

# Student Achievements

An undergraduate (BSFS) degree in our program is the foundation for success, professionally as well as academically. Program success can be determined through scholarship, internship, and career placement, etc.

## Scholarship

An important measure of student achievement is our ability to publish and present original research in the field of forensic science at local, regional, national, and international forums. Our students not only presented but won awards for their research presentations.

- Synthesis of Cr-doped  $\text{Co}_3\text{O}_4$  Electrocatalyst for Water Oxidation in Acid Medium.
- Hanna M Paige\*, Sivasankara Rao Ede, William D. Ratcliff, Hui Wu, and Zhiping Luo. Organized by PREM Research Scholars Summit of Materials Research Society. December 8, 2021. \*Presenter (Virtual).
- Raman Spectroscopy on Nanoparticles in Latent Fingerprint Development and Detection. Sheenamelia Jones\*, Angela Berry, Laura Schumaker, Tenneil Williams, Khalid Lodhi, and Bhoj Gautam. Organized by Forensic Technology Center of Excellence a program of the National Institute of Justice (NIJ), September 13, 2021. \*Presenter (virtual)
- Application of Polymer Nanoparticles in Latent Fingerprint Development and Detection. \*Angela Berry, Laura Schumaker^, Sheenamelia Jones^, Tenneil Williams, Khalid Lodhi, Bhoj Gautam. IAI Conference in Nashville, Tennessee August 1-7, 2021. ^undergraduate students. (\*Presenter)
- Natalia Czado\*, M.S., Jacob Sewell, Stephen Towery, Yolonda Miller, Johnathun Lee, Khalid Lodhi, D.Sc. Comparison of Genotyping Success of Cotton and FLOQ Swabs on Casings Using Direct PCR at AAFS 72nd Annual Scientific Meeting at Anaheim, CA February 20, 2020. (\*Presenter)
- Torian Wilson\*, Trung Tran, Ph.D., Stephen Towery., Samer AbuBakr Ph.D., Rachel Wells Ph.D., and Khalid Lodhi, D.Sc. Bacteria in different soil types in Cumberland County. Zoom based at FSU S^4 program, April 22, 2020. (\*Presenter)
- Trung Tran, Ph.D., Stephen Towery\*, Torian Wilson., Samer AbuBakr Ph.D., Rachel Wells Ph.D., and Khalid Lodhi, D.Sc. Geospatial Approach to Determine Ideal Soil Collection Sites for Microbial Identification. Zoom based at FSU S^4 program, April 22, 2020. (\*Presenter)
- Nia Cohen, Marion Gray-Lion, BS, Jessie Cook, Ky'ara Carr, Shamar Wallace, Coby Schal, Ph.D., Subir Nagdas, Ph.D., and Khalid Lodhi, DSc. Isolation, Identification and Time-Course of Human Glycophorin A from Bed Bugs. Poster presentation at Forensic Symposium at NCSU, April 18, 2019.
- Marion Gray-Lion BS, Nia Cohen, Natalia Czado MS, Coby Schal Ph.D., and Khalid Lodhi DSc. Isolation, Identification, and Time Course Human Male DNA Typing from Bed Bugs Fed on Human Male and Pooled Blood Meals. Poster presentation at Forensic Symposium at NCSU, April 18, 2019.

