LSAMP BRIDGE TO DOCTORATE FELLOWSHIP

University of Connecticut

PEOPLE

1st Cohort (2013-2015)

- 13 Students
- 10 fields of study
- Award Number: 1249283

"It was great having a cohort of like minded students, outside of my department, to discuss issues surrounding our research and career development."

2nd Cohort (2015-2017)

- 13 Students
- 8 fields of study
- Award Number: 1400382

"The overall support I received from members of the BD program through the initial transition into graduate school"

3rd Cohort (2017- Present)

- 13 Students
- 5 fields of study
- Award Number: 1702132

UCONN
SCHOOL OF ENGINEERING

ABOUT THE PROGRAM

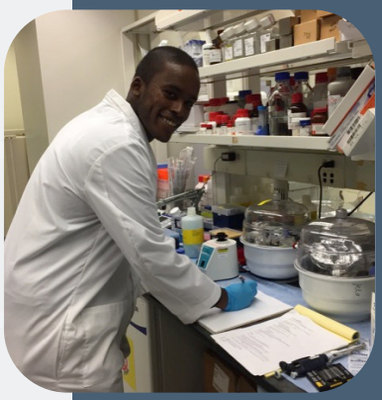
The University of Connecticut is a member of the Northeast Louis Stokes Alliances for Minority Participation (NE-LSAMP) program. The BD Program targets qualifying students who intend to earn a Ph.D. within a STEM discipline in the School of Engineering, College of Liberal Arts and Sciences, School of Pharmacy or College of Agriculture and Natural Resources.

The program offers:

- Student stipends, up to $32,000 annually – for the first 2 years and guaranteed support for the years 3-5 through teaching or research assistantships
- Tuition waiver
- Health insurance
- Faculty mentoring and advising
- Mentoring community
- Active support and links to research and internship opportunities
- Opportunities to participate in national and professional conferences
- Enriched academic & professional development services and support

BD FELLOWS ACTIVITIES

The NSF Bridge to Doctorate Fellows participate in a number of activities described below:

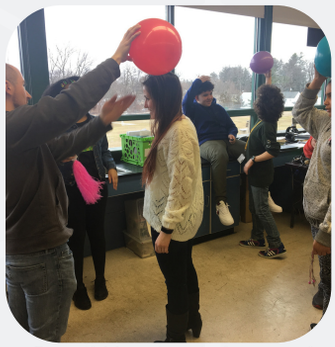


- **FELLOWS PARTICIPATE IN BIWEEKLY STUDENT-LED MEETINGS**
  - Using Social Media Professionally
  - Stress Management
  - Effective Communication as it Applies to Scientific Research
  - How to Effectively Work in Collaborative Group Settings
  - Fellowship Opportunities

- **FELLOWS PARTICIPATE AND ORGANIZE OUTREACH AND MENTORING OPPORTUNITIES**
  - GEM GRAD Lab
  - McNair Scholars Mentors
  - Freshman First Year Experience Panel
  - NELSAMP Symposium
  - MSE Open House
  - Engineering Your Future
  - BD National Meeting

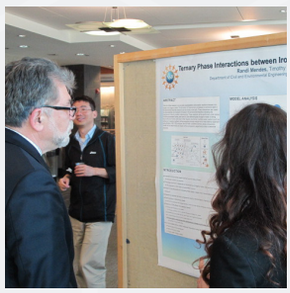
B2D fellows welcomed Danbury High School ConnCap students during the Fall 2017 UConn Open House to share their undergraduate experiences in STEM. Fellows provided what they believed is essential advice in order to be successful in STEM fields.

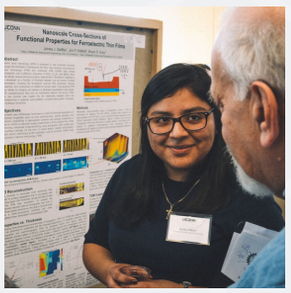
- **FELLOWS PARTICIPATE IN PROFESSIONAL DEVELOPMENT WORKSHOPS**
  - Non-Traditional Career Paths for Students with Graduate Engineering Degrees
  - Common Publication Practices, How to Raise Impact, and Review Process
  - How to Design a Competitive Poster
  - Communicating your Research During Interviews



B2D Fellow, Randi Mendes, brings active-learning engineering activities to Illing Middle School to teach students more about engineering and graduate school

- **FELLOWS PARTICIPATE IN POSTER PRESENTATIONS**





CONFERENCES ATTENDED

- National Society of Black Engineers
- Connecticut Microelectronics and Optoelectronics Consortium
- Society for Advancement of Chicanos/Hispanics & Native Americans in Science
- American Geophysical Society
- Materials Research Society
- American Chemical Society
- NESOT 2018 Fall Annual Meeting
- Emerging Researchers National Conference in STEM
- The Minerals, Metals, and Materials Society
- International Conference for Strength of Materials
- Association of Environmental Engineers and Science Professionals

Meet the current Fellows

Brandon Williams

Department: Materials Science
Degree Pursuing: Ph.D.
Undergrad University: University of Alabama at Birmingham
Extracurricular: Brazilian Jiu-Jitsu

