

Welcome to the first issue of *Forensic Science Forum*, the newsletter of the Forensic Science Program in the Justice Studies Department at San Jose State University. The newsletter welcomes submissions from students and graduates.

## Forensic Science Student Research Projects

### The Recovery of DNA on Improvised Incendiary Devices (Molotov Cocktails) Utilizing Various Fire Suppression Techniques

-Lauren Buban, FS Bio, 2011

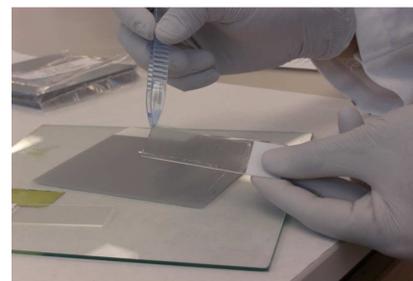
The use of improvised incendiary devices against property and persons for various reasons has been an increasing problem in urban environments. Improvised incendiary devices are inexpensive to make and easy to construct. However, the damage inflicted by such a device is immeasurable and can cause serious physical injury and/or death. Of all improvised incendiary devices that can be constructed, the Molotov Cocktail is the most common.



Molotov Cocktails most commonly consist of a breakable glass container, an ignitable liquid (usually gasoline) and a lighted wick. The wick can consist of many different materials (usually cloth or paper). The effects of a Molotov Cocktail are maximized after the device is thrown against a hard surface, thus breaking the container and causing the liquid to ignite. Pieces of the Molotov Cocktail bottle, such as the

neck (with labeling) and base (with cast-in production data) are most resistant to mechanical and fire damage, usually survive intact, and are easy to detect in a fire scene investigation. Identification of individuals who manufacture and use Molotov Cocktails is of interest to law enforcement. Previous research conducted by the Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF) has shown that DNA can be successfully recovered from the remains of a charred Molotov Cocktail. While this is promising information, some Fire Investigators have speculated that perhaps fire suppression techniques could inhibit DNA recovery. This research will demonstrate the effects various fire suppression techniques have on the recovery of DNA from Molotov Cocktails.

For more information, please visit: <http://www.cacnews.org/training/abstracts/2010-Fall.shtml>



### Comparing Wearer DNA Sample Collection Methods for Determining the Most Effective Method for the Recovery of Single Source Profiles

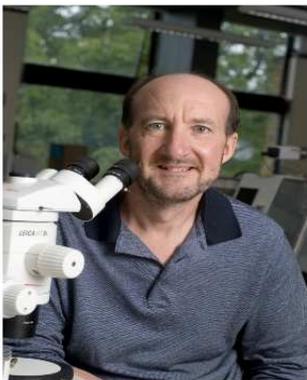
-Corissa Harris, FS Bio, 2012

My research, supervised by Brooke Barloewen and Amanda Cardenas at the Santa Clara County Crime Lab, involves the comparison of the current wearer DNA collection methods with a new method that uses Gel-Pak '0.' Gel-Pak '0' is not currently used in forensic science; it is manufactured to safely transport small devices such as microchips. It is similar to adhesive found on tape, but is less tacky which will hopefully result in the collection of the last layer of DNA. This DNA represents the last person who wore or touched an item. The purpose of my research is to compare the current wearer DNA collection methods to enhance the recovery of single source profiles. If successful, this research may alleviate the complex interpretation necessary for mixtures and provide single profiles which crime labs can upload into CODIS. For more information, email [corissa1084@gmail.com](mailto:corissa1084@gmail.com).

# CSI LEICESTER

-Phil Nhan, FS Bio, 2011

This summer I was extremely fortunate to attend the CSI Summer School Program at the University of Leicester in Leicester, England. The three-week course is open to everyone and is taught by Dr. John Bond, a British physicist who revolutionized latent fingerprint recovery from metal with a technique that applies an electrical charge to the corrosion on the metals caused by secretions from the hands. His invention was named the 39<sup>th</sup> best of 2008 by Time Magazine. When I was given the opportunity to study under such a highly regarded scientist, I literally jumped at the chance.



Our international CSI class was comprised of thirty-five students including eight from SJSU's Justice Studies and Forensic Science programs. Students were broken into nine teams; each team was given evidence to process and tasked with ascertaining the nature and relevance of the evidence to the crime. Team cohesion was essential to accurately process and interpret the evidence from the case. Lab work included developing and lifting latent prints using black and aluminum (pronounced "al-u-min-ee-um" in England) powder, ninhydrin, and superglue treatment; analyzing blood patterns and recreating castoff patterns; using a scanning electron microscope to analyze gunshot residue particles; comparing glass fragments using a prism and a laser light source; using x-ray emission spectra to determine the elemental composition of glass; lifting a footwear impression using an electrostatic lifting apparatus (ESDA) and gel lifters; and developing

indented writing using ESDA. The coursework was comprehensive, challenging and fun, and culminated in team presentations of case findings to a panel of experts.

