihaylo 工商學院、大眾傳媒學院、教育學院、工程電腦科學院、健康科學和人類發展學院、人文科學和社會科學學院、自然科學和數學學院和繼續教育學院。2009 年秋季人數超過 35,000，是加州州立大學系統 23 所大學中人數最多的大學之一。學校校園佈局緊湊、環境舒適。多民族文化和多元化社區為學生們創造了一個獨特而和諧的學習環境。通過美國西部高校聯合會綜合認定。

### 美國國家級排名

《美國新聞與世界報導》列入“頂尖公立大學”第 11 名，護理麻醉碩士學位項目列為全美第 10 名。Mihaylo 工商管理學院是加州規模最大的商學院，在全美國是第 5 大商學院。2008 年被 Princeton Review 列入美國“290 所最佳商學院”。

## 附件四、UCLA 的緊急應變計畫清單

### 校緊急應變計畫

#### Emergency Operations Plan (EOP)

- What is it?** The purpose of the EOP is to enable emergency responders and staff to prepare for and perform essential emergency planning and response functions that will save lives; establish responsibilities that are necessary for performing these functions; prevent, minimize and repair damage; and ensure continuity of operations so that essential services may continue to be provided to UCLA and its clients.
- The EOP consists of four components which include a base plan, supporting appendices, functional annexes and hazard-specific annexes. The base plan can be found here. If you would like access to additional components of the plan, please contact the Office of Emergency Management.
- Who is it for?** The procedures and plans contained in the EOP will be implemented by the Emergency Management Policy Group, Campus Emergency Operations Group and first responders.
- How is it used?** The EOP assigns roles and responsibilities to departments and individuals who are directly responsible for emergency response efforts and critical support services. It also provides a management structure for coordinating and deploying essential resources, and addresses the integration and coordination of UCLA with other governmental agencies when required.
- What can I do?** If you have an emergency response role, make sure you have read and understand UCLA's EOP. If you do not have a specific emergency response role and an emergency arises, listen to first responders.

### 系緊急應變計畫

#### Departmental Emergency Response Plan (DERP)

- What is it?** Departments at UCLA are encouraged to complete a Departmental Emergency Response Plan (DERP). A DERP outlines the overall response strategy of the department and the communication methods the department will utilize to share information after an emergency. The DERPs support the UCLA Emergency Operations Plan and are an integral piece of the overall campus response.

The UCLA Office of Emergency Management provides a **DERP Template** to guide and assist departments through the critical elements of a departmental emergency plan. The template

contains the following main elements:

- Role of the Department & Deans in Emergency Response
- Procedures on gaining department status after an emergency
- Emergency Contact Information for the Department
- Procedures for providing information to employees after a disaster
- Important Campus Emergency Phone numbers
- General Emergency Response Actions for events such as:
  - Fire
  - Hazardous Material Spill
  - Earthquake
  - Bomb Threat
  - Civil Disorder
- Guidelines for Accommodating People with Access or Functional Needs
- Emergency Supply kit recommendations and locations
- Department Operations Center staffing and activation procedures

Department Status and Loss Reporting procedures

- Who is it for?** DERPs are department-specific plans. Departments should make their DERP available to all of their employees.
- How is it used?** Completion of a DERP helps departments identify redundant essential personnel (primary, secondary and an alternate) for critical positions or functions. It also helps UCLA departments in orienting newly hired employees on planning procedures and practices. However, work doesn't stop with the completion of the plan. Plans must be tested, exercised, updated and revised continuously as new people are promoted, transferred or retire. It is important to conduct quarterly and annual training and exercises, and maintain proactive updates of the plan once it is established. OEM can provide technical assistance to departments in completion of their plans.
- What can I do?** Make sure that you are familiar with your department's emergency response plan and attend any training that is offered. Contact OEM if you would like to arrange additional training.

## 緊急行動計畫

### Emergency Action Plan (EAP)

**What is it?** The California Division of Occupational Safety and Health (Cal OSHA) requires every workplace have an Emergency Action Plan ([29 CFR 1910.38\(a\)](#)). The Emergency Action Plan outlines important emergency response information such as:

- Emergency Reporting Procedures



- Evacuation Routes
- Assembly Areas
- Staff Rosters and Accountability
- Staff Responsible for operating critical plant equipment before evacuation
- Location of Fire Alarm Pull Stations and Fire Extinguishers
- Rescue and Medical duties for those able to perform them

The EAP must be in writing and be made available to employees for review at any time. UCLA provides an **EAP Template** as a guide.

**Who is it for?** Emergency Action Plans are for UCLA employees. They are specific to work areas and are *not* department specific, although collaboration is an important aspect of emergency planning and is encouraged for creation of your EAP. A workplace is typically considered any suite of offices, lab, or smaller floor of a building. Each EAP will typically cover up to 20 persons, although exceptions can be made.

The creation and update of the Emergency Action Plan is the responsibility of the Area and/or Floor Warden of each workspace. Please consult with the Office of Emergency Management if any questions arise during the creation of your EAP or selection of Area and Floor Wardens.

