

Sustainable Communities

KSU Field Station Showcase

September 2024



KENNESAW STATE
UNIVERSITY
OFFICE OF RESEARCH

The KSU Field Station

Established in 2013, the KSU Field Station comprises approximately 23 acres of which 50% are wooded with mature forest and 50% are cleared for agriculture and greenhouses. After converting the site from its previous use as asphalt and cement factory, much work was done to make the site usable for agriculture.

Initially utilized primarily as part of the Culinary Sustainability Program at KSU, the Field Station is providing farm-to-table vegetables for the KSU Commons until today. Since 2019, the Field Station has been under the purview of the Office of Research, and research and teaching became the focus for the facility.

In 2024, the parcel next door was purchased which included a house and one additional acre of land, also adding 600 feet of road frontage to Hickory Grove Road.



List of Presenters

Andrea Knowlton

Department of Dance
College of the Arts

The Department of Dance in
ACTION at the KSU Field
Station

Vanessa Slinger-Friedman, Jason**Rhodes, Michael Blackwell**

Department of Geography and Anthropology
Radow College of Humanities and Social
Sciences

KSU Food Forest

Whitney Preisser

Department of Ecology, Evolution, and
Organismal Biology
College of Science and Mathematics

Parasite Ecology

Kathryn Bedette

Department of Architecture
College of Architecture and Construction
Management

DESIGN FOR THE SHARED
ENVIRONMENT

Trace Gainey

Department of Architecture
College of Architecture and Construction
Management

Fieldwork Studio: Envisioning
the future of the KSU Field
Station

Ahyoung Lee

Department of Computer Science
College of Computing and Software Engineering

Water Quality Monitoring
System for Intelligent Bacteria
Forecast

**Christopher Cornelison, Kyle Gabriel,
Mark Sheehan**

Department of Molecular and Cellular Biology
College of Science and Mathematics

Controlled Environment
Mushroom Cultivation

**Mario Bretfeld, Zach Peagler, Eric
Duncan**

Department of Ecology, Evolution, and
Organismal Biology
College of Science and Mathematics

Chitosan Biostimulants,
S.E.P.A.L.

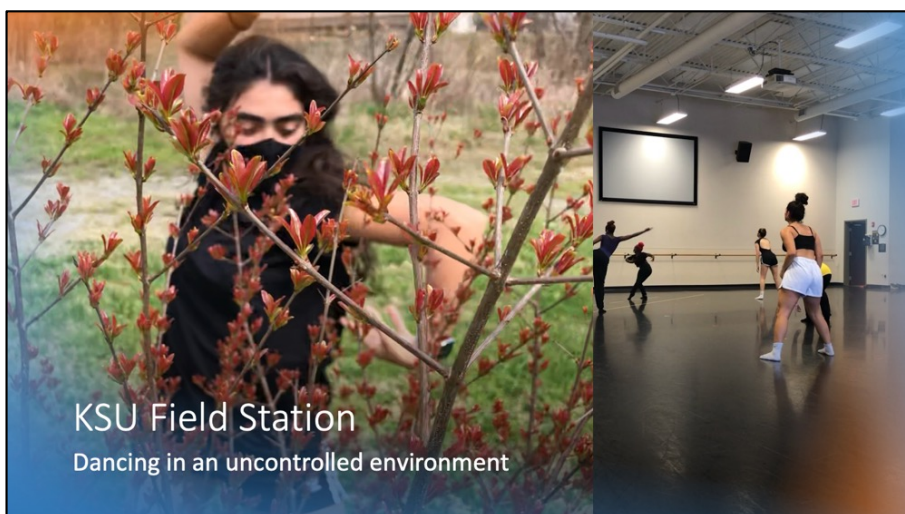
The Department of Dance in *ACTION* at the KSU Field Station

Andrea Knowlton

A Dance Improvisation class is all about reacting to unpredictable stimuli in the moment, and the field station provides fertile ground for the unpredictable.

In our Dance Filmmaking class, we learn to react to the environment including natural light and sounds. We use the landscape to explore composition and scale.

When you consider that dance artists are used to moving in clean, sterile, minimalist, controlled environments, it's clear that this experience at the field station offers many new opportunities for dance improvisors and dance filmmakers!



