

Focus on Forensics

Volume 6, Issue II

Spring2008

Planning for the Future

On March 19th, Forensic Science students had the opportunity to come listen to individuals within the University who had valuable information for them about graduate school and searching for careers in the forensic science profession.

The afternoon session featured a representative from the University Career Center, a liaison from the School of Education and several members of the department who were there to talk about building resumes and increasing your odds in the highly-competitive field of forensic science.

Serology and DNA instructor Ms. Sarah Seashols, a former Virginia Department of Forensic Science employee, stressed to students the importance of gaining hands-on experience. She encouraged students to seek out opportunities to work in a laboratory setting—even if that meant volunteering.

Graduate Director, Dr. Tracey Dawson Cruz provided undergraduate students with advice on applying to



Sarah Seashols speaks to students about the need to gain hands-on experience.



graduate programs. She emphasized the importance of good grades and good GRE scores. References, lab experience and a well-crafted personal statement were also included in her list of priorities for undergraduates making the all-important leap from college to graduate school.

Mr. Joseph Lyons, Associate Director of the University Career Center, spoke to students about the resources available to assist students preparing for the job searches. In addition to résumé preparation help, the Career Center offers one-on-one interview preparation and job hunting tools to help students get placement in their field of study.

School of Education faculty Dr. Jacqueline McDonough spoke about the opportunities available to Forensic Science students as teachers in the

Virginia School system. Because of a strong science background, specifically in Chemistry, Forensic Science students are excellent candidates for careers in science education. These careers offer good starting salaries, good benefits and summers off.

In many ways whichever path you choose will hinge on getting your life down on paper. Dr. Michelle Peace provided some examples of resumes for students to emphasize what to do and what not to do in preparing a resume. She also touched on the differences between a resume and a more substantial curriculum vitae (C.V.) for those interested in applying to Master's and Ph.D. programs.

The event was an opportunity for students to take away valuable information that will help them not only now, but well into the future.

In this issue:

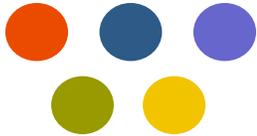
Inside the Internship

A Graduating Senior Reflects

Student Club Update

Photos from AAFS

Alumni Involvement & Updates



Preparation of Materials



Creation of Bloody Footwear Impressions



Enhancement with LCV

It's 11:34 p.m. In a fit of rage, a young man kicks in the door to his girlfriend's home after having just found out that she has been seeing another man. He is carrying a newly purchased, long blade knife and he intends to use it.

Despite her best self-defense efforts, the girlfriend is stabbed eleven times with the knife and lies lifeless on the floor. The perpetrator tosses the knife into some nearby bushes and flees the scene without realizing that he has unknowingly left behind several valuable pieces of bloody footwear impression evidence. Moreover, a neighbor sees the young man speeding away in his truck.

Bloody footwear impressions, such as the ones described in the previous case, can be chemically enhanced with a number of different reagents in order to increase the contrast between the impression and the substrate upon which the impression is left. Some of the current enhancement techniques include amido black and Coomassie blue.

I recently had the opportunity to evaluate a chemical enhancement reagent which was first introduced by the FBI in 1993, known as leucocrystal violet (LCV).

I began my internship in Au-

gust of 2007 at the Virginia Department of Forensic Science in the Latent Prints and Impressions section under the guidance of Amanda Lane. The most difficult part of the internship was coming up with an experimental design and a timeline for the completion of the project. I chose to create bloody footwear impressions on four different substrates: paper, painted wood, vinyl tiling, and a sheet. The creation of the bloody footwear impressions on these surfaces took nearly a week in and of itself.

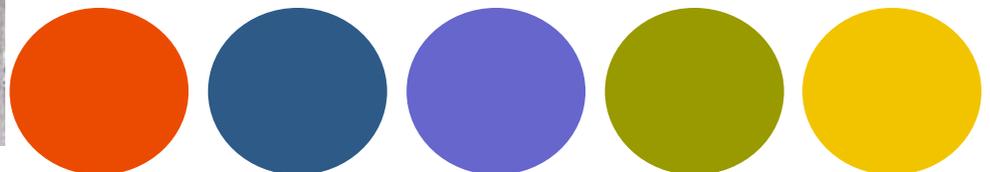
The bloody footwear impressions were enhanced after different periods of time with four different enhancement reagents, including LCV. Results indicated that LCV was not the best choice for enhancing bloody footwear impressions in the laboratory and that the current technique, amido black, was much more effective.

