

UTA landscape architect creating sustainable plantings through 'polycultures' of plants that work together

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From left, Neha Lokhande, Molly Plummer, Brooke Phillips and John Watkins work on landscaping that is part of UTA Associate Professor David Hopman's research on polyculture plantings. Credit: UT Arlington

Landscape architect David Hopman isn't only installing plants on a sparse patch of ground just west of the College of Architecture, Planning and Public Affairs Building: he is shaping a new way of thinking about how and what to plant.

The associate professor of [landscape architecture](#) recently returned to The University of Texas at Arlington following a semester of faculty development leave that included an important collaboration with the Botanical Research Institute of Texas in Fort Worth.

There, Hopman worked with BRIT to hone his theory of polyculture planting - landscapes that incorporate different species of [plants](#) together that thrive in the same setting, and combine and grow together in unpredictable but pleasing ways.

Hopman said his research showed that polycultures use a strategy of timesharing, which allows multiple species to coexist because they're not in competition with the same resources at the same time.

In addition, polycultures provide reservoirs of mutually beneficial fungi and bacteria that can have a positive effect on environmental factors such as oxygen production and can attract a richer diversity of insect species.

"Polyculture is a better system for the plants and a better system for the people who planted those plants," Hopman said. "By selecting species with similar growing requirements and different growing seasons, we can maximize the use of space and the aesthetic impact of the plants under cultivation."

For his current UTA campus project, Hopman is using a competitive \$5,000 grant from the College of Architecture, Planning and Public Affairs to purchase plants, compost and mulch for that strip of land

between the CAPP building and metered parking spots along Nedderman Drive.

CAPP Dean Nan Ellin said she expects that Hopman's research will lead to smarter, more cost-effective planting for sustainable urban communities, work aligned with one of the core themes of UTA's Strategic Plan 2020: Bold Solutions | Global Impact.

"Just as the sharing economy - such as airbnb and uber - is transforming business, so Professor Hopman's sharing ecology can transform the environment, improving both productive and ornamental landscapes," Ellin said. "The benefits of this research are substantial, especially given the rapid pace of development in North Texas and the resulting decrease of biodiversity."

Hopman was asked by BRIT and the Fort Worth Botanic Gardens to assist with the redesign of one of the bio-swales in their parking lot.

Becky Grimmer, BRIT's vice president for finance and administration, said they partnered with Hopman to bridge the gap between plants as a "pure ecological function" and a more aesthetically pleasing landscape.

"Professor Hopman designed a test polyculture of plants that will provide the needed function for the storm water management system and also retain more aesthetically pleasing components."

Hopman joined UTA in 2004 and is a member of the American Society of Landscape Architects. His research interests include critical regionalism and landscape aesthetics, the interpretation and design of regional ecological communities in complex cultural landscapes and computer visualization.

Hopman designed and installed the first extensive green roof in North

Central Texas in 2008 atop the UTA Life Sciences Building and he was the principal investigator for the study of the implementation of the U.S. Green Building Council Sustainable Sites Initiative certification at UTA's Green at College Park. In 2012, the green space became one of the first three projects worldwide to receive Sustainable Sites certification.

For students, the recent plantings are opportunities.

Molly Plummer, a landscape architecture graduate student, and Veronica Proana, an interdisciplinary studies graduate who plans to enroll in UTA's landscape architecture program, both said they were attracted to Hopman's research by their desire to care for the ecological environment.

"Outdoor space affects the human condition," Plummer said.

"Polyculture plantings make more sense than monoculture plantings. It's logical but it's also important to the ecology."

Provided by University of Texas at Arlington

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