

Interdisciplinary Research: Sustainability



A Message from the Executive Director

The Brook Byers Institute for Sustainable Systems (BBISS) is an Interdisciplinary Research Institute that advances sustainability through integrated research and education activities grounded in collaboration and partnership.

At BBISS, we embrace a definition of sustainability that encompasses every aspect of modern life and culture. Because our best work emerges from a multitude of perspectives that create new knowledge and shape culture and practice, BBISS' vision is to grow and mobilize Georgia Tech's knowledge assets – people, expertise, ideas, partnerships, technologies, and facilities – to create a sustainable future for all.

We are proud to be a key partner for the implementation of Georgia Tech's bold [Sustainability Next 2023-2030 Strategic Plan](#) and to operationalize Georgia Tech's vision of addressing the biggest local, national, and global challenges of our time.

I invite you to read more to discover the ways that you can help BBISS, together with its close on- and off-campus partners, advance research and education that transforms our city, region, nation, and globe for the better.

L. Beril Toktay

Brady Family Chair and Regents' Professor, Scheller College of Business
Interim Executive Director, Brook Byers Institute for Sustainable Systems



The 2020-2030 Institute Strategic Plan calls on Georgia Tech to:

- Be one of the nation's most research-intensive academic institutions, recognized as a leading contributor to solving the most critical and complex challenges of our time.
- Be an anchor institution, partner, and catalyst of sustainable development in our city and our state.
- Be an anchor institution, partner, and catalyst of inclusive entrepreneurship, social innovation, and economic opportunity in Atlanta and Georgia.
- Lead and contribute to global collaborative efforts that advance the UN Sustainable Development Goals through our education, research, and service.
- Demonstrate our commitment to sustainability in the development and management of our campus.



Professor Emily Weigel leads students in her ecology class on a field experiment trip to Proctor Creek, West of the Georgia Tech campus.



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BBISS serves as a campus-wide sustainability hub and catalyst that invests in ideas, people, partnerships, and physical assets. We forge connections and catalyze high-impact collaborations within the thriving sustainability research and education community at Georgia Tech and advance partnerships that make a positive impact at scale, ranging from the local to the global.

Vision

To create a sustainable future for all by growing and mobilizing Georgia Tech's knowledge assets in environmental and social sustainability.

Mission

Through integrated research, education, and innovation activities, we catalyze high-impact research, develop future leaders, and foster partnerships that translate knowledge into practice.

Catalyzing High-Impact Interdisciplinary Research

The complex problems of our moment become challenges we can embrace when diverse groups of people, perspectives, and disciplines come together in a collaborative environment. That's why BBISS adopts a "team science" approach and has a strong history of supporting faculty in forming effective teams.

Forming teams with the potential for high-impact research takes investments of time and resources. It also requires attracting and retaining talent. To this end, BBISS plans to increase its investments in transdisciplinary, community-engaged research with diverse local and global academic partners; incubate new faculty-led research initiatives and centers; amplify the thought leadership of our world-renowned researchers; and attract high-caliber talent at all ranks.

Areas of Research Excellence

- Climate Science, Solutions, and Policy
- Ecosystem and Environmental Health
- Sustainable Cities and Infrastructure
- Just and Equitable Development
- Sustainable Resource and Materials Use
- Economics and Business of Sustainability
- Sustainability Education



Georgia Tech researchers and their community partners discuss their collaborations at the BBISS Sustainability Showcase.



The Georgia Tech Re-Wind project team and partners stress test discarded wind turbine blades for use as structural building components.



Andrew White, CE 2019, delivers a keynote address at the BBISS Sustainability Showcase.



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Developing Future Leaders

One of Georgia Tech's most important commitments is to train the next generation of scholars and thought leaders. BBISS-affiliated faculty collectively teach hundreds of graduate students and postdoctoral fellows on their paths to generating new sustainability knowledge. They also teach courses and provide experiential learning opportunities reaching thousands of undergraduates. Our affiliated Center for Sustainable Communities Research and Education puts our Institute values of inclusion and community engagement at the core of their work.