Cristian Aviles-Martin

Department: Chemistry
Degree Pursuing: Ph.D.
Undergrad University: Pontifical Catholic University of Puerto Rico
Extracurricular: Skype a Scientist, Letters to Pre-scientists, American Chemical Society

Godwin Dzidotor

Department: Chemical & Biomolecular Engineering
Degree Pursuing: Ph.D.
Undergrad University: University of Connecticut
Extracurricular: Fishing, Cooking

Jessica Maita

Department: Materials Science and Engineering
Degree Pursuing: Ph.D.
Undergrad University: Rochester Institute of Technology
Extracurricular: GOLS, EcSA, UConn MRS, Baking

Kevin Rivera

Department: Chemistry
Degree Pursuing: Ph.D.
Undergrad University: University of Puerto Rico, Rio Piedras
Extracurricular: PuRSA, Skype a Scientist, Soccer

Luis Ortiz

Department: Material Science and Engineering
Degree Pursuing: Ph.D.
Undergrad University: University of Puerto Rico - Humacao
Extracurricular: PuRSA, Paint, Swim

Pierre Fils

Department: Civil Engineering
Degree Pursuing: Ph.D.
Undergrad University: University of Connecticut
Extracurricular: Long Distance Running

Roman Mays

Department: Electrical Engineering
Degree Pursuing: Ph.D.
Undergrad University: Gustavus Adolphus College
Extracurricular: SAGE, JLLA, Games, Cooking

Shelby Brewer

Department: College of Natural Resources
Degree Pursuing: Ph.D.
Undergrad University: University of Connecticut
Extracurricular: Singing

Steven Toro

Department: Physiology and Neurobiology
Degree Pursuing: Ph.D.
Undergrad University: University of Puerto Rico at Humacao
Extracurricular: Basketball

Victor Calle

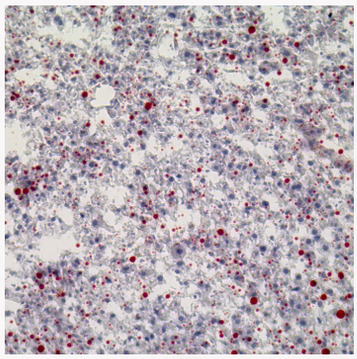
Department: Physiology and Neurobiology
Degree Pursuing: Ph.D.
Undergrad University: University of Connecticut
Extracurricular: Rock Climbing

RESEARCH SPOTLIGHT

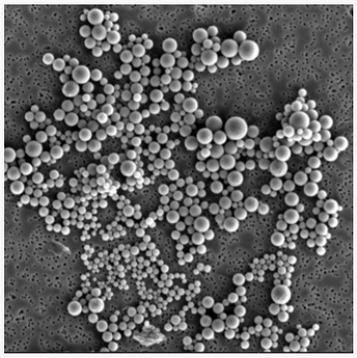
SHELBY BREWER

Shelby is currently analyzing data from a health risk questionnaire that was designed to look at the association between healthy lifestyles and faith in the African American community. The findings from this study is being used to develop a weight-management intervention that will start in Connecticut, in hopes of making it a world-wide intervention since the faith-based organization that is partnering with Shelby has over 6.5 million members.

STEVEN TORO



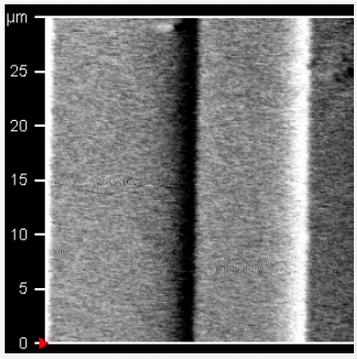
Steven is investigating the role of the liver drug transporter multidrug resistance associated protein 4 (Mpr4 or ABBCC4) on hepatic lipid homeostasis and the impact of alterations in the expression and function of this transporters on the development of non-alcoholic fatty liver disease. This project is aimed at identifying the molecular mechanisms by which the absence of this transporter leads to changes in lipid content in the liver.



KEVIN RIVERA

The main focus of Kevin's work is enhancing the performance of homogeneous catalysts through compartmentalization and control of the microenvironment around the catalysts. His project aims at addressing long-standing challenges, including selective functionalization, integration of homogeneous catalysts into flow processes, and increasing the rates of catalytic reactions by controlling the microenvironment inside the nanocapsules.

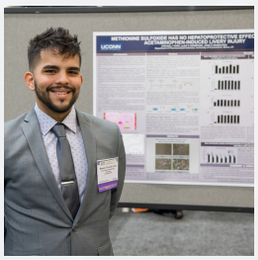
ROMAN MAYS

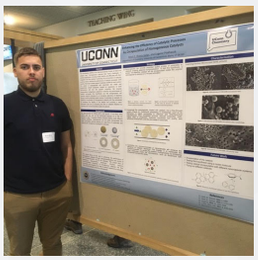


Roman currently works on altering the size of Ge-GeOx quantum dots for application for solar cells, logic devices, and memory chips. This exploration is done in the hopes of being able to obtain a six-layer quantum dot super lattice (QDSL), which would allow for more logic states for devices such as Quantum Dot Gate Field Effect Transistors (QDG-FETs), and better tuning to match the wavelengths of the solar spectrum for solar cells, to name a few.