My internship experience in the impressions laboratory at the Virginia Department of Forensic Science was well worth the time and effort that I put forth on a daily basis. I became familiar with current DFS examination procedures and was given an inside perspective as to what goes on in the day-to-day life of a forensic scientist. I was able to

examine real evidence with my mentor, although I was not able to draw any official conclusions, of course. I was also given the opportunity to observe my mentor testify in state court for a case that I personally observed her process. Seeing the direct impact of her work on the outcome of the case was a very exciting experience.

Forensic scientists are passionate about what they do. Forensic scientists continually strive to be the best. The work that a forensic scientist does has an impact on the entire community. Paul D. Kirk, father of criminalistics, once said, "Wherever he steps, whatever he touches, whatever he leaves, even unconsciously, will serve as silent evidence against him...physical evidence cannot be wrong; it cannot perjure itself; it cannot be wholly absent. Only its interpretation can err. Only human failure to find it, study and understand it, can diminish its value."

-Leslie Guion





Corenthia Mills poses with her parents after receiving the “Black History in the Making” Award.

Freshman year does not seem like it is already four years in the past. My time at VCU has been filled with so much excitement, that the years have really just flown by.

I came into the University having already declared a major in Forensic Science, but that was the only thing that I was sure of as far as my college experience was concerned. At the time, I was just hoping not to get lost while trying to find my classes. Luckily, not only did I find my classes, but I was also beginning to find myself.

My exposure to forensic science began slowly, but it greatly increased during the years.

The very first forensic science class I took was freshman year, but it was only a survey class, so it never went into depth on any one subject. That was probably how I became involved with the Foren-

sic Science Student Club.

The events and lectures they hosted often featured certain careers or topics in forensic science that the survey class could only touch on. Therefore, I found the FSSC a helpful addition to my early learning experience.

The FSSC not only offered a thorough introduction of the field to younger students, but it also presented the older students a sneak peek into the careers they were hoping to obtain after graduation.

Since I knew that I would not be taking any more forensic science classes for another year or two, I decided to become more involved with the Forensic Science Student Club by becoming an active member.

Later, I became an undergraduate board member before I finally took on the position of secretary, which I have now held for two years.

As a senior, I have now been enrolled in quite a few forensic science classes, and my only disappointment is that I will be finished with them all very soon.

I have entered my last year at VCU with ambivalence. Of course, I am excited that graduation is fast approaching, but at the same time,

my days left at VCU are now limited and I notice myself keeping track of all of my lasts – my last homecoming game, my last Intercultural Festival, and my last semester in the fall.

I have taken classes that have given me hands on experience that will be crucial when applying for that first job. Being a part of organizations has helped me develop leadership skills.

Being a member of not only the forensic science community, but also the VCU community, has guided my growth and progress. Even though my time at VCU is passing and coming to an end, it has been time well spent.

—Corenthia Mills



Have a fantastic summer, and keep in mind that August is just around the corner! Here are some of the upcoming events for the Summer and Fall semesters:

FRSC 309 (Summer) Begins

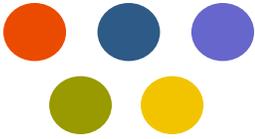
FRSC 350 (Summer) Begins

Science Day

Fall Classes Begin



Corenthia was one of the club members who helped make the First “Truth in Forensic Science” event so successful.



Forensic Science Student Club Update

The Forensic Science Student Club had a lot going on this spring!

Our first event of the semester was held on Saturday, February 2nd when we conducted our second Truth about Forensic Science Day. This was a recruiting event held during a University Open House. We set up posters displaying the many disciplines encompassed in Forensic Science. We also talked with upcoming students to help distinguish between the myth and reality of Forensic Science.

Our next event, held on March 1st, featured an opportunity for club members to help perform activities on blood spatter, fingerprints, microscopic hair analysis and a vehicle lamp exercise for local Girl Scouts. We had so much fun helping these young women learn about science and college life in general, I hope that we can continue to

do similar activities in the future.

