

**NIH Fellowship Training Program- Forensic Science Career Seminar Questions VA**  
**Department of Forensic Science**  
**Responses from PhDs**

General requirements for employment with VA Department of Forensic Science (DFS):

- Must pass criminal background check
- Must submit DNA sample
- Must be eligible to work in the USA without DFS sponsorship

Only 10% of forensic scientific staff have PhDs. Most are in Toxicology section where a PhD is required to testify to pharmacological effects of drugs and alcohol, followed by a several PhDs working in the research and/or casework areas of Forensic Biology, two in Controlled Substances, two in Division of Technical Services.

**Responses from Virginia Department of Forensic Science PhDs, six Toxicologists, one Drug Chemist, three in Forensic Biology:**

**a) What was your PhD/MS degree in?**

- Molecular Biology with a Minor in Genetics
- Chemistry, specialty Analytical
- Biomedical Science
- Chemistry (bioanalytical) with MS in Forensic Science
- PhD in chemistry (analytical/environmental)
- MS in forensic science, PhD in toxicology
- Ph.D.in Pharmacology/Toxicology, MS in Forensic Science
- Chemistry/Biophysical Chemistry
- MFS and PhD in For Tox
- Microbiology/Immunology

**b) What lead you into your current career?**

- I was looking for something interesting that used my education when I saw an advertisement for a position
- Interested in mystery novels, puzzles, brain teasers. Piqued by WVU's FS program. Did internship with WVState Police in LX or CSI but was erroneously put in Tox which was a fortuitous mistake
- Became interested in forensic biology while in grad school. Many of classes and techniques required for degree applied directly to field and offered a viable alternative to academic or industrial research

- High School internship with local police department crime lab doing crime scene and lab work. Very interested in scientific research in both high school and undergrad
- Interested in forensics as teenager, so went into science/chemistry in college.
- Circuitous route>>>> As part of my population genetics course in college, we had to find “real world” applications for population genetics. In the late 70s/early 80’s a military junta in Argentina killed thousands of political “subversives”, including young mothers and post-partum women (the pregnant women were allowed to live long enough for their children to be born). The newborns and other young infants were then “awarded” to “good” families that shared political ideology with the military rulers. Years later as the political climate calmed down, the grandmothers of these babies began to look for them with the hope of reuniting them to their families. They used forensic DNA testing, then still in its early stages, to match the child to its grandparents. This project got me interested in forensic science, so I applied for masters programs. Before beginning graduate school, I interned with the OCME’s office in Houston and realized I enjoyed toxicology more than forensic biology, so I did a toxicology-based MS project and then proceed to a PhD program.
- Loved chemistry in high school and college and then once I did my Master’s I learned that I could combine chemistry and forensics in the field of forensic toxicology.
- Primarily, my undergraduate program (Forensic Chemistry at The University of Mississippi) and the internship that I participated in as part of that program lead me into this career. The internship provided me with an experience that I didn’t get in the academic research setting. The practical implementation of scientific techniques was particularly intriguing to me.
- Interest in Analytical Chem as well as drugs of abuse, effects on people as well as why people take them
- Thought about forensics as undergrad; decided to pursue general chem. In grad school to give me more options
- Interested in career which split between bench and non-bench work

**c) What steps did you take to get there?**

- I took a job where I was trained as an examiner, then was promoted to the DNA Technical Manager before taking the research position at VA DFS.
- Did 2<sup>nd</sup> internship in forensic tox, then enrolled in graduate school in Forensic chemistry. Later interested in biochem, toxicology then drug analysis
- Got MS in forensic science but didn’t know if it would end up in research or applied forensics. Then did PhD in biotechnology side of forensic biology. Was in NIH Fellowship Training (Biotechnology) Program while doing doctorate work which required summer internship with biotech company, Cellmark Diagnostics, which underscored interest in research in forensic biology. Now with VA DFS doing both casework and research in forensic biology

- Typical job hunting, during which many of the forensic professional societies were useful (AAFS, SOFT, MAAFS). Also contacted local crime lab and asked advice on job hunting.
- Normal educational route – MS then PhD and “real world” experience where I could get it.
- A lot of time in college as a grad student and working with someone well known in the field which allowed me to gain some experience that was applicable to my current career.
- I could have sought a position with the B.S. in Forensic Chemistry; however I decided to pursue a Ph.D. in Chemistry in order to become more competitive in the job market. In addition a doctorate level degree would open the possibility to teach at the university level. The research experience of graduate school was particularly valuable looking back on it because it taught me the skills necessary to be a good scientist. Critical thinking and problem solving are attributes that are engrained throughout ones graduate career.
- While undergraduate, researched graduate programs in FS, particularly with courses in Tox. Worked in several drug testing labs including VA DFS before going to grad school.
- While in grad school, toured VA DFS Central lab; kept tabs on fellowships offered by VISFM
- Internship with ATF in arsons and explosives, masters, doctorate

**d) Where do you hope to go?**

- I am happy in my current position.
- In training and looking forward to completing training and working cases
- Establish myself in field as Forensic Toxicologist; later pursue more leadership positions.
- Someday I would like to be chief toxicologist or a lab director.
- Ultimately I would like to be a chief toxicologist or in an administrative position that is directly involved with toxicology.
- I hope that with time and experience I will be able to advance into supervisory and leadership roles within the department. I also hope to be able to become more involved within the professional societies within the field. At some point in my career I would like to teach at the college level in an adjunct position.
- Where I am
- Enjoy what I am doing now; no long term plan right now
- Lab Director
- Technical Director

**e) How do you get experience for the field?**

- I did casework and was a technical lead before taking the research job ; I’ve always been enthusiastic about learning new technologies, publishing and getting involved in the newest approaches to forensic problems.