Use this QR code to watch
dancers in action at the KSU
Field Station!



KSU Food Forest



*Vanessa Slinger-Friedman, Jason Rhodes,
Michael Blackwell*

The KSU Food Forest has been established as a model of sustainable agriculture. We welcome faculty of all disciplines to consider it as a site to explore research on precision agriculture, smart automation, data connectivity and transfer, and to demonstrate best practices in a climate-smart agriculture production system that enhances sustainability and farm profitability.

The KSU Food Forest could be used to evaluate digital and smart technologies to provide accessible, data-driven solutions that support regenerative agricultural and value-added practices. The KSU Food Forest is also a site to practice and research applied and active pedagogies.



Community Outreach Events -

Friday in the Food Forest; Givepulse volunteer events; Tabling

Partners - KSU CARE; MUST; Free 99 Fridge; KSU Office of Sustainability; OLIE

Academic and experiential

impacts: Living Learning Lab, space for classes, classroom presentations, CCAC/VISTA (AmeriCorps); Internships, DARs, Service-learning, Federal Work Study



Instagram: @KSUfoodforest

YouTube: <https://www.youtube.com/@ksufoodforest4499>

Website: <https://www.kennesaw.edu/foodforest/about-us.php>

Parasite Ecology

Whitney Preisser

We study the ecology and biodiversity of parasites, particularly the roundworms, tapeworms, and flukes.

We map the distribution of parasites across time, space, and wildlife species to determine where parasites are more common and why.



We also look at the impacts that humans have on the distribution of parasites, including impacts like climate change, microplastics, dams, and urbanization.

Website: <https://facultyweb.kennesaw.edu/wpreisse/>

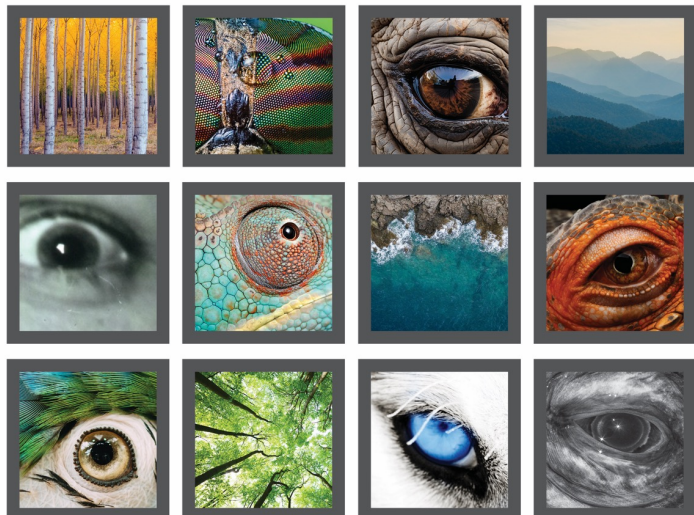
DESIGN FOR THE SHARED ENVIRONMENT

Kathryn Bedette

This architecture studio is developing posthumanist design strategies to respond to the biosphere. Students are designing a small research center at the Field Station and their architectural research includes the selection of “co-clients” for the project from two of the following topic areas:

- Ecosystems
- Pivotal Animal Species
- Endangered or Displaced Native Animal Species
- Pivotal Native Plant and Fungi Species
- Endangered or Displaced Native Plant and Fungi Species

The studio aims to extend the impact of this research by designing alternate applications of select posthumanist design components or assemblies to deploy in a variety of climate zones and circumstances Within the built environment.