It could be argued that the U.K. is the motherland of forensic science, and it is without a doubt the motherland of DNA profiling. Sir Alec Jeffreys invented genetic fingerprinting and DNA profiling at the University of Leicester and still holds a professorship there. The first case ever solved with Jeffreys' technique occurred in the quaint villages of Narborough and Enderby, just twenty minutes from the city of Leicester. It was in these two sleepy villages that Colin Pitchfork raped and brutally murdered two young girls in the early 1980's. Pitchfork was eventually identified after a massive DNA hunt of all males in the area (as famously told in the book "The Blooding" by Joseph Wambaugh). Over one weekend this summer, a small group of us set out to find these forensically historic sites. Pitchfork had committed one murder on a footpath known locally as the Black Pad in Narborough, and the other on a footpath in Enderby known as Ten Pound Lane. Neither footpath is marked by a sign of any kind. While searching for the sites we wandered, by chance, into a cemetery. As we strolled along, we suddenly found ourselves at the gravestone of Pitchfork's first victim, Lynda Mann.



It was humbling, chilling and exciting to be standing at this teenager's grave, knowing that such a powerful forensic tool was first used to solve *her murder*. In the course of our search for the Black Pad and Ten Pound Lane I spoke to a man who had been one of the approximately 3,000 to give blood during the investigation over twenty-five years ago. As with most tragedies, the people have tried to forget and move on, and we kept this in mind as we gingerly brought up the topic with villagers. We did eventually find the footpaths, and the adventure felt like a kind of homecoming.

On the last day of the course, students assembled for the farewell banquet listened with anticipation as Dr. Bond humored them. "The name is Bond... *John Bond*." This quip kicked off the final party of an unforgettable three weeks. Following team presentations and an awards ceremony for the top performing individuals and groups, the farewell banquet raged with jokes, laughter, stories and memories. It was difficult to grasp that the experience was really about to end. None of us will forget the lessons learned in the enriching experience of the CSI Leicester program. For me, newly graduated from SJSU, the best part was learning from Dr. Bond directly. He rooted every lecture in science and avoided the easy seduction of Hollywood "forensics". At first his brilliance was intimidating, but by the end of the program, I wondered how such an astoundingly intelligent person could be so humble. Throughout the course Dr. Bond gave his time and expertise to help guide students through the modules. He was both professional and amiable when instructing us, and his kindness and wisdom inspired everyone to be better forensic scientist.

For information on next year's class: <http://www2.le.ac.uk/projects/csi-leicester>



### 2011-2012 FSS Officers

Co-Presidents: Marilyn Rosa  
& Courtney Streeter  
Vice President: Luis Sandoval  
Treasurer: Corissa Harris  
Secretary: Casey Whelan  
Historian/PR: Becky Tilney

Contact:  
[sjsu.fss@gmail.com](mailto:sjsu.fss@gmail.com)

### Fall 2011

#### Meeting Schedule

*All meetings will be held in  
the Student Union on  
Mondays from  
4:30-5:30pm*

#### *Mentor/Advising Meetings*

9/12 Almaden Room  
10/10 Guadalupe Room  
11/7 Guadalupe Room  
12/5 Guadalupe Room

#### *General Meetings*

9/26 Guadalupe Room  
10/24 Guadalupe Room  
11/28 Guadalupe Room

*End-of-Semester Banquet  
Friday, Dec 2*

## FSS Membership

Membership has its benefits. As a member, you:

- May become a mentor or mentee
- Will have access to scholarships and research opportunities
- May participate in professionally enriching events such as Urban Shield (held annually, see below), the FSEC Conference in 2011, or the Clandestine Grave Excavation Project (aka "pig dig") in 2010
- May participate in social events such as the annual FSS banquet, SF Giants games, and field trips to the shooting range
- Will acquire contacts with professional forensic scientists through the forensic science seminar series
- Will be eligible to wear FSS regalia at graduation
- Will have a network of peers who are now your classmates and friends, but will someday soon be your coworkers and supervisors!

## Project Urban Shield: October 15 -17, 2011

Urban Shield is a regional public safety exercise that builds essential public and private partnerships critical to the successful response to an emergency or catastrophic event. Urban Shield is comprised of a series of medical check points Operational Scenario Sites (OSS). These sites are used to assess the preparedness of local law enforcement agencies in scenarios not typical in everyday police work. Through planning, execution, and after-action come a variety of lessons learned and best practices that are identified and adopted for a more effective and efficient response to the complex public safety challenges of the Bay Area. This one event encompasses 9 counties, 101 cities, 7,000 square miles, and 7 million people.