- Lieceng Zhu. Molecular-basis of heat-induced loss of wheat resistance to Hessian fly. 2019 Annual Meeting of ESA (Entomological Society of America). St. Louis MO. November 19, 2019.
- Lieceng Zhu. Analyzing Molecular Basis of Heat-Induced Loss of Wheat Resistance to Hessian Fly Infestation Using RNA-Sequencing. 33rd North Carolina Molecular Biology Retreat. Wilmington, NC. September 13, 2019.
- Lieceng Zhu. Wheat Resistance to Hessian Fly & Molecular Mechanisms of Heat-Induced Loss of Wheat Resistance. Northwest A&F University. Yangling, Shaanxi, China. June 24, 2019.
- Lieceng Zhu. Wheat Resistance to Hessian Fly & Molecular Mechanisms of Heat-Induced Loss of Wheat Resistance. College of Life Sciences and Oceanography, ShenZhen University, Shenzhen, Guangdong, China. July 19, 2019.
- Lieceng Zhu, JiaZhen Yuan, Jordan O'Neal, Darian Brown, Ming-Shun Chen, and Fred Gould. Poster presentation. Mechanisms of Heat-Induced Loss of Plant Resistance to Insects. 2019 HBCU-UP/CREST/PI/PD meeting. Washington DC. Feb. 20, 2019.
- Two students gave a poster presentation on their undergraduate research project "*The Isolation, Identification, and Time Course Human Male DNA Typing from Cimex lectularius L. (Bed bugs), Fed on Human Male and Pooled Blood Meals*" at 2018 STEM Research Symposium, Fayetteville State University, April 19, 2018.
- Two undergraduate research students gave a poster presentation entitled "Recovering Human Male DNA from Fired Casings Using YFiler": 2018 STEM Research Symposium, Fayetteville State University, April 19, 2018.
- One student gave a poster presentation on her undergraduate research project "Understanding Jury Verdicts using Logistic Regression Modeling" organized by the Center for Statistics and Application in Forensic Science (csafe) at Iowa State University, Ames, Iowa, August 2, 2018
- One student gave a poster presentation on her undergraduate research project "Development of an Initial Handwritten Letter Classifier for use in Forensic Document Analysis" organized by the Center for Statistics and Application in Forensic Science (csafe) at Iowa State University, Ames, Iowa, August 2, 2018
- State of North Carolina Undergraduate Research & Creativity Symposium at Campbell University (November 4, 2017)
- NC-LSAMP Annual Research Conference at North Carolina State University (November 17, 2017). **First prize winner.**
- Two students gave a joint poster presentation on their undergraduate research " " at FSU Board of Governors meeting on October 23, 2017.
- FSU Undergraduate Research Symposium on January 28, 2016
- 113<sup>th</sup> North Carolina Academy of Sciences at Methodist University, NC April 1, 2016
- FSU Graduate School Student Research Conference April 1, 2016
- 26<sup>th</sup> International Symposium on Human Identification at Grapevine, TX October 2015
- NC-LSAMP Annual Research Conference at UNC Pembroke, October 2015

## Student Research

Several students have completed or are conducting undergraduate research with FSU faculty. Students' research and stipend are sponsored through NSF funding. Faculty research having undergraduate research students and fields:

- **One student** is conducting undergraduate research on a research project “**Analysis of Seed Germination in Cultivated Soybean and Wild Soybean**”. under **Dr. Jiazheng (John) Yuan**.
- **One student** is conducting undergraduate research on a research project “**Sequence Characteristics of COVID-19 Genome**” under **Dr. Jiazheng (John) Yuan**.
- **Two students** are conducting undergraduate research on a joint research project “**Recovery of DNA from Unfired Ammunition Using Genomic and Y-STR Profiling**” under **Khalid Lodhi**.
- **Two students** are conducting undergraduate research on a project “**The study of the effectiveness of Cannamix, a compound derived from hemp, at controlling the Alphitobius Diaperinus population**” under **Dr. Shirley Chao**
- **Two students** are conducting undergraduate research on a project “**Impact of heat stress on wheat resistance to Hessian fly.**” under **Dr. Lieceng Zhu**.
- **One student** has conducted undergraduate research on a research project “**Synthesis of Cr-Doped Co<sub>3</sub>O<sub>4</sub> Electrocatalyst for Water Oxidation in an Acid Medium**” under **Dr. Zhiping Luo**.
- **One student** has conducted undergraduate research on a research project “**Peppermint Oil as a Natural Pesticide**” under **Dr. Shirley Chao**.
- **Two students** have conducted undergraduate research on a joint research project “**Application of Polymer Nanoparticles in Latent Fingerprint Development and Detection**” under Bhoj Gautam, Angela Berry, Tenneil Williams, and **Khalid Lodhi**.

