

Themis: Research Journal of Justice Studies and Forensic Science

Volume 10

Article 9

5-2022

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Recommended Citation

Lee, Steven (2022) "An Interview with Dr. Steven Lee: Scientist, Jazz Musician, Athlete, Wine Connoisseur, and Founder and Former Director of the Forensic Science Program at SJSU," *Themis: Research Journal of Justice Studies and Forensic Science*: Vol. 10 , Article 9.
<https://doi.org/10.31979/THEMIS.2022.1009> <https://scholarworks.sjsu.edu/themis/vol10/iss1/9>

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An Interview with Dr. Steven Lee: Scientist, Jazz Musician, Athlete, Wine Connoisseur, and Founder and Former Director of the Forensic Science Program at SJSU

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Director of the Forensic Science Program at SJSU

I first met Dr. Steven Lee in late July, 2006. I had applied to teach one forensic science class (for one semester) in the Justice Studies Department, and he was conducting the interviews. At the time, I had plenty of field experience but very little teaching experience. Steve took a chance and hired me anyway, and since then I have been inspired by him on a daily basis. His professional and personal accomplishments are nothing short of extraordinary, and he has been the best mentor, colleague, and partner in crime a person could ever hope for. I'm grateful for the professional opportunities he gave me, for his confidence in me, for his limitless imagination and openness to new ideas for the program, for his extraordinary generosity over the years, and for the many (many) glasses of wine (you have to QC those bottles!).

-M. Juno

~Interview with Steven Lee, April 2022~

Where were you working/what were you doing before you came to SJSU?

Before coming to SJSU, from 2000-2003 I was the Director of Research and Development at MiraiBio Inc. (MBI), a fully owned biotechnology company of Hitachi Genetic Systems in Alameda, CA. At MBI we developed new DNA assays, kits, software and instruments and formed interlaboratory collaborations to test and validate the new systems with the forensic DNA and molecular genetics communities.

From 1994-2000, I was Assistant Laboratory Director of R&D at the California Department of Justice DNA Laboratory in Berkeley CA where I directed a team of 10 dedicated scientists that tested and developed new methods for forensic DNA analysis and validated emerging short tandem repeat genetic markers and kits. Our laboratory also participated in the validation testing of the first CODIS core STR loci. I also served as an expert witness in DNA, spearheaded the implementation of robotics for sample processing, DNA extraction and STR amplification, and developed and delivered new DNA training courses that laid a foundation for the California Criminalistics Institute DNA training academy. Concurrent to both of those positions I was also Visiting Scholar at UC Berkeley (where I completed my PhD), Instructor at UC Davis and Adjunct Professor in Biology at San Francisco State University where I was PI on a National Science Foundation Research Experiences for Undergraduates Grant that supported 32 undergraduate summer research projects.

How did the opportunity to create the Forensic Science program at SJSU come about? And what year was that?

In 2002, MBI made a decision to move away from supporting forensic DNA projects. Partly due to this decision and partly due to the my own constitutively expressed passion for teaching, research and inspiring the next generation of science leaders, I applied to direct the SJSU Forensic Science Program.

My first contact and interview at SJSU occurred 20 years ago Fall 2002 when I interviewed at SJSU. I was offered the job but deferred until Fall 2003. The initial undergraduate degrees were BS programs in Administration of Justice concentrations in Biological Forensics and concentration in Chemical Forensics requiring 129 and 136 semester units. The program was first conceived by Dr. Sagatun-Edwards, then Chair of Administration of Justice (now Justice Studies), Dr. Pamela Stacks (currently AVP of Grad Studies and Research, then Chair of Chemistry), Dr.

Sally Verrege former Chair of Biology and Laboratory Director Benny Del Re of the Santa Clara County Crime Laboratory (retired). I started to make significant changes to the program when I arrived and this included changing the program names to BS Forensic Science, concentration in Biology and concentration in Chemistry, since these are actually science degrees. Many new initiatives were launched during my tenure as director including developing an active research program supported by external grants, developing and delivering 15 new courses including Forensic Molecular Biology, Forensic Biometrics, Forensic Science in Human Rights and Humanitarian Investigations and Fluorescent Applications in Forensic Science and Molecular Biology; developing deep collaborations with crime laboratories and biotechnology companies; hiring outstanding lecturers including Professor Mary Juno (in 2006), who developed a minor in Forensic Science; and initiating interdepartmental collaborations on campus to build bridges to support the forensic science program (primarily between the Biology and Chemistry departments).

Tell us about your original vision for the program.

The main vision and goals for the Forensic Science program back in 2002 (and I believe continues today), was to become a leading undergraduate Forensic Science Program in the nation, grow the program in size and scope to national and international prominence and to be able to offer students opportunities to conduct cutting edge research, and publish and present their work in top forensic science journals and meetings.