CONFERENCE PRESENTATIONS

This section includes some but not all of the poster & oral presentations given by current and past BD Fellows.





Brandon Williams:
1.) Poster - ACS, Boston MA - "Flame Retardant Polybutylene terephthalate sheets from Self-assembled Nanocoatings"

Cristian Aviles-Martin:
1.)Oral Presentation- TechConnect, National Harbor MD, "Photodegradation of Organic Dyes Catalyzed with CdSTe QDs"
2.) Poster - NSF AAAS, Washington DC, "Establishing Through-Shell Communication in Hollow Polymer Nanocapsules"
3.) Poster - ACS, San Diego CA, "Characterization of CdSSe and CdSTe quantum dots prepared via microwave-assisted synthesis"

Jessica Maita:
1.) Oral Presentation- ICSMA, Columbus OH, "Uni-axial Compression Tests of Amorphous Boron at the Micrometer Scale"
2.) Oral Presentation - TMS, San Antonio TX, "Ultra-high strength above 10 GPa and short-range atomic order of amorphous boron"
3.) Poster - MRS, Boston MA, "Ultra-high strength above 10 GPa and short-range atomic order of amorphous boron"

Virgilio Lopez:
1.) Poster - Falmouth Road Race Society, Falmouth MA, "Heat shock protein response during a prolonged running event in hot and humid conditions"
2.) Poster- CAHNR, Storrs CT, "Heat shock protein response during a 100 mile cycling event in hot and humid conditions"

Randi Mendes:
1.) Poster - AEESP, Ann Arbor, MI- "Ternary Phase Interactions between Copper, Iron, and Organic Matter"
2.) Oral Presentation - ACS, Boston MA, "Partitioning of Cu between Size Fractions in Ferrihydrite and Humic Acid Organominerals"

Yomery Espinal:
1.) Poster - XXIII International Materials Research Congress, Cancun Mexico, "Dielectric and Pyroelectric Properties of PZT with Buffer Layers"

PUBLISHED PAPERS

This section includes some but not all of the published papers by current and past BD Fellows.

Brandon Williams:

1.) D. Zhang et al., “Flame retardant and hydrophobic cotton fabrics from intumescent coatings,” pp. 177–184, 2018.

2.)D. Zhang et al., “Flame retardant and hydrophobic coatings on cotton fabrics via sol-gel and self-assembly techniques,” J. Colloid Interface Sci., vol. 505, pp. 892–899, 2017.

Pierre Fils:

1.) Bruciati, B., Jang, S., & Fils, P. (2019). RFID-Based Crack Detection of Ultra High-Performance Concrete Retrofitted Beams. Sensors,19(7), 1573. doi:10.3390/s19071573

Brian Cruz:

1.)Cruz, B.C., Furrer, J.M., Guo, Y.-S., Dougherty, D., Hinestroza, H.F., Gage, D.J., Cho, Y.K., Shor, L.M.(2017). Pore-scale water dynamics during drying and the impacts of structure and surface wettability. Water Resources Research. doi:10.1002/2016wr019862

Guleid Awale:

1.) G. Awale, E. Wong, K. Rajpura, K.W.-H. Lo, Engineered Bone Tissue with Naturally-Derived Small Molecules., Curr. Pharm. Des. (2017). doi:10.2174/1381612823666170516145800.

2.) C. Ifegwu, G. Awale, K. Rajpura, K.W.-H. Lo, C.T. Laurencin, Harnessing cAMP signaling in musculoskeletal regenerative engineering, Drug Discov. Today. 22 (2017) 1027–1044. doi:http://dx.doi.org/10.1016/j.drudis.2017.03.008.

Shaniel Bowen:

1.) S. Bowen et al., “Development of a Sit-to-Stand assistive device for individuals with lower limb muscle weakness,” in 43rd Annual Northeast Bioengineering Conference, Newark, NJ, 2017.

Svetlana Gelpi:

1.) Bobbitt, J. M.; Eddy, N. A.; Cady, C. X.; Jin, J.; Gascón, J. A.; Gelpí-Domínguez, S.; Zakrzewski, J.; Morton, M. D. J. Org. Chem. 2017, acs.joc.7b00846.

Patrice Hubert:

1.) P. Hubert, S. G. Lee, S.-K. Lee and O. K. Chun,: “Dietary Polyphenols, Berries, and Age-Related Bone Loss: A Review Based on Human, Animal, and Cell Studies”. Antioxidants 2014, 3, 144-158

Yomery Espinal:

1.) Espinal, M. T. Kesim, I. B. Misirlioglu, S. Trolier-McKinstry, J. V. Mantese, and S. P. Alpay: “Pyroelectric and Dielectric Properties of Ferroelectric Films With Interposed Dielectric Buffer Layers”. Appl. Phys. Lett. 2014, 105, 232905