

The Making of New Jersey's First Forensic Science Degree Program: **A Future Hub Research and**



Dean Belfield operating a Thermo Scientific Dionex UltiMate 3000 autosampler, used for detecting and analyzing minute traces of sample materials collected from crime scenes.

for Forensic Science Education Emerges at NJIT



This fall, NJIT's College of Science and Liberal Arts will launch its new Forensic Science B.S. degree program — the first undergraduate forensic science program to be offered in the State of New Jersey.

The 120-credit degree also will be the first undergraduate program in the New York-metropolitan region and was designed from the outset to meet standards set by the leading accrediting body in college-level forensic science academics, the Forensic Science Education Programs Accreditation Commission (FEPAC).

Before arriving at NJIT as Dean of the College of Science and Liberal Arts, Dr. Kevin Belfield oversaw one of the largest undergraduate forensic science degree programs in the country as part of his role as chair of the Department of Chemistry at the University of Central Florida.

As a leader of NJIT's new forensic science program, we sat down with Belfield, who discussed the unique aspects and inspiration behind the program's launch, as well as some of the research trends shaping the field of forensic science today.

Q. What was the initial inspiration behind bringing New Jersey's first undergraduate forensic science program to NJIT?

A. Coming from my experience overseeing the forensic science program at the University of Central Florida, I naturally began looking at the potential for a forensic science program in the state of New Jersey and was astonished to find that although there were some forensic science-related courses being taught at several universities in the state, there was no degree program being offered at the undergraduate or graduate degree level.

This meant that a New Jersey resident who previously wanted to study and earn a degree in forensic science has had no choice but to go out of state and pay out-of-state or private school tuition. We also found that many crime labs and investigator sites in the state have

had to recruit talent exclusively from out-of-state colleges with forensic science programs.

We began to put together a professional advisory committee and sought feedback from forensic professionals throughout the state to help discuss ideas for developing a forensic science program at NJIT. The feedback we received was overwhelming. Very quickly, it became evident that there was great professional interest and need for a program like this in New Jersey.

Q. What do you think makes NJIT ideal for such a unique program at this moment in time?

A. I think this is a program that's time has come. It is the right time for NJIT in many ways to launch this program for New Jersey's citizens, who will now be able to earn a forensic science

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degree in-state. Our state and local law enforcement crime labs have also long deserved a program within the state to help generate its future workforce and to collaborate with in research.

As scientific advances continue and the field of forensic science becomes more quantitative and more technical, I believe students will have a distinct advantage coming from a polytechnic university like NJIT that is recognized for its research and strength in technology, mathematics and physical science. My vision and goal is that NJIT’s program grows to become the best physical science-oriented forensic science program in the country.

Q. Could you talk about the special accreditation status this program is designed to achieve? What makes it so significant in your view?

A. In the not-too-distant future, there will likely be more and more positions in crime laboratories that require a

degree from an accredited forensic science program. Already, the F.B.I. requires candidates to complete certain coursework in order to be certified as a forensic DNA analyst.

There are few, if any, polytechnic universities in the country with an accredited forensic science program. NJIT is ready to feature the only forensic science undergraduate program in the region that was designed from the outset to meet all of the curricular and professional requirements set by FEPAC.

We’ve recruited a number of experts and special consultants to serve on the professional advisory board for the development of this program. In particular, we have designed this program with our goals for national accreditation by working closely with Dr. Mathew Wood, director of the Ocean County Crime Lab, who sits on the FEPAC’s national accrediting committee.

Between the rigor of our program’s curriculum and high entrance requirements for our students, I am confident that within a very short amount of time NJIT’s program will be regarded as one of the strongest forensic science programs in the nation.

Q. What new scientific advances or trends in research do you see impacting the field of forensic science today?

A. Many of these advances are technology-driven. New developments in trace analysis are now allowing scientists to analyze smaller and smaller amounts of material with greater and greater precision. There is also growing reliance on advances in DNA analysis for prosecuting or defending accused people as well. With that, there has been increased awareness of the limitations of the stability of DNA and how it can be analyzed.

These new developments are constantly increasing the technical demands of those in the field. Someone who graduated with a forensic science degree 15 years ago might not even be aware of many techniques that are available now, whether it is new techniques for DNA and serology analysis, or new methods for trace evidence analysis of paints, fibers or hair.

It is an exciting time that requires knowledgeable practitioners with exceptional training in mathematics, statistics and the physical sciences.

Q. What are some of the important ways NJIT’s program is addressing the new demands and changes in the field?

A. Our program emphasizes some of NJIT’s core strengths, such as mathematics, physics, chemistry and biology. Having this type of academic foundation will be

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a defining characteristic of our graduates, and will prepare them for some of the increasing technical demands that the field will challenge them with as it evolves in the future.

We have attracted experts in the field of forensic science that will instruct the program's core courses such as Dr. Hao Chen, one of the country's experts in mass spectrometry and trace evidence analysis, who is joining our efforts from his previous position as professor of forensic chemistry at Ohio University. We are also in the process of recruiting a highly experienced member of the region's professional forensic science community as the program's Professor of Practice in Forensic Science.

We have been approved for a state-of-the-art forensic science instructional laboratory that is being built this fall. Over the next year, we will equip the lab with cutting-edge instrumentation and it will serve as home for all of the laboratory components involved in the program's forensic science core courses.

Lastly, we have fostered strong partnerships with many of New Jersey's local and state crime laboratories and investigative offices, some of which will be involved in facilitating the program's "Forensic Science Capstone Course," which is designed to provide research opportunities and internships that will bring vital professional experience to students.

Q. What are some of the notable partnerships that NJIT has forged already through the development of this program?

A. The development of NJIT's forensic science program has brought tremendous opportunity, not only for educational and professional development collaboration, but research collaboration with the state's professionals. Universities can often be important test beds that support the surrounding professional forensic community, working with crime labs to investigate new techniques and how they might be applied to analyze evidence.

From our program's advisory committee, we have developed a strong partnership with Dr. Wood and members from the Ocean County Crime Lab. They will be key collaborators that will work alongside us on education and research. Other advisory committee members have come from New Jersey's Northern Regional Medical Examiner Office, which is located in very close proximity to NJIT's campus. Through connections with professionals at their office and toxicology lab, I envision a strong partnership there.

Along with many other partnerships with crime labs and investigatory sites across the state, NJIT also has a number of researchers that are currently funded by the National Institute of Justice. With Dr. Chen's arrival and his reputation in the field, I expect we will develop natural research collaborations as well.

Q. How do you envision this program growing to benefit New Jersey's students and the state's professional forensic research community in the future?

A. New Jersey students will be able to pay in-state tuition and conveniently attend a highly respected technical university that rigorously trains them as a professional in the forensic field. In 10 or 15 years, it is quite possible that many of our state's crime labs will be dominated by NJIT graduates.

On the other side, our state's crime labs and professional forensics community will have a high-quality, in-state university to partner with to ensure students have the specific skills and experience they need. They will not only be able to recruit highly trained students more easily, but will also be able to collaborate with NJIT on cutting-edge forensic science research.

I believe that this is going to be a big boon for students and forensic professionals of New Jersey, and is a great opportunity for many exciting research partnerships at NJIT in the future. ■

Author: Jesse Jenkins is a staff writer/editor in NJIT's Office of Strategic Communications.

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