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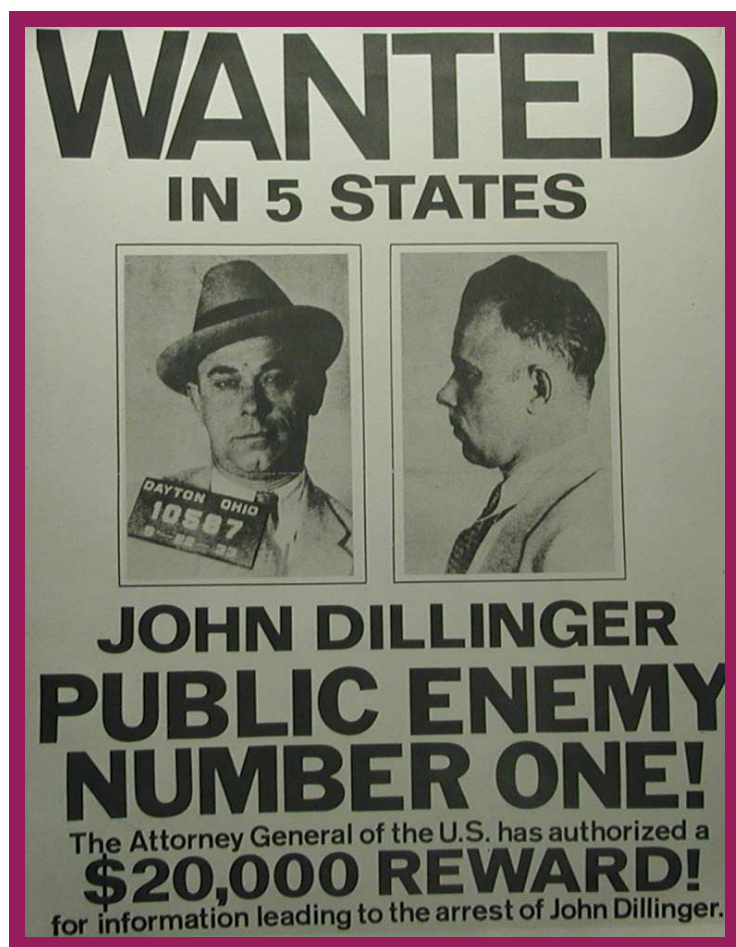
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Forensics Programs Prove Education and Experience Go Hand in Hand

By Angelo Bommarito



On graduating from college with a bachelor's degree in chemistry, I had many career opportunities available to me. I had offers from the auto industry in my hometown of Detroit as well as from various chemical companies. However, with an interest in criminal justice, I felt that my calling lay elsewhere. I decided on a career in forensic science.

So, having a background in chemistry but little experience in forensic science, I decided that I would enter a master's degree program for forensic science. There were many schools to choose from, and in the end I attended the University of Illinois at Chicago (UIC) and pursued a master's of science in forensic science.

SCHOOL IN A PRIME LOCATION

The director of the program, Robert Gaensslen, has 30 years of forensic experience as a biochemist and is a past editor of the *Journal of Forensic Sciences*. The curriculum covers the major disciplines that a full-service crime laboratory generally offers. The coursework consisted of classes in forensic biology and DNA, drug chemistry, toxicology, trace chemistry, microscopy, pattern evidence analysis (i.e., fingerprints, firearms, and document analysis), and courtroom demeanor. Students are also required to complete a research project in one of these topics. The program is located in the College of Pharmacy, which provides an active research environment, especially for a forensic toxicologist or drug chemist.

The university is located in downtown Chicago, which affords it proximity to several external resources of forensic interest. The Cook County Medical Examiner's Office, the U.S. Drug Enforcement Agency laboratory, and the U.S. Customs Service and Internal Revenue Service laboratories are minutes from the university, and some provide instruction to the program. The McCrone Research Institute, an internationally recognized institute of microscopy, offers graduate elective classes and research opportunities to UIC students and provides instruction in the trace microscopy class.

The largest collaboration, however, is with the Illinois State Police (ISP). It has the largest state crime laboratory system in



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the United States, composed of eight laboratories across the state, and is the third largest in the world behind the Forensic Science Service in the United Kingdom and the U.S. Federal Bureau of Investigation laboratories. The relationship between ISP and UIC includes instruction from experienced practitioners in all disciplines of forensic science, as well as classes and laboratory access at the system's largest facility—the Forensic Science Center in Chicago—only a few blocks from campus.

HANDS-ON TRAINING

ISP and UIC are also partners in a newly created UIC residency program, which was offered for the first time to students in my class. The residency program consists of participating in the ISP training program for a specific discipline in the forensic field while receiving credit toward the completion of a master's degree.

I decided to participate in the residency program, because I was interested in the disciplines of drug chemistry and toxicology. Drug chemistry involves the identification of illicit materials

such as MDMA, cocaine, heroin, and others by the use of analytical instrumentation such as gas chromatography/mass spectrometry (GC/MS). Toxicology is the identification of those illicit substances as well as other poisons in bodily fluids, especially blood and urine.

The first step was the rigorous application process. It involved interviews, background checks, drug testing, and a polygraph examination. Since most of a forensic scientist's work will be centered on sensitive information and illegal materials, they are looking for honest people with no history of habitual drug use.

Once I ran that gauntlet, I could then begin the residency. The great benefit of being trained by ISP is that they are internationally recognized for their forensic science training program. Therefore, although I was part of an experimental project, the infrastructure was already in place for me to begin the residency. The toxicology and drug chemistry mentor is also an instructor for many of the UIC classes, which made the transition even smoother.

I had to make a significant commitment to the residency program. In order to be trained in a timely manner, I had to be available approximately 40 hours a week for six to eight months. This is because the residency is designed to be intensive.

The training itself is modular. The modules cover all the major topics that the forensic scientist will encounter in his or her specialty. Since I was a resident in

toxicology and drug chemistry, the modules consisted of topic areas such as cannabis identification, thin-layer chromatography, UV spectroscopy, infrared spectroscopy, GC/MS, and courtroom demeanor. For each module topic there are lectures, assigned readings, laboratory experiments, a practical examination, and written examinations. The minimum criteria for passing each module must be met in order to pass into the next module.

Your expertise in the courtroom is based on not only your ability to analyze evidence but also whether or not you are competent with the instrumentation that you are using to perform the analysis. Therefore, the modules provide instruction on how to operate, calibrate, maintain, and repair an instrument, as well as explain the theory of why it works in the first place.

ON TRIAL

My expertise of these areas was also tested by a series of mock trials that occurred during the residency. After I worked a mock case, I then submitted my results to a group of experienced scientists at the laboratory. These scientists would then act as either prosecution or defense in a mock trial. Whereas in a real courtroom the lawyers typically have limited knowledge of the subject area to which you are testifying, the scientists playing lawyers in a mock trial have extensive knowledge and can determine the extent of your expertise to a much greater degree. The completion of this comprehensive

final mock trial marks the end of the residency.

The field of forensic science is not a large one, and it requires specialized knowledge. This makes the job market competitive. Also, crime laboratory directors look for employees with advanced degrees as well as sufficient practical experience with physical evidence. This is exactly what I received from the master's program at UIC and the residency program. The experience made me a well-rounded forensic scientist and gave me a substantial advantage over other candidates when I applied for employment at crime laboratories. This helped me achieve my current position as a drug chemist with the Illinois State Police department.



Angelo Bommarito is a forensic drug chemist for the Illinois State Police and a former ACS student affiliate. He has his bachelor's of chemistry from Wayne State University, in Detroit, MI, and a master's in forensic science from the University of Illinois at Chicago.



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