## Student Publication

Forensic students (highlighted) are among the co-authors on published papers in peer reviewed journal:

- Title: Whole Human Blood DNA Degradation Associated with Artificial Ultraviolet and Solar Radiations as a Function of Exposure Time. Gurcharan S. Rahi., Joel L. Adams<sup>^</sup>, Jiazheng Yuan., **D-Jon-Nique Devone<sup>^</sup>**, and Khalid Lodhi\*. Forensic Science International 319 (2021) 110674. <sup>^</sup>undergraduate students; \*corresponding author. <https://www.sciencedirect.com/science/article/abs/pii/S0379073820305363>.
- Coby Schal, Natalia Czado, **Richard Gamble, Amy Barrett, Kiera Weathers**, and Khalid Lodhi. Isolation, Identification, and Time Course of Human DNA Typing from Bed bugs, Cimex lectularius. Forensic Science International. Forensic Science International 293 (2018) 1–6.
- Zariana R Mobley (undergraduate), **Shanell L Jackson** (undergraduate), Gibin George,

Zhiping Luo. Chemical Microanalysis of SnO<sub>2</sub>-MnO<sub>2</sub> Nanofibers in an Electron Probe Microanalyzer. *Microsc. Microanal.* 24 (S1), 2052-2053 (2018).

- Gibin George, **Shanell L Jackson** (undergraduate), Zariana R Mobley (undergraduate), Bhoj Gautam, Dong Fang, Jinfang Peng, Duan Luo, Jianguo Wen, Jason E Davis, Daryush Ila, Zhiping Luo. Fast luminescence from rare-earth-codoped BaSiF<sub>6</sub> nanowires with high aspect ratios. *J. Mater. Chem. C* 6, 7285-7294 (2018).
- Gibin George, **Shanell L. Jackson** (undergraduate), Charles Q. Luo (undergraduate), Dong Fang, Duan Luo, Dongli Hu, Jianguo Wen, Zhiping Luo\*. Effect of doping on the performance of high-crystalline SrMnO<sub>3</sub> perovskite nanofibers as a supercapacitor electrode. *Ceram. Inter.* 44, 21982-21992 (2018).

## Undergraduate Internships

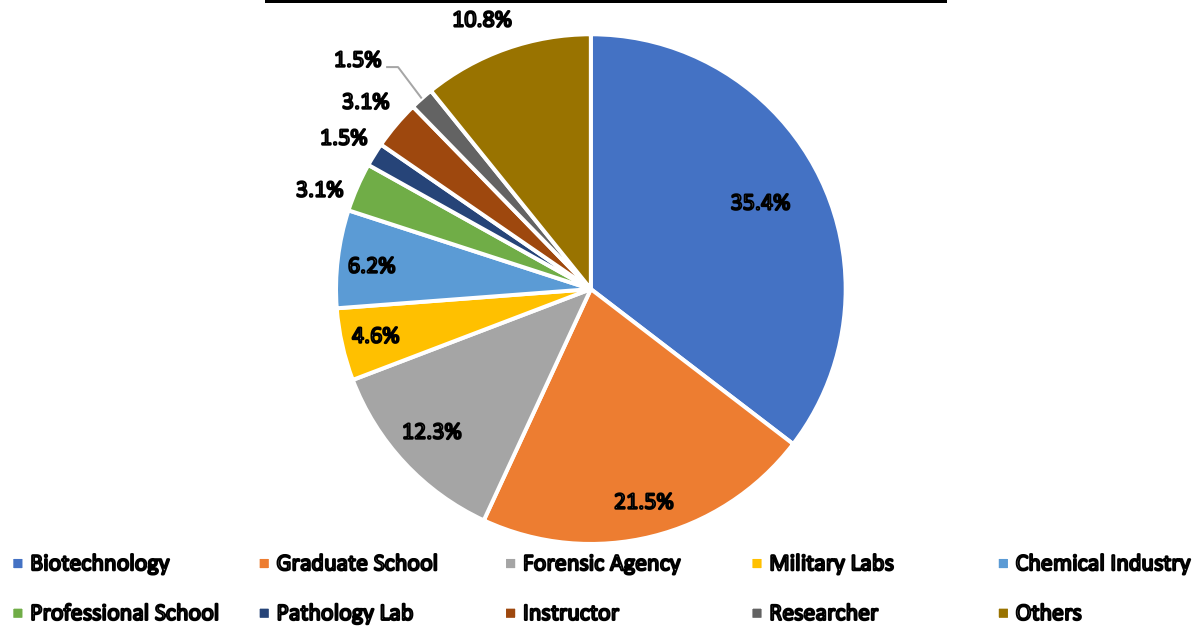
Forensic science students participated in internships at various agencies in North Carolina, at Iowa State University, and at Federal Bureau of Investigation (FBI).

