

PLSC Productivity

NEWS FROM THE DEPARTMENT OF
PLANT & SOIL SCIENCES



UNIVERSITY OF DELAWARE
**AGRICULTURE &
NATURAL RESOURCES**

Chair's Corner

Welcome to Spring! My recent daily dog walks have been full of magnolia, crabapple, and daffodil blooms. Our student Spring Break is next week, marking the halfway point in our semester. Here's hoping students return rested, healthy, and invigorated to finish out the semester strong. We will be holding in-person UD Commencement and CANR Convocation on Saturday, May 28. I hope that many of you can attend.

A big thanks to those alumni and interested parties who have recently gifted funds to the department. We will use some of these funds to support the activities of student clubs and other hands-on learning experiences. For example, the Horticulture and Landscape Architecture clubs are hard at work preparing an educational display for the second year of an outdoor Philadelphia Flower Show at FDR Park (held June 11-19). Our second-ever soil judging team qualified last fall for the national championship which will be held near the Ohio State University in April. I am also excited to announce three large gifts from Diana Foster-Jones, setting up the Dorothy Foster Undergraduate Garden Internship and Assistantship, and the Dorothy Foster University of Delaware to University of Pennsylvania MLA Graduate Support Fund. These funds will further our strong foundation of UD Botanic Gardens undergraduate internship experiences and enable one of our strongest Bachelor of Landscape Architecture (BLA) graduates to attend the University of Pennsylvania for an MLA each year. Our horticulture and landscape architecture opportunities only continue to increase!



Continuing our LA and horticulture theme, read later in the newsletter about our most recent instructor hires, Lori Athey and Zach Hammaker. Further faculty news is that we are in the final stages of hiring a new tenure-track assistant professor in the groundbreaking field of plant synthetic biology. This hire will join our internationally-acclaimed Delaware Biotechnology Institute faculty, developing and utilizing the latest tools of genetic engineering to develop more stress-tolerant plants or novel plant products for human health.



Laura Gibler joined us last month in the main office as an Administrative Assistant II. She worked in administrative roles at AstraZeneca for 20 years and is now a Blue Hen just like her daughter, a current undergraduate.

As always, our world-class faculty and staff are hard at work landing research grants, training graduate students, and producing high-impact science to feed the world and sustain our environment. See below for an extensive list of recently awarded research grants.

That's all for now. Ag Day is back in-person! If you are local, please stop by and celebrate with us on April 30 from 10 AM-3 PM.

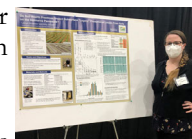
Honorifics

Our 6th annual CANR Unique Strengths Research Symposium, held in February, was another successful celebration of the College's research mission. Presentation judges from PLSC were Dr. Jeffrey Fuhrmann, Dr. Shreeram Inamdar, Dr. Tara Trammell, and Ms. Barbra Ferrell. PLSC captured the following awards:

1st place in the climate change impacts, mitigation, and adaptation area: Sean Fettrow, advised by Dr. Angelia Seyfferth, **"Iron Oxide Control on Lateral Exchange of Carbon between Salt Marsh Sediment and the Tidal Channel."**

2nd place in the sustainable food systems, landscapes, and ecosystems area: Emily Kennebeck, advised by Dr. William Meng, **"The Role of Far-red Light in Stress Responses of Leafy Greens to Elevated Carbon Dioxide."**

Ms. Lauren Mosesso, Ph.D. student advised by Dr. Amy Shober, was awarded 1st place in the student poster competition at the Delmarva Soil Summit, held February 7-8, 2022, in Salisbury, MD. She presented her work on how soil health practices affect subsurface phosphorus loss from agricultural fields on the Delmarva Peninsula.



Ms. Mosesso, along with Ms. Margaret Capooci, a Ph.D. student advised by Dr. Rodrigo Vargas, have been selected as Presidential Management Fellow finalists. Being a finalist means that they have 12 months to find a federal position within participating departments (e.g., U.S. Forest Service, National Science Foundation) through the PMF's application site. If they do get offered PMF positions, they will be fellows for the first year and then they will be transferred into full federal employment.

Faculty Highlights

Editors' note: So much good news about our faculty and their groups has come out in our UD press, space does not allow for a lengthy description. If you are interested to read more about these headlines, please search www.udel.edu/udaily or email mpautler@udel.edu for the UDaily links.

January 2022:

Dr. K. Eric Wommack's Lab: Marine Viruses and Microbes - With UD's research ship, team uses revolutionary technique to study oxygen-producing bacteria

Dr. Jules Bruck's leadership: Climate Scholars - Students in new enrichment program learn and work on climate change challenges

The following grants were awarded this winter to our talented PLSC faculty and their UD colleagues.