We have also been very fortunate to have five new additions to the FSSC Executive Board. These positions include Secretary, Treasurer, 2 Undergraduate Board Members and 1 Graduate Board Member. We'll be updating Blackboard and the club website soon, in order to showcase these individuals. In the meanwhile, please join me in welcoming these new members aboard.

Also, this semester we continued our series of guest speakers. One speaker in particular who we sponsored was Gene West, Retired Fire Marshal of New York City. The department and the club co-sponsored his talk, April 7th, at 3:00pm in the Commons Theater. Mr. West's topic was an "Introduction to Fatal Fire Investigations" which included a video and photographic presentations of the World

Trade Center collapse.

Also on Saturday, April 19th, the club participated in Relay for Life on the Cary Street Field. This was a great event and we were fortunate to have so many club members join us. The next day, Sunday April 20th, was the highlight of the spring semester, the second annual Murder Mystery Dinner Theater.

For more information and updates for club events please check blackboard, read the email updates, or add 'Forensic Scientist' to your friends on Facebook. We look forward to sponsoring more great activities in the Fall!

-Ally Woosley, FSSC President

Ally Woosley

FSSC President '07-'08

For club updates and information, email fssc@vcu.edu



Forensic Science Student Club member Kelly Brown demonstrates how angles affect the appearance of blood spatter as several girl scouts and another club member look on with interest.

Who's My Advisor?

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Early in the fall semester, all students will receive an e-mail containing the name of their academic advisor.

If you do not receive the email, or if you misplace it, please contact the administrative office at 1000 West Franklin Street in order to get the name of your faculty advisor. Call 804-828-8420 or email fos@vcu.edu.

Remember, your advisor is an important link to the University and the Forensic Science Community and you should see your advisor at least once a semester.

The following is contact information for all of the advisors in Forensic Science. So if you

already know who your advisor is, why not call and set up an appointment?

Dr. Tracey Dawson Cruz

Life Sciences Building
Room 313
804-828-0642
tcdawson@vcu.edu

Dr. William Eggleston

1000 West Franklin Street
Room 106
804-828-0799
weggles@vcu.edu

Mr. Eric Hazelrigg

Life Sciences Building
Room 349
804-828-0075
ejhazelrigg@vcu.edu

Dr. Marilyn Miller

Life Sciences Building
Room 314
804-828-0765
mtmiller@vcu.edu

Dr. Michelle Peace

1000 West Franklin Street
Room 104
804-827-8591
mrpeace@vcu.edu

Ms. Sarah Seashols

1000 West Franklin Street
Room 109
804-827-8597
sseashols@vcu.edu

Dr. Diane Williams

Life Sciences Building
Room 008
804-827-8596
dkwilliams@vcu.edu



Advisors can provide students with important information about classes, research opportunities, career options and more. Above, Carey Davis and her advisor, Dr. Tracey Dawson Cruz pose for a picture at the American Academy of Forensic Sciences Annual Meeting.

Sounding the Sirens

Have you noticed that little line at the bottom of your syllabus encouraging you to sign up for VCU alerts via email and text message?

Have you done it yet?

If not, doing so is simple and easy. Simply log on to <http://www.vcu.edu/alert/> and click on "Sign Up for Alerts", or go directly to <http://www.vcu.edu/alert/notify/>.

Text messaging is reliable and fast. Nevertheless, text messaging is only effective if everyone signs up and keeps his

or her information up-to-date. For that reason, we urge you to enroll today. And to keep your information current.



Faced with Forensic Science

Have a Facebook account? Now, so does VCU Forensic Science!

Just add the "Forensic Scientist" page on the VCU network to your Facebook account in order to get the latest updates to our calendar and more.

Have a great suggestion?

Write it on our wall!

Communicate with classmates without sending an email. Find more information in more places.

We'll try to post as much as possible over the coming months to try it out.

Please remember to give us

feedback so we'll know what we're doing right and what we can do better. As always, if you have time-sensitive material please call or email us directly at 804.828.8420 or aebega@vcu.edu





Congratulations!