**How is it used?** EAPs should be used to plan and prepare for emergencies at the workspace level so that if an emergency occurs, UCLA employees will know what to do. For example, the EAP helps to guide, evacuation, assembly, sheltering-in-place and other staff responsibilities.

**What can I do?** Make sure that your workspace has an up-to-date EAP. If you are not sure where to find your EAP, ask your Floor and/or Area Warden.

## 空間樓層及設備管理手冊

### Area, Floor & Facility Warden Manual

**What is it?** This manual guides Area, Floor, and Facility Wardens selected to assist in the implementation of workplace Emergency Action Plans and provide for the safe emergency response to any incident.

**Who is it for?** This manual is for Area, Floor and Facility Wardens.

**How is it used?** It is used to prepare wardens in the case of emergency as it explains their roles and responsibilities in detail.

**What can I do?** If you are a warden, make sure that you have read the manual and attended training courses that are offered by the OEM. If you are not a warden, make sure you know who your floor, area and facility wardens are!

#### 危害物質應變計畫

### **Hazardous Materials (Hazmat) Response Plan**

**What is it?** Details the roles, responsibilities and procedures follow in responding to a hazardous material spill.

**Who is it for?** Trained hazmat response team members (includes police, fire department, hazard-specific subject matter experts), Primary Investigators and anyone else who uses hazardous materials.

**How is it used?** Provides specifics on response team and equipment spill response preparedness, including process flows and on-call procedures. This plan does not include instructions on how to identify and handle specific hazards, as this information is covered in training.

**What can I do?** If you work with hazardous materials, make sure to follow Standard Operating Procedures and other safety precautions. If you see a hazard material spill, call 911 immediately and **shelter-in-place** where applicable. Do not try to contain it if you have not received training in this area.

#### 校園緊急應變小組手冊

### **Campus Emergency Operations Group (CEOG) Handbook**

**What is it?** Details the roles, responsibilities and procedures that follow in responding to an emergency or disaster on campus.

**Who is it for?** Members of the Campus Emergency Operations Group.

**How is it used?** This handbook details the steps that will be taken to activate the CEOG, provides an organizational structure for the group and clearly delineates the CEOG's role in the response. With such a response structure in place, the CEOG has the ability to respond to any type of emergency on campus.

**What can I do?** If you are a member of the CEOG, participate in training and exercises, know your role during an emergency and make sure that the OEM has your current contact information on file.

#### 緊急管理決策小組手冊

### **Emergency Management Policy Group (EMPG) Handbook**

**What is it?** Details the policy related roles, responsibilities and procedures

that follow in responding to an emergency or disaster on campus.

- Who is it for?** Members of the Emergency Management Policy Group.
- How is it used?** This handbook details the steps that will be taken to activate the EMPG, provides an organizational structure for the group and clearly delineates the EMPG's role in the response. With such a response structure in place, the EMPG has the ability to respond to any type of emergency on campus.
- What can I do?** If you are a member of the EMPG, participate in training and exercises, know your role during an emergency and make sure that the OEM has your current contact information on file.

### 就地避難計畫

#### Shelter-in-Place Plan

- What is it?** This Shelter-in-Place plan is an annex to UCLA's Emergency Operations Plan. It includes procedures for remaining in campus buildings, guidelines for shelters, and a demobilizing plan for returning to normal functions. Events which preclude evacuation from campus but require police involvement, including an earthquake or hazardous material spill, may prompt UCLA to implement this Shelter-in-Place plan.
- Who is it for?** This plan applies to everyone on campus. However, the details contained in this plan are mainly for UCLA staff and faculty with emergency response roles. General information on how to shelter-in-place can be found in the "What can I do" section below.
- How is it used?** Provides specifics on the functional response and assigns responsibility for critical tasks to be performed by the EMPG, CEOG and first responders.
- What can I do?** Make sure that you are signed-up to receive BruinAlerts and that you know how to **shelter-in-place**.

### 封校計畫

#### Lockdown Plan

- What is it?** This Lockdown plan is an annex to UCLA's Emergency Operations Plan. This annex details the specific procedures that UCLA will take in the event of a lockdown scenario. A lockdown is a temporary sheltering technique that is used to limit exposure to an incident by preventing unauthorized or dangerous individuals from entering buildings and/or rooms. Events that may require lockdown include, but are not limited to, active shooters,

civil disturbances or domestic violence intrusions. In such a situation, implementation of this annex will allow UCLA to keep its students, staff and faculty as safe as possible.

- Who is it for?** This plan applies to everyone on campus. However, the details contained in this plan are mainly for UCLA staff and faculty with emergency response roles. General information on how to lockdown can be found in the “What can I do” section below.
- How is it used?** Provides specifics on the functional response and assigns responsibility for critical tasks to be performed by the EMPG, CEOG and first responders.
- What can I do?** Make sure that you are signed-up to receive BruinAlerts and that you know how to **lockdown**. Additionally, learn what to do you if encounter a shooter (**PDF**) on campus.