<u>Principal Investigator(s)</u>	<u>Title/Topic</u>	<u>Sponsor</u>
Dr. Rodrigo Vargas	Global Respiration Comparison (ResCom): Evaluation of Satellite Constrained Top-Down and Bottom-Up Respiration Estimates and their Relationship with Model Simulations	NASA
Dr. Harsh Bais Dr. Aditya Kunjapur	Improving Soil Health by Engineering a Rhizobacterium to Depend on a Plant and Stimulate Its Immune System	Foundation for Food and Agriculture Research
Dr. Angelia Seyfferth Dr. Matt Limmer Dr. Thomas Hanson	Water and Residue Management as Drivers of Rice Soil Health	USDA
Mr. Franklin Linam Dr. Angelia Seyfferth	Stability of Iron Plaque on Rice Roots and Its Role in Contaminant Exclusion and Nutrient Uptake	USDA
Dr. Jarrod Miller Dr. Amy Shober	Mapping and Alleviating Coastal Salinity in Agricultural Fields Using Apparent Electrical Conductivity	USDA
Dr. Ashley Hostetler	Bracing for Sustainable Agriculture: Characterization of Brace Root Development and Function in Two Members of Andropogoneae	USDA
Dr. Mark VanGessel	GROW: A National Response to the Herbicide-Resistant Weed Epidemic	USDA
Dr. Jarrod Miller Dr. Pinki Mondal	Restoration Options for Salt-Damaged Agricultural Land in the Chesapeake Bay: Reducing Pollution and Increasing Wetland Habitat	USEPA
Dr. Rodrigo Vargas	High-frequency Data Integration for Landscape Model Calibration of Carbon Fluxes across Diverse Tidal Marshes	US Department of Energy
Dr. Harsh Bais	Exploring the Link between Soil and Human Health	Rodale Institute
Dr. Alyssa Koehler	SCN Coalition: Reinforcing and Maintaining Local Efforts and Sustainable Yield	University of Kentucky
Dr. William Meng Dr. Nicole Donofrio	Let There Be Light: The Role of Light Quality and Intensity in Disease Resistance of Hydroponic Crops	University of Delaware Research Foundation
Dr. Susan Barton Ms. Valann Budischak	Enhancing Delaware Highways: Establishment of Desirable Vegetation on Medians and Roadsides	Delaware Department of Transportation
Dr. Amy Shober Dr. Jarrod Miller	Improving K Fertilizer Recommendations for Corn on the Delmarva Peninsula	Maryland Grain Producers Utilization Board
Dr. Amy Shober	Trends in Soil Test Phosphorus following Long-Term Application of Poultry Litter and Commercial Fertilizers	Maryland Grain Producers Utilization Board
Dr. Yan Jin Dr. Hauntian Cao Dr. Kelly Cobb	Development and Evaluation of Agrotexiles from End-of-Use Cotton Waste	Cotton Incorporated



Faculty Spotlight

Ms. Lorene (Lori) Athey, Instructor, Plant Materials and Landscape Architecture

Could you give a little background on yourself?

First, I am excited to be here at UD, working with students and sharing my love of plants. I am a Registered Landscape Architect with many years in private and public practice. As a Delaware native, I graduated from Smyrna High School, got my Bachelor of Science in Architecture from the University of Virginia, and my Master of Landscape Architecture from the University of Illinois. Some of my previous jobs included Planner for New Castle County, Executive Assistant to the Director of Planning at DelDOT (Delaware Department of Transportation), and Habitat Outreach Coordinator for the Delaware Nature Society. For many years I have also had my own landscape architecture and planning firm, working with residential clients, DNREC (Delaware Department of Natural Resources and Environmental Control), and towns throughout Delaware.



When I moved to Newark, I got hooked on gardening for butterflies, which led me to native plants. I discovered that if asked, most homeowners were interested in attracting birds, butterflies, and other wildlife. For the last eight years, for the Delaware Nature Society, I have coordinated the annual native plant sale, one of the largest in the mid-Atlantic region, as well as monitored conservation easements and taught homeowners, volunteers, and members of the public about plants and gardening for wildlife. In my free time I am a moderator and expert for the Delaware Native Plant Facebook Group.

Outside of class I have served as an appointed member of the Delaware Native Species Commission, chair of the New Castle County Resource Protection Area Technical Advisory Committee, and former president of the Delaware Board of Landscape Architects.

What are your plans at UD?

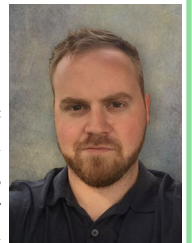
Here in PLSC I teach plant materials and BLA design studios. I joined the PLSC faculty last spring, teaching PLSC214, Indigenous Woody Plant Materials. This past fall semester, I taught PLSC211, Ornamental Herbaceous Plants; PLSC212, Ornamental Woody Plants; PLSC104, Botany Lab, and team-taught LARC450, Ecological Planting Design. This spring I am teaching PLSC214 again, as well as working with senior BLA students on their capstone projects, and team-teaching another BLA studio design class.

I enjoy traveling, gardening, visiting gardens, and photography. I live in Newark with two large cats and my hubby.

Mr. Zachery (Zach) Hammaker, Instructor, Landscape Architecture

Could you give a little background on yourself?