2008 AAFS Annual

May 2008 Graduates

May 2008 Graduates

Meeting Presenters

B.S. in Forensic Science

M.S. in Forensic Science

Aimee Halphen*
 Kristen Lewis*
 Sarah Seashols
 Michelle Bonnette*
 Denise Rodier*
 Tracey Dawson Cruz
 Michelle Peace
 Michelle Trevino*
 Jarrod Champagne*
 Bethany Guckert
 Lindsay Thompson*
 Mark Bennett
 Lisa Schwenk
 Kelly Brown
 Stephanie Karczynski
 Jennifer Harris
 Elsa Jacob
 Caitlin Kilcoin
 Susan Greenspoon
 Katie Horsman
 Alphonse Poklis
 Peter Marone

Latasha Berkley
 Sarah Carney
 Keith Chadwick
 Julia Garnett
 Steven Hall, Jr.
 Michelle Hite
 Tamara Irons
 Atiya Jordan
 Thomas Kozikowski
 Jennifer Lim
 Ian MacTavish
 Linda McCall
 Rachel Monteran
 Mariam Mufti
 Ashley Nelson
 Nishant Parikh
 Amanda Parrish
 Ellen Pittenger
 Jill Pullen
 Melissa Ray
 Thomas Rockhold, Jr.
 Corrie Schmidt
 Craig Secor
 Sherna Sheth
 Kelly Stacy
 Katy Van Hoesen
 Catherine Vaughan
 Kimberly Waddy
 Zengfei Zhu

Mark Bennet
 Kelly Brown
 Brittany Crane
 Sarah Derus
 Bonnie Floran
 Kellie Garcia
 Cori Goldstein
 Leslie Guion
 Carrie Haglock
 Jennifer Harris
 Amber Heck
 Amanda High
 Elsa Jacob
 Stephanie Karczynski
 Caitlin Kilcoin
 Sharon Kohan
 Carolyn Lemieux
 Joni Meyer
 Yvette Orihuela
 Alexandra Pittock
 Joanna Richards
 Lisa Schwenk
 Tyler Walker

*Alumni

Outstanding Graduating Senior—Mark Bennett
Outstanding Graduate Student—Sarah Carney
Emily R. Murphy Scholarship Recipient—Carey Davis

Congratulations to Dr. Marilyn Miller for her induction as a fellow of the American Academy of Forensic Sciences!

Congratulations to Jet Aiken on her selection as a Goldwater Scholar!



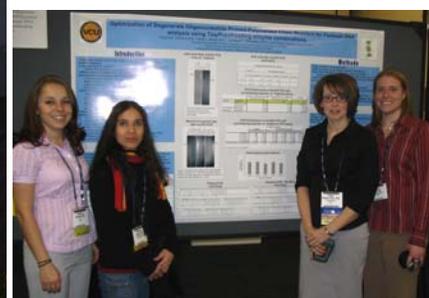
Forensic Science Students Travel to AAFS Annual Meeting



The VCU Department of Forensic Science hosted a large delegation at the American Academy of Forensic Sciences meeting in Washington, D.C. Students presented at several events including the Young Forensic Scientists Forum. Those who attended benefited

from getting to see the quality work of professionals in the field, meeting and mingling with alumni and potential employers and developing and presenting projects in their area of interest. Because the meeting was so easily able to attend and VCU was able to send one of our largest ever delegations to the conference.

Those who attended benefited from getting to see the quality work of professionals in the field, meeting and mingling with alumni and potential employers and developing and presenting projects in their area of interest.



Determination of Telomere Length Using the ABI Prism 7500 Real-Time PCR Instrument
 Kelly L. Brown¹ B.S., Sarah J. Seasholtz¹ M.S., Margaret Hickman¹ M.P.H., Arline T. Geronimus¹ Ph.D., Tracy Dawson Cruz² Ph.D.
¹Virginia Commonwealth University, Department of Forensic Science, Richmond, VA 23062
²University of Michigan, Department of Health Behavior and Health Education, Ann Arbor, MI 48106
³Virginia Commonwealth University, Department of Biostatistics, Richmond, VA 23062

Introduction
 Telomeres are repetitive nucleotide blocks at the ends of chromosomes that protect genomic integrity. Shorter telomeres are associated with increased risk of cardiovascular disease, cancer, and aging. The goal of this study was to determine the reliability of the ABI Prism 7500 Real-Time PCR instrument for telomere length determination. The real-time PCR method was compared to the Southern blot method, which is the gold standard for telomere length determination. The Southern blot method is labor-intensive and requires a large amount of DNA. The real-time PCR method is more efficient and requires less DNA. The goal of this study was to determine the reliability of the ABI Prism 7500 Real-Time PCR instrument for telomere length determination. The real-time PCR method was compared to the Southern blot method, which is the gold standard for telomere length determination. The Southern blot method is labor-intensive and requires a large amount of DNA. The real-time PCR method is more efficient and requires less DNA.