- **One student** completed her summer internship at Onslow County Sheriff's Office in 2022.
- **One student** completed her summer internship at the FBI in summer 2019.
- **Two students** completed their summer (2019) internship at the Fayetteville Police Department, Fayetteville, NC.
- **Two students** completed their summer Center for Statistics and Application in Forensic Science (CSAFE) at Iowa State University, Ames, Iowa, June 3-August 3, 2018.
- **One student** completed her summer (2018) internship at the Fayetteville Police Department, Fayetteville, NC.
- **One student** completed her summer (2018) internship in the Pathology laboratory at the Cape Fear Valley Hospital, Fayetteville, NC.
- **One student** completed her summer internship at SBI, Raleigh, NC in 2017.
- **Five students** completed a 6-week summer internship sponsored by the CSAFE at Carnegie Mellon University and Iowa State University June-July 2017.
- **Two students** completed their summer (2015) at Cumberland County Sheriff's Office.

## Career Placements

Since the inception of the Program in 2006, 114 students have graduated with a degree in Forensic Science. A survey of the graduates showed that of the 65 (57.0%) respondents, 23 entered into the biotechnology industry (35.4%); 14 went to graduate school (21.5%); 8 are confirmed working in forensic agencies (12.3%); 3 entered into the Armed Forces Labs (4.6%); 4 entered into the chemical industry (6.2%); 2 entered into the professional school (3.1%); 1 employed in pathology lab (1.5%); 2 works as an instructor (3.1%); 1 is working as a researcher in a university research laboratory (1.5%); 7 are working nonscientific jobs (10.8%); and 49 did not respond to our survey (43.0%). Therefore, 89.2% of respondents confirmed career placements or graduate school admissions.

# STUDENT ACHIEVEMENT



Data from 49 (43.0%) students that did not respond are not included.

## Five Year Success Rate

The five-year (2018-2022) success rate of the 68 graduate respondents of the Forensic Science Program showed that on average, 44.1% of the graduates entered career pathways or pursued graduate/professional school. The remaining 37 (54.4%) graduates did not share their post-graduation status.

Field of work	Years	2018	2019	2020	2021	2022	Total
	No of Graduates	10	13	14	21	10	68
Crime Scene Investigation (CSI) Or Forensic Crime Lab						1	1
Biotechnology		5	1	4	2	2	14
High school teacher			1				1
Graduate/Professional School		2	2	3	2	2	11
Law Enforcement/ Military		1	1				2
*Others						2	2
<b>Success rate (%)</b>		<b>80.0</b>	<b>38.4</b>	<b>50.0</b>	<b>19.0</b>	<b>70.0</b>	<b>45.6</b>

\*Non-STEM fields