I have always considered myself a creative thinker. I grew up in central Pennsylvania, working on my family's land, whether it was my mom's flower gardens or my grandfather's fields. The landscape was always important to me. I found joy and peace outside. Landscape architecture in that sense was a perfect fit for my ambitions. I graduated from Penn State's Landscape Contracting program with a minor in Horticulture as my first stepping stone to the profession. Thereafter, I settled here in the Delaware Valley, working as a residential landscape designer and then founding my own small design practice. I finished my graduate studies at the University of Pennsylvania, earning two degrees - Landscape Architecture and City + Regional Planning. As a continuing education instructor at Longwood Gardens and working as a lecturer here, at Penn State, and the University of Pennsylvania, I solidified my passion to teach students what it is to be a landscape architect and all the wonderful attributes they offer the world. I am very happy to have joined the faculty here full-time after nearly five years of adjunct teaching on and off campus. I hope to continue advancing our program and am looking forward to making new connections within CANR and UD-wide!



What are your plans at UD?

Here in PLSC I teach our landscape architecture students the core digital representation courses LARC150 and LARC303. They learn 2-D + 3-D digital modeling software techniques and drafting principles as well as strong visual representation skills using programs for presentation and portfolio graphics. In the more advanced curriculum, I teach the students how to use programs like ArcGIS Pro to not only map and spatialize data, but also analyze and convey spatial relationships, challenges, and opportunities to use for decision making in their design process. I teach some of our studio courses as well - Design Process Studio this spring, and Urban Design Studio this coming fall semester.

I am also excited to be working with a great team of faculty, staff, and students doing fantastic interdisciplinary work at CRDS, the Coastal Resilience Design Studio. We have a lot of amazing projects across several Delaware coastal communities in the works for this spring, summer, and beyond!

Events and Outreach

RESCHEDULED: The Donald L. Sparks Distinguished Lectureship in Soil and Environmental Sciences will be held on April 14, 2022 at 2:00 PM in UD's Gore Recital Hall. This year's honored lecturer is Dr. M.B. Kirkham who will give a talk titled **"Microplastics as Contaminants in the Environment: Impact on Plant-Water Relations and Cadmium Uptake."** Dr. Kirkham is University Distinguished Professor in the Department of Agronomy at Kansas State University and teaches a graduate-level class on soil-plant-water relations. Email mpautler@udel.edu if you are interested to attend; the deadline to register is March 25.

Dr. Bruce Vasilas, 35-year PLSC faculty/professor of agronomy and soil management, is organizing the 2022 Northeast Regional Cooperative Soil Survey Conference. With the theme of **"Coastal Resiliency for a Changing Climate,"** it will be held from June 13-16 at Clayton Hall on UD's Newark campus.



UDBG News: The annual benefit plant sale will take place in conjunction with Ag Day! For more information and to browse the online catalog, visit <https://canr.udel.edu/udbg/>

PLSC JEDI News: On March 11, 2022, the PLSC JEDI Committee had the pleasure of virtually hosting Dr. Karen Nguyen, Assistant Director for Postdoctoral Services at Georgia Institute of Technology. Her talk, **"Who Are We? Highlighting Nuances in Asian American Experiences in Ecology and Evolutionary Biology,"** offered good insight to the attendees. Those enrolled in this semester's book club are reading **The Mushroom at the End of the World** by Dr. Anna Tsing. Coming soon is a bingo-styled challenge. To follow PLSC JEDI on social media search for: plscjedi@ud

Ready – Set – Grow!

Undergraduate and graduate students in Dr. William Meng's indoor ag lab have started a hydroponics club. The intention is to transfer knowledge to fellow students on how to grow plants hydroponically (in water with nutrients but without soils) and get hands-on experience with the technology. Club members get to grow vegetables (lettuce, kale), herbs (cilantro, basil), fruit (strawberries), and flowers.



Lastly, to bring back memories of Ag Days of long ago, thanks go to alum Martin Culik (B.S. 1978; profiled in Volume 4, Issue 1) for his photos from the first Ag Day - 1975!



We encourage alumni to send us news to keep us informed! A new job, a promotion, a personal or professional award... they are all accomplishments we want to know! Email a note or a press release, including your graduation year, to mpautler@udel.edu. We are also seeking to showcase alumni stories and highlight the career paths of our former students to current and prospective students and their families. Provide a photo and description of your career path from your PLSC education to your current job (250-word limit) to mpautler@udel.edu.

Back Porch Business

[Make a gift to the Plant & Soil Sciences Department](http://www.udel.edu/makeagift/plsc) (www.udel.edu/makeagift/plsc) to support student success. Gifts to the department provide funding for student travel to research and professional development events as well as stipends for undergraduate summer research and Extension Scholars. You may also give to the College of Agriculture and Natural Resources or another PLSC program by selecting "Other" and searching for the fund you wish to support. Contact Dan Sarkissian, Sr. Director of Development, College of Agriculture and Natural Resources at 302-831-4595 or djs@udel.edu with any questions or concerns.

Edited by Maria Pautler, Research Associate and Erik Ervin, Chair
Department of Plant & Soil Sciences

531 S. College Avenue | Newark, DE 19716
Phone: 302-831-2534
<http://canr.udel.edu/plsc/>

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