## 附件五、UCI 整理的安全注意與教訓

### Safety Alerts & Lessons Learned

- Cal/OSHA: How to Lift
- CO Overexposure (pdf)
- Explosion Using Distillation for Final Purification of Tosylated Compound (pdf)
- Falling Objects - A Dangerous Trend (pdf)
- Forklift Rollover (pdf)
- Laser Pointers - Safety Recommendations
- LCD Projector Beam Nearly Cause a Fire (pdf)
- Nitric Acid Exposure (pdf)
- Peroxide Explosion (pdf)
- Portable Space Heater Danger (pdf)
- Propane Torch and Hexane Fire (pdf)
- Pyrophoric Materials Cause Chemical Fume Hood Fire (pdf)
- Rotor Safety (pdf)
- Ruptured Gas Cylinder Destroys Laboratory Hood at the University of Nevada (pdf)
- Smoke Alarms (Detectors) Can Save Your Life
- Sulfur Dioxide Inhalation Following UPS Battery Failure (pdf)



<http://www.depts.ttu.edu/vpr/integrity/lessons-learned/>

<http://ehs.berkeley.edu/hs/327-lessons-learned.html>

<http://ucih.ucdavis.edu/pages/lessons.cfm>

## 附件六、2014 UCI Lab 的目標



### **Safety in Research Laboratories**

This Workshop is for researchers, students, and health and safety professionals from both public and private sectors to establish research priorities and criteria to study laboratory safety empirically. Workshop objectives include:

- Identifying safety challenges associated with hazards in research laboratories
- 辨識研究實驗室危害相關的安全挑戰
- Establishing research priorities and research agendas for the study of laboratory safety
- 建立實驗室安全與研究優先事項
- Stimulating dialogue between research scientists and health & safety professionals
- 研究者與安衛人員的互動交談

## 附件七、Fullerton Emergency Operations Plan 疏散及開學準備指引

### Introduction

#### Part One: Basic Plan

*The following parts of the Emergency Operations Plan are available in the Emergency Operations Center. Questions about the plan should be directed to the Emergency Management Coordinator.*

#### Part Two: Hazard Identification and Analysis

#### Part Three: EOC Position Checklists

#### Part Four: Emergency Operations Procedures (EOPs)

#### Part Five: Functional Annexes

#### Part Six: EOC Disaster Recovery Operations

#### Appendices

### 疏散指引 | What to do during an Evacuation

#### CAMPUS EVACUATION MAP - Find out where your evacuation area is!

- Note the **color-coded areas of each building** that correspond to each Evacuation Area. Building Marshals will help guide you to these locations during the week day. During the evenings and on weekends, however, Building Marshals are typically not on campus, so faculty will most likely be the persons on campus to help direct you.
- *Please note... DO NOT evacuate into the Quad area. Look at the Evacuation Map for your evacuation area.*

#### GENERALLY, Before an Evacuation...

- Look at the evacuation diagrams in the building and room you are in.
- Know the location of at least TWO exits.
- **At the sound of an alarm...**
  - Stop whatever you are doing.
  - Turn off, or close the container of anything potentially hazardous, if you can.
  - Grab your personal possessions quickly.
  - Do not take time to gather more things than you can quickly find.
  - DO NOT WAIT! Walk to the nearest exit.

- If your nearest exit is blocked, move immediately to another exit.

#### **NOTE TO FACULTY**

- Students will look to you for guidance in emergency situations and practice drills, so make sure you know all of the emergency exits in every building you teach, or have an office.
- **Before an Evacuation...**
  - On the first day of class and in your course syllabus:
  - Remind students of the evacuation routes out of the room.
  - Suggest a meeting place to ensure all students have safely evacuated from the building.
  - Allow students to approach you privately if they have concerns about evacuation procedures.

#### **At the sound of an alarm...**

- Insist that every student immediately stop what she/he is doing and proceed with the evacuation.
- Do not allow anyone, including yourself, to remain in the room, or building.
- Offer assistance if someone needs it, or notify a Building Marshal of the location of the student who requires assistance to evacuate the building.
- Be an example and evacuate fully out of the building, at least 50 feet from the building. You may need to move further, as the situation dictates.
- Building Marshals will likely be able to direct you out of the building to a safe area.
- **FOR EVENING AND WEEKEND CLASSES**, Building Marshals may not be available, so be ready to take the lead and guide your students out of the building to a safe location.



## 開學準備事項

A new semester -- and time to prepare!

**There is something for everyone...**

***FACULTY: Here is a quick checklist to start your semester and be prepared for anything!***

- Make your SYLLABUS easy to read, with important contact information at the TOP.
- VISIT your classroom before the first class and know where your emergency exits are.
- Check your classroom door -- does it lock? How? If not, contact your department chair.
- Check this website for the location of your nearest evacuation areas and how to get to them.
- [Use the document provided here](#) to give students some great preparedness instruction.
- GO OVER EMERGENCYPROCEDURES ON THE FIRST DAY OF CLASS. This is not only important knowledge, but it shows students that you in an emergency situation that you will take a leadership role in their safety.
- Have a great semester!

***STUDENTS: Be involved in your own safety and make sure you participate in every campus exercise. Insist that those around you do to.***

***ALL CAMPUS PERSONNEL: You are responsible for your own safety and preparedness by what YOU do before, during and after a crisis situation. Take the time now to get ready -- and enjoy your semester.***