To serve our students even better, we aspire to grow groundbreaking programs like the BBISS Graduate Fellows program, launch an interdisciplinary Ph.D. program in climate science, solutions, and policy, create a postdoctoral fellowship program, and cultivate more partnerships focused on student internships and co-ops in the industry, government, and non-profit sectors at home and abroad.



Class I of the BBISS Graduate Fellows.

Advancing Partnerships and Commercialization

With a host of partners from academia, industry, government, and nonprofits, Georgia Tech is translating ideas into products, services, and policies that increase regional and national competitiveness. Georgia has become one of the fastest growing states in "green new economy" companies. The entrepreneurial community in Metro Atlanta is poised to experience significant growth.

BBISS will accelerate the translation of Georgia Tech research to practice by developing strategic partnerships with companies developing the sustainable technologies and business models of the future. We will also take a leadership role in advancing climate tech, environmental and social impact entrepreneurship with on- and off-campus partners to accelerate the development and adoption of scalable climate and sustainability solutions.



President Ángel Cabrera signs an agreement with representatives from the Hyundai corporation focused on sustainable mobility, the hydrogen economy, and workforce development.

Informing Policy and Advancing the Public Good

Georgia Tech proudly proclaims that its mission is to "develop leaders who advance technology and improve the human condition." As an anchor institution, Georgia Tech not only serves the public good nationally and internationally, but also partners with and contributes to the communities of which it is a part. This responsibility extends to BBISS, most prominently in our commitment to informing policy at all scales, undertaking community-engaged, transdisciplinary research, and fostering long-term partnerships with civil society organizations.

To fully realize our commitment, we plan to establish an economic and policy studies fund, a public engagement fellows program, and a community fellows-in-residence program. We also plan to resource the high-impact Sustainable Communities Internship Program and endow the Center for Sustainable Communities Research and Education. Finally, we plan to invest in targeted communications and stakeholder dialogue about Georgia Tech sustainability research that is relevant to public sector decision makers.



Georgia Tech Executive Vice President for Research, Chaouki Abdallah, moderates a panel on Innovation, R&D, and Sustainability at the BBISS Sustainability Showcase.

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Leading by Example on Campus

Georgia Tech has long had a commitment to campus sustainability which is exemplified by recent flagship projects such as the EcoCommons and the Kendeda Building for Innovative Sustainable Design. The Institute has recently launched ambitious and co-coordinated plans to guide campus development squarely in the direction of sustainability including the Climate Action Plan, the Living Campus initiative, and the Comprehensive Campus Plan.

BBISS has a long history of supporting this type of activity through initiatives such as the Bio-Inspired Makerspace housed in the Kendeda Building and the Kendeda microgrants program. We plan to work in close collaboration with on- and off-campus partners to execute the Climate Action Plan and the Living Campus concept by strategically leveraging funds, resources, and talent where they can have the greatest impact.

Building Core Capacity

To successfully carry out our ambitious agenda, BBISS aims to grow its core staff and faculty leadership team to expand its capacity for interdisciplinary grant writing, industry engagement, social innovation, commercialization and entrepreneurship, communications, and alumni outreach. In addition to attracting talented staff, BBISS funds will be used to nucleate new faculty- and student-led initiatives, establish awards for outstanding sustainability projects and programs, provide micro-grants for staff development, and provide travel and enrichment funding to students.

To this end, we aim to grow BBISS' endowment and invite contributions to the BBISS Excellence Fund.



Aerial view of the newly renovated, ADA accessible, and expanded Georgia Tech Community Garden.



Regents' and Brook Byers Professor of Sustainable Systems, Marilyn Brown, stands next to a solar array on the Georgia Tech campus.



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Gift Opportunities

Building Core Capacity

- Grow the BBISS