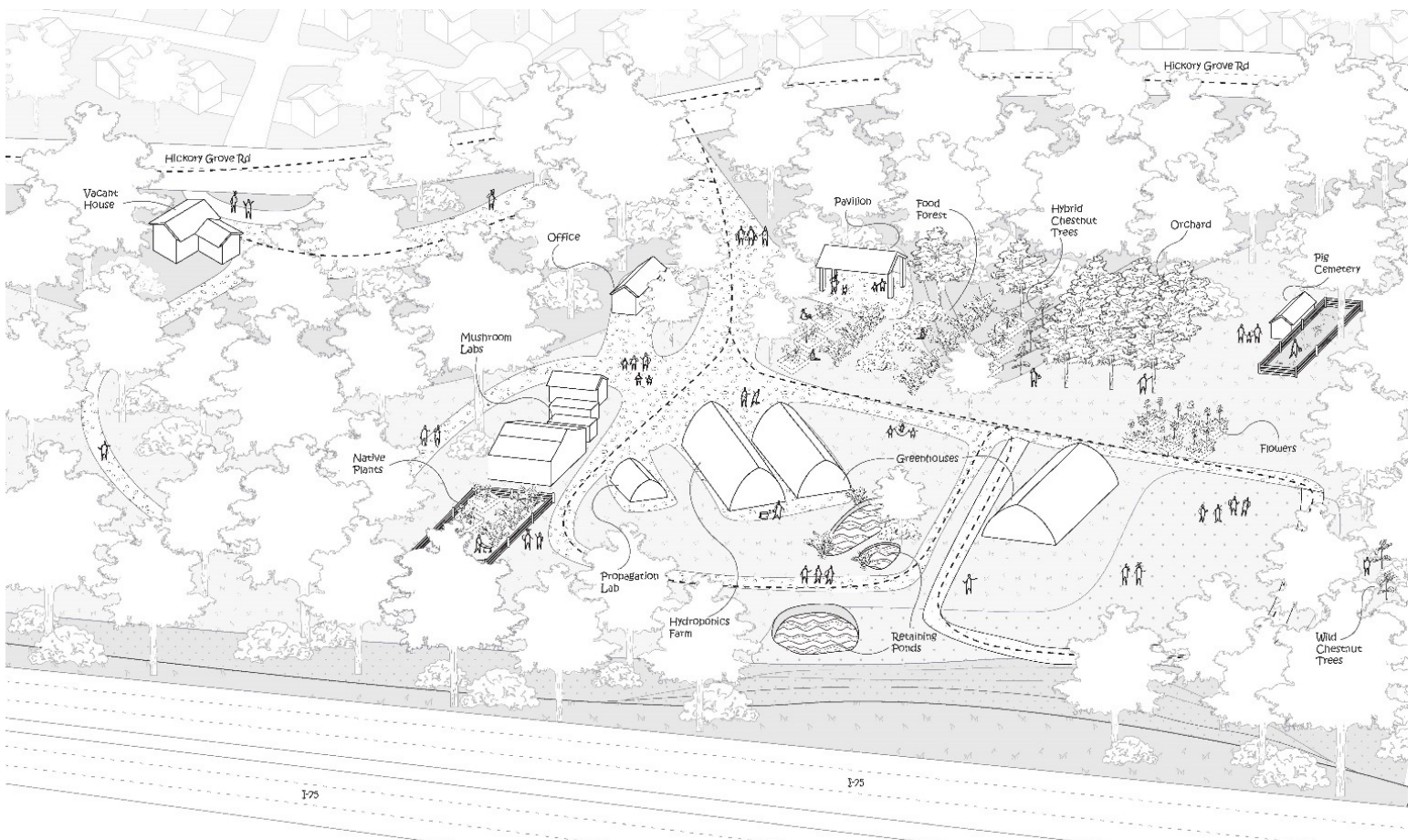


Fieldwork Studio: Envisioning the future of the KSU Field Station

Trace Gainey

This architecture studio is utilizing architectural drawing as a tool to envision the future development of the Field Station. Students are mapping existing conditions and proposing new organizational strategies for the site through speculative drawing.

The students will then design a small, sustainable research center for the site inspired by their mappings and landform building strategies, blurring the lines between landscape and architecture.