Has the program always been supported? Or did you experience any obstacles or roadblocks?

The forensic science program has not always had support and indeed we experienced several obstacles all of which I am happy to say we have overcome!

Back in 2003, we had a very small (700 square ft) single room for all forensic science teaching and research. One of the goals we set out was to garner support from SJSU to build a new laboratory for our program. It took 15 years but in 2018 this vision became a reality and there is now a beautiful new space for the program through the work and support of many individuals.



Mary Juno (my partner in crime) and me, Confidence Challenge, ~2011.

There were moments in the history of our department when the department faculty was split on the value of the forensic science programs, and throughout the years suggestions were even made to remove the FS programs or move us to the College of Science. This support has taken a full 180 degree turn and now, with the new leadership (and being housed in a new college), the

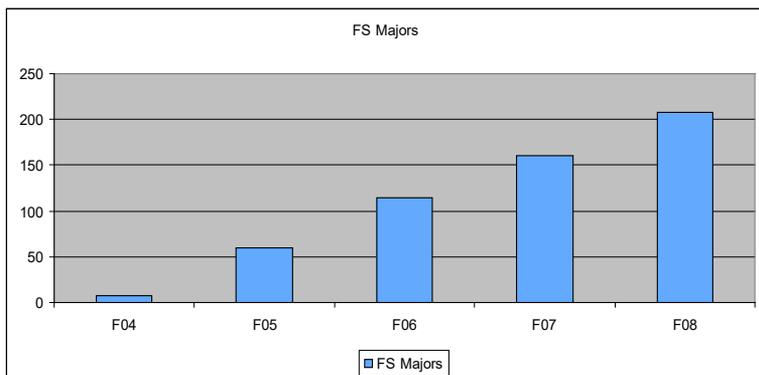
program is very well supported by the department under our new Chair Dr. Paul Knepper, amazing support staff Ms. Carol Santos and Dr. Shawna Bolton and Dr. Mark Barash, the new co-directors of the Forensic Science Programs.



Drs Barash and Bolton, Ms. Carol Santos, and my wife, Ines Iglesias-Lee- also a forensic DNA scientist-retired, QC-ing the wine.

Operating costs for the entire department in 2003 was \$30,000 (for all faculty, staff and operations) and there was no support for laboratory preparation, supplies, ordering, instrument calibration, laboratory waste, chemical stocking, other needed laboratory items or support staff. Therefore, nearly all the funds needed for research and teaching were generated through grants, biotech and crime laboratory support and donations as well as course laboratory fees. From 2006-2014 we conducted failed searches for a forensic science tenure track position, however, due in great part to the split sentiments about the FS program, no consensus

for hiring was reached. The program did not have another tenure track faculty until 2015 when Dr. Bryce Westlake was hired for his expertise in Digital Forensics. In 2017 and 2019, Dr. Bolton and Dr. Barash came on board. So, the programs (BS FS Biology



Early growth of the program!

and Chemistry along with the minor in FS) were essentially being directed and managed by Mary Juno and yours truly from 2003-2015 with very little additional full time faculty support.

So, you ask, how did the program survive and grow from 2003-2015? We were able to manage with the support of many external partnerships and our incredible outside faculty, staff and instructors. We grew the programs from 20 majors in 2004 to over 200 in 2008, growing the program an order of magnitude in just 4 years. This was done with the deep contributions from Professor Mary Juno and several other outstanding professors and instructors that donated their valuable knowledge, skills and experience to our courses and student research, making enormous contributions to the development and growth of the program.

We could not have done this without our long standing and productive relationships with the Biology and Chemistry department faculty, in particular Dr. Bradley Stone of Chemistry, then-Chair and co-developer of the FS Chemistry program and

mentor to many of our research students, and Dr. Julio Soto of Biology (Director of the NSF funded RUMBA research program



Dr Bradley Stone and me, QC-ing the wine.

and the Howard Hughes Initiative grants both of which we participated in as either Co-PI or faculty member participants).

Other faculty and external partners contributed deeply to the programs development and growth including Jeremiah Garrido and Brooke Barloewen (SCCCL); Rosa Vega (SCCME); Gil Zamora and Sgt. Bruce Wiley (SJPD, retired); Professor Mark Okuda (EVC); Dr. Roy Okuda, Dr. James Wayman, Dr. Lorna Pierce, and Drs Joe and Maria Pesek (SJSU, retired); Dr. John Tonkyn (CA DOJ DNA); Dr. Sandra Sachs (Oakland PD); Mary Gibbons and Jennifer Mihalovich (Oakland PD, retired); Peter Barnett (Forensic Analytical, retired); Dr. Ian Fitch (SCCCL, retired); Ron Nichols and John Jermaine (ATF); the late Dr. Cristian Orrego (UC Berkeley HR Center); Dr. John Bond

