MARIE SAMPLES HELPS MANAGE THE **NATION'S LARGEST PUBLIC FORENSIC** CRIME LAB

LEARN BY DOING IN HER DNA

BY TERESA M IANI HENDRIX

NEW YORK CITY IS A TOUGH PLACE to tackle crime, but Marie Samples uses science and her Cal Poly degree to do it every day in her job at the nation's largest public forensic crime lab.

Samples (**B.S., Biochemistry, 1982**) is an assistant director at the Department of Forensic Biology in the Office of the Chief Medical Examiner in New York City. Her department analyzes biological and chemical data increasingly essential to criminal investigations.

She earned a master's in chemistry from UC Santa Cruz in 1984 and another in biochemistry from City University of New York in 1999. She started her post-college career in the California Department of Justice crime lab in the 1980s and then went to work as a supervisor and then manager for New York City's OCME.

Now, she supervises a group of criminalists who analyze evidence from homicides, sexual assaults and other serious crimes, and she oversees the lab's DNA databases.

"I manage a group of very dedicated analysts who work on some of the most serious crimes in the city," she said. "I spend a lot of time reviewing DNA data and reports for accuracy and completeness, and I also help guide newer analysts as they develop their skills. Mostly, I stay out of the way and let them do what they do best."

Her office has two missions. It is responsible for all the scientific analysis required by cases going through the city's criminal justice system, and it serves as the "support lab" helping medical examiners determine the cause of death in suspicious cases (including possible homicides, suicides and other deaths where there was no attending physician).

The job provides her with an array of fascinating and sometimes bizarre cases. Among the office's most significant efforts: the unprecedented task of identifying the remains of the nearly 3,000 victims of the Sept. 11 terrorist attacks.

Through it all, Samples remains grounded in the hands-on education she received at Cal Poly.

Q: WHY DID YOU WANT TO BE A FORENSIC SCIENTIST?
A: After I got my master's from UC Santa Cruz, I saw a job posting from the California Department of Justice crime lab. I interviewed and got the job, and it became a career. It was accidental – though my mother said she saw it coming, because I read every Agatha Christie book as a kid.

Q: WHAT IS YOUR FAVORITE PART OF BEING A FORENSIC SCIENTIST IN A CRIME LAB?
A: There is a great variety of case scenarios and evidence items. Though every day may be the same in terms of the tasks, the specifics of the cases change. That keeps it interesting.

Q: WHAT'S THE MOST DIFFICULT PART?
A: Some people find that dealing with crime every day gets them down; others find that the specter of testifying in court is hard. In this city, the pace and volume of cases puts a lot of pressure on us; that can also be very difficult.

Q: WHAT WAS THE MOST DIFFICULT CASE YOU'VE WORKED ON?
A: Some of the earliest DNA cases were the most difficult. We were just starting out, the technology was new to the court system, and everyone – scientists, police, attorneys – was struggling to learn. The cases may not have been particularly hard, but the overall process was.

Q: HAVE YOU HANDLED ANY FAMOUS OR NOTORIOUS CASES?
A: Yes, the case of Kerry Kotler, one of the earliest people exonerated by DNA testing. He drew a lot of attention to the potential uses of DNA technology in reviewing "settled" criminal cases. (Editor's note: Kotler, a Long Island fisherman, was convicted of raping a woman in 1981. He was released from prison in 1992 after DNA tests on the evidence cleared him. He sued the state of New York for wrongful imprisonment and was awarded $1.5 million.)

When Mr. Kolter was arrested again in 1995 and charged in the rape of a 20-year-old college student, I was asked to independently re-test the evidence in the case, given his history. It was in the news for quite a while. I ended up testifying at his trial in 1997; he was found guilty.

Q: HOW DID YOUR CAL POLY DEGREE HELP PREPARE YOU FOR YOUR CAREER?
A: Forensics is a great field to apply the Learn by Doing philosophy. Almost every course I took had value. Polymer chemistry? Good information for the analysis of fibers. Organic chemistry? Need it all to analyze drug samples and handle clandestine drug labs. Both the theory and the practical use of the gas chromatograph-mass spectrometer and Fourier-transform infrared spectrophotometer) were important. And DNA analysis? The entire year of biochemistry is foundational knowledge. Even some of those pesky biology courses ended up being useful. My senior project, which involved measuring damage to DNA molecules, ingrained in me less tangible knowledge and skills: the scientific method, the ability to troubleshoot, and perseverance. Requiring such a capstone experience is valuable to every Cal Poly graduate.

Q: WHAT DOES 'LEARN BY DOING' MEAN TO YOU?
A: It is the most immersive way of learning. I had high school friends who went to big-name colleges. They went on to take large lecture courses taught by grad students, with little opportunity for any hands-on learning. I am lucky to have gone to Cal Poly. □