- Attended AAFS conferences to attend tox seminars and meet toxicologists in field. Did internships, and took extra courses
- Completed a 1 year training program through VIFSM where training was led by supervisors in Forensic Biology section of VA DFS. Included comprehensive lit review, training in evidence handling, screening for bio fluids and approx 6 months training in DNA analysis, stats as applicable to forensic testimony.
- Internship in police crime lab, internship in private biotech forensic lab, education in masters and PhD
- Experience in grad school (chemistry, analytical chem.) helpful. Discussing my experience and asking questions of currently practitioners helped in understanding how I can apply myself to field.
- During my master's program, I interned with two agencies – an OCME office and a crime lab. In graduate school, I worked part time for an OCME tox lab.
- For toxicology there are graduate programs directly involved in toxicology. The only other way to get experience is to get an opportunity to do an internship within a lab or find a lab hiring into a training position.
- The internship was a good experience but did not provide a lot of practical experience. It did make me a little more familiar with what the work environment and responsibilities were like. The best experience that I got for my work in the field was the instrumental techniques that I was either exposed to or routinely conducted during my undergraduate and graduate careers. Keeping up with the trade journals (Analytical Toxicology and Journal of Forensic Science), was also helpful.
- Worked in drug testing labs (clinical, forensic, government or private)
- No experience in forensics before starting VIFSM, but background in analytical chem made transition easy.
- Strong background in molecular biology, advanced courses in genetics, biochem, numerous public speaking experiences
- Internship with ATF

**f) What opportunities are available for postdocs and graduate students to enter into your career (internships, fellowships, employment)?**

- Many more opportunities in private industry rather than public labs for research. Private companies seem very keen on tapping into new forensic technologies if there is money to be made, so there is interest in hiring researchers with an eye toward development of new technologies in forensic science. There are also academic forensic scientist positions (assis. Professor) that may interest some.
- VA system requires PhD to be Toxicologist and testify in court to pharmacological effects
- VA DFS sometimes offers summer internships to undergrad and grad students. Opportunities to be hired as trainee in you meet requirements of FBI/DAB
- Easiest to get internship if you are in a forensic MS program already. FBI Research program has relatively large post-doc program/visiting scientist

- program. Also try contacting large lab system that does research, such as CAL DOJ, VA, IL, or private biotech lab like Cellmarks, LabCorp. Bone up on forensics so you know something about real forensics when interviewing for research job. Know educational requirements, like in Forensic Biology, certain coursework in Biochem, Genetics, Stats are required to work in the field.
- Internships are available at some agencies; however, they are not usually paid. There is a clinical toxicology fellowship program which could have some applicability to forensic tox. I was fortunate to work at an OCME lab during graduate school, but I think this is not the norm.
  - Internships are great, but typically are more geared for the undergraduate. The FBI and several state crime labs offer summer internships that are more suitable for graduate students and post docs... meaning that they might actually pay a small stipend. Trainee positions are excellent ways to get into the field as well.
  - Postdoc fellowships: Center for Human Toxicology at Univ of UT or NMS, a private lab in PA; weekend jobs in hospital tox labs (like MCV) or private labs like NMS or Quest; contact state forensic labs to see if they offer internships or short term research positions
  - Postdoc positions are offered by FBI
  - Not many ops for postdoc work or fellowships in forensic bio. Contact someone in field

**g) Where can they find information in this regard?**

- AAFS meetings, esp Young Forensic Scientists Forum very informative and good for networking. SOFT is also good for info. For internships, I just called labs I was interested in working and asked possibility of summer work.
- [www.DNA.gov](http://www.DNA.gov); [www.aafs.org](http://www.aafs.org)
- [Katie.Hall@dfs.virginia.gov](mailto:Katie.Hall@dfs.virginia.gov) or 804-786-4707 ext 26031. Recommends reading John Butler's book "Forensic DNA Typing" (2<sup>nd</sup> ed) if interested in Forensic Biology.
- Professional forensic associations such as MAAFS, AAFS, SOFT. Also federal government has excellent sites with info on available post-doc fellowships and internships.
- I, Teresa Gray, am the chair of the Young Forensic Toxicologist committee for the Society of Forensic Toxicology. One of our goals is to provide information to individuals interested in becoming forensic toxicologists. Our committee email address is [softyft@gmail.com](mailto:softyft@gmail.com) or they can contact me directly. The SOFT and AAFS websites also have good information. My suggestion to anyone interested is to call around to their local crime lab/OCME office to see if they would be willing to host an intern or shadow one of their toxicologists.  
[Teresa.Gray@dfs.virginia.gov](mailto:Teresa.Gray@dfs.virginia.gov) 757-683-8327 ext 31414
- University graduate programs and/or professional organization websites (for Tox, check AAFS and SOFT, TIAFT)
- AAFS website has regularly updated job postings. Browse various state and federal agencies websites. Call local crime labs for internship opportunities.

- Job postings on AAFS website, federal positions on usajobs.gov and on websites for individual states.
- For internship in Forensic Tox, contact Dr. Curt Harper/Central Lab Richmond VA DFS at 804-786-4707 x23275