(University of Leicester, retired); Dr. Jingyang Xu (Zhejiang Police College, China); Carrie Choi (Chosun Education, South Korea); Gloria Nusse (SFSU); John Gaziano (Gaziano Forensic Consulting); Rock Harmon (Alameda DA, retired); Dr. Keith Elliott, Dr. Mark Guilliano, and Mary Jones Dukes (Qiagen); Dr. Sudhir Sinha (Innogenomics); Lotte Downe, Yassar Doudi, and Ann Macphetridge (Promega); Arianna Wheaton, Jonathan Tabak, Shelly Guerrero, and Shereen Darwish (Thermo Fisher); Dr. Cydne Holt and Joe Valaro (Illumina, Inc./Verogen, retired), Dr. Charles Brenner (DNA View); Dr. Tom Arnold (SJSU/PSC); Marty Blake (SFPD); Wayne Moorehead (LASD, retired); Dr. John DeHaan (Fireex Forensics); Kris Black (Forensic Canines); and countless other professionals who donated their time, energy, knowledge and skills to the program.

What were some of your most important accomplishments or milestones in the FS program? What are some of the things you most proud of about SJSU/the JS Department/the FS program?

When I look back, one of the things that I am most proud of has been the role our outstanding programs, faculty, and staff have played in the success of our students. Our students have been very active in research and have participated in our externally funded research programs that were supported by Keck Foundation, NSF, HHMI, CAC, CSUPERB, several California regional city, county, and state crime laboratories, academic institution partnerships and more than six biotechnology partnerships. Many of these collaborations have resulted from connections established through 30+ years in academia, government and biotechnology and history of successful grant writing.

Students from our forensic science program have presented over 50 peer reviewed presentations at local, regional, national and international science meetings, published their work in scientific journals, and in our own peer reviewed student-run

journal, *Themis* (and past issues of the SJSU FS forum newsletter). In fact, two of our forensic science graduates are now teaching in the forensic science program at SJSU: Samantha Peek and Eric Kwong! Another testament to the excellence and the prominence of the SJSU program has come from the forensic DNA community, as I was elected to serve as co-chair in 2016 and 2018 and now Chair of the Gordon Research Conference on Forensic Analysis of Human DNA for 2022.

During my tenure, the forensic science student group (FSS) was formed (2014). The FSS is extremely active on and off campus, running a forensic science seminar series, volunteering and helping to run numerous events and conferences, and supporting the department, college and university through their service (<https://www.facebook.com/groups/373868682628/>). They have won numerous awards for their work. Under my direction, the FSS hosted the California Association of Criminalists conference in San Jose (2012), a 3-day event with ten workshops. Our students are superb and have been nationally and internationally competitive as approximately 75% are working, interning, attending graduate school, or teaching in a variety of laboratories, biotechnology companies, and schools.

In 2012 we launched the SJSU CSI Summer camps and we also developed and delivered three American Academy of Forensic Science sponsored Forensic Science Educator's Conferences at San Jose. Over the 10 years, the camps and FSECs were attended by hundreds of participants from around the US, China, Dubai, Puerto Rico, South Korea and faculty from the international forensic science community donated their expertise and time to deliver these programs.

In 2014, I was honored to be awarded the American Academy of Forensic Science Criminalistics Meritorious Service Award, and in 2019, I was honored to be awarded the Annual Lifetime Faculty Service Award of the College of Health and Human Sciences at SJSU.

What's next for you?

I am retiring from SJSU as *Professor Emeritus*, so I plan to continue to contribute to the forensic science programs from afar. I also continue to serve as Professor at the International Forensic Research Institute at Florida International University (50% time), where I have been a visiting scientist in Dr. Bruce McCord's research group since 2015. At FIU I also serve as PI and/or co-advisor to 3 MS students and 3 PhD students, and write grants and contracts. Three current areas of interest include 1) the evaluation of 1 minute microwave DNA extractions for rapid direct PCR of short tandem repeat analysis from low level challenging forensic samples, 2) evaluating the recovery of DNA template from waste for downstream epigenetic tissue typing, and 3) forensic genetics, ethics and privacy.

I will be directing a 2022 CSI camp, now in our 5th year at FIU. This year (as in the past 2 years), our camp is completely virtual and will be held July 18-22, and will be directing an American Academy of Forensic Science Forensic Science Educator's Conference at FIU scheduled for July 11-13th 2022.

I also continue to play piano and keyboards in four jazz bands, am an avid gardener, and still enjoy exercise and fitness. Being in Miami is also a good place to retire as a lover of good food and wine. Since my wife retired in 2021, we are looking forward to spending more time with the kids and grandkids and travelling!



From the bottom and the top and middle of our hearts, we thank you, Steve Lee, for creating this program, for inspiring us still, and for giving countless students the opportunity to pursue their dreams!