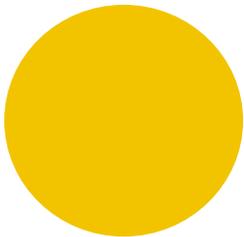
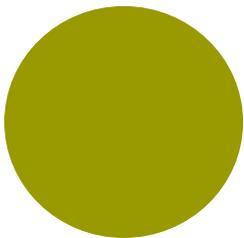
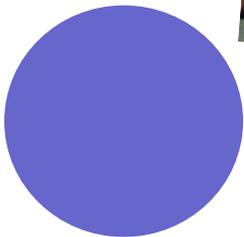
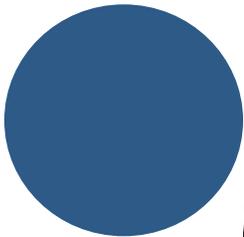
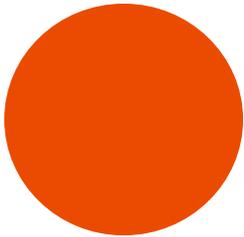
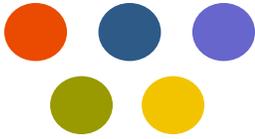
Methods
 • Sample collection (whole blood or buccal swab)
 • DNA extraction using Qiagen QIAamp® DNA Mini kit
 • Real-time PCR DNA quantification using ABI Quantitect™ & ABI Prism 7500 instrument
 • Dilution of sample DNA extracts to 5 ng/μl
 • Preparation of standards from a reference sample by serial dilution
 • 10 ng/μl, 5 ng/μl, 2.5 ng/μl, 1.25 ng/μl, & 0.625 ng/μl
 • Real-time PCR reaction set up
 • Telomerase (hTERT) amplification
 • 384 amplification
 • Amplification (ABI Prism 7500 Real-Time PCR instrument) & data analysis

Results
 • Standard curves
 • Between-run slope average values (m) for each assay
 • Average standard deviations (SD) & 1.96 & 2.58 SDs
 • Average average values (m) for each assay
 • Average standard deviations (SD) & 1.96 & 2.58 SDs
 • Between-run, 0.222 (telomerase) and 0.228 (384)
 • Between-run, 0.222 (telomerase) and 0.228 (384)
 • Telomerase variation was not higher for quantification compared to input DNA (Figure 2)
 • Amplification with varying of input DNA (Figure 2)
 • Average standard deviations of 175 copies and four TRF values are well within expected range

Conclusion
 • Both telomerase (hTERT) and 384 amplifications were shown to be reliable and reproducible over a range of telomere quantities tested
 • Future research should include evaluation of other telomere primer sets that they provide a lower LOD, amplification of telomere & instrument parameters, & comprehensive validation studies
 • Detection of relative telomere length using the ABI Prism 7500 may allow for rapid and easy analysis of a number of samples in a forensic laboratory
 • A standardized age range determination technique would potentially have a significant impact on the forensic community by providing phenotypic information for investigative leads



Focus on Forensics



Help VCU Forensic Science Grow

Calling all VCU Forensic Science alumni!

Would you like to help VCU Forensic Science grow? Want to get more involved in upcoming events? Join our Facebook page or send your updates to fos@vcu.edu.

If you are interested in providing a financial gift to VCU Forensic

Science, please call our office directly or Ms. Lois Badey in the Office of the Dean, College of humanities and Sciences for more information on giving. We'd love to get you involved in activities with our current students and we are always looking for ideas/ So, if you have job postings or can help out with one of our scheduled events, or

if you'd like to recommend an event, please contact us.

We look forward to hearing from you!