2011 will mark the second year that San Jose State University students will participate in Urban Shield. Last year, members of the Forensic Science Students group and Alpha Phi Sigma assisted with the logistical operations at Purple Area Command based at the Lawrence Berkeley National Lab. This year, Purple Area Command is responsible for providing all

## FSS Mentor Program

The FSS mentor program pairs competent junior and senior Forensic Science mentors with freshman and sophomore mentees for the purpose of providing guidance and assistance as the younger students navigate the major. A mentor may help his or her mentee choose classes and professors, exchange books, and become familiar with the campus and JS department. This is accomplished through participation in FSS group activities that are both social and academic. In some cases, mentors may also tutor mentees in academic course work.

logistical support for four OSS throughout forty-eight hour operational period beginning at Sigma and Chi Pi Sigma will be 5:00am Saturday, October 15th and ending at 5:00am Monday, October 17th. Members of Alpha Phi will be volunteering at Purple Area Command again this year. Members of the Forensic Science Students Group (FSS) will also have the unique opportunity of volunteering at an operational scenario site. This OSS was developed by the Lawrence Berkeley National Laboratory, Emeryville Police Department, and AlphaTrac, and will test law enforcement teams' abilities to assess and contain a hazardous chemical spill while taking appropriate action to care for wounded victims and also capture a perpetrator. Members of the FSS will serve as live role players and site volunteers throughout the two-day event.

For more information please visit <http://www.urbanshield.org/> or contact [sjsu.fss@gmail.com](mailto:sjsu.fss@gmail.com).

-Courtney Streeter, FS Chemistry, 2011



FSS Pig Dig, May 2010

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Lecturer & Advisor

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Submissions welcome from  
students and graduates!

## Forensic Science Internships

An internship is an excellent way to gain hands-on experience, and will look great on your resume when you are ready to look for your first job. If you are interested in doing an internship, you should plan to apply 3-6 months before the semester in which you intend to enroll in JS170. A current resume and cover letter are required for all internship applications. See Juno in MQH 527 or Dr. Lee in MQH 509 for details.

### Current internships:

Santa Clara County District Attorney Crime Lab  
Santa Clara County Medical Examiner/Coroner's Office  
San Mateo County Latent Fingerprint Lab  
San Mateo County Coroner's Office  
San Francisco Police Department  
Alameda County Crime Lab  
ATF Walnut Creek Lab  
Lawrence Berkeley National Lab



## Forensic Science Seminar Fall Series

**Carolyn Gannett**

**Ethics in Forensic Science**  
September 19, 1230-1630  
Santa Clara County Crime Lab

**Mark Bennett**

**Shooting Incident Reconstruction**  
October 13, 1030-1145  
MQH 324

**Gloria Nusse**

**Facial Reconstruction**  
November 2, 1630-1915  
Clark 218

**Keith Inman**

**Origin of Error in Forensic Science**  
November 23, 1630-1915  
Clark 218

## JS & FS Workshops in MQH 533

Several free workshops will be offered this semester in the new Student Success Center: MQH 533. Content is particularly relevant to JS and FS majors, but everyone is invited to attend. Workshops include:

Writing Effective Resumes & Cover Letters	Oct 5, 3:00-4:00
Interview Skills	Oct 19, 3:00-4:00
Forensic Science Internships	Oct 26, 3:00-4:00
JS Department Scholarships: Get One!	Nov 2, 3:00-4:00

## Congratulations Forensic Science Fall 2011 GRADS!

Melissa Barlaan, Chemistry  
Diamond Cook, Chemistry  
Teresa Constanzo, Chemistry  
Helen Du, Chemistry  
Katrina Dy, Biology  
Zeba Kahn, Biology

Paige Knight, Biology  
Tony Ma, Biology  
MacKenzie Spykerman, Biology  
Courtney Streeter, Chemistry  
Clarissa Trogden, Chemistry  
Carmen van Gastel, Chemistry



## GRADS in the News...

**Sharleen Rojas**, FS Bio 2010: Interned at San Mateo County Latent Fingerprint Lab 2010-2011, currently training in the Biology Unit under a Cold Case grant.

**Phil Nhan**, FS Bio 2011: Supervised and trained FS research students at SJSU this summer and attended the University of Leicester CSI School in the UK.

**Amy Griffin**, FS Bio 2011: Interning at San Mateo County Latent Fingerprint Lab through June 2012.

**May Cheung**, FS Chem 2011: Interned at San Mateo County Latent Fingerprint Lab 2010-2011, currently works there as a Latent Print Technician and in training to do fingerprint comparisons.

*Send us an update on yourself! Are you working? Interning? In graduate school? Did you leave forensic science to become a cat groomer? We want to know!*