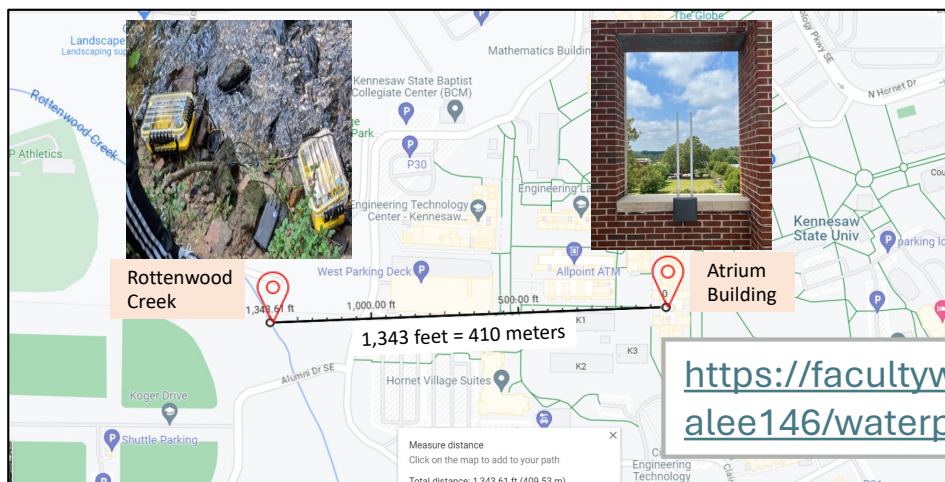
Water Quality Monitoring System for Intelligent Bacteria Forecast

Ahyoung Lee

We are researching and developing a state-of-the-art water quality monitoring system to provide real-time monitoring and predictive analytics of bacterial levels in water bodies.

Our approach integrates energy-efficient LoRaWAN technology with a cloud-connected mobile application running advanced AI algorithms.

Our research combines Computer Science (for developing AI algorithms, optimal LoRaWAN network, mobile app/DB) with Electrical and Computer Engineering (for developing sensor devices with energy efficient transmission) and Biology (for verifying/advising AI algorithms regarding bacteria) and environmental engineering (for advising sustainable water monitoring environment).



Controlled Environment Mushroom Cultivation

Chris Cornelison, Kyle Gabriel, Mark Shane

We aim to make mushroom farming more accessible by developing advanced environmental control systems to optimize the growth of edible mushrooms.

We retrofit used shipping containers into ready-to-use cultivation units, using specialized hardware controlled by Mycodo, a custom software created by Dr. Gabriel.

Our research bridges sustainable agriculture, microbiology, and the economics of small-scale farming, offering innovative solutions for specialty mushroom growers.



Use this
QR code
for more
info!



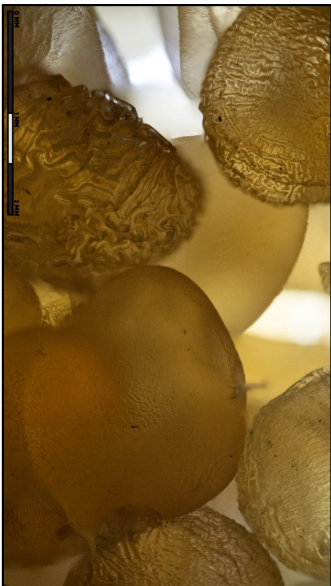
Chitosan Biostimulants

Mario Bretfeld, Zach Peagler

We are researching and developing organic, sustainable alternatives to synthetic fertilizers using tomatoes as our study species.

Our approach combines chitosan (a shellfish byproduct) and beneficial bacteria and fungi (similar to “probiotic yoghurts”) to create easy-to-apply granules.

Our research combines plant physiology (effect of the biostimulants) with chemistry and microbiology (formulation of biostimulants) and electrical engineering (production).



Use this QR
code for
more info!

Website: <https://plantecofizz.com>

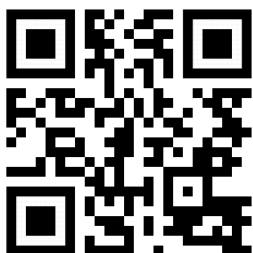
S.E.P.A.L.

Mario Bretfeld, Eric Duncan

sepal (/ˈsēp(ə)l, ˈsep(ə)l/) - A part of the flower; typically function as protection for the flower in bud, and often as support for the petals when in bloom.

Established in 2023, the **Safeguarding, Education, Propagation, and Appplied Research Laboratory** acts as a dynamic living outdoor laboratory to further the Field Station's commitment to environmental restoration and healing.

The protection and re-integration of native plants into developed landscapes offers a wealth of opportunities for interdisciplinary projects. These include ecological studies (e.g., pollinator visitation), psychological research (e.g., perceptual and affective science), and creative arts initiatives (e.g., signage, landscape design).



Use this QR code for more info!

Website: <https://plantecofizz.com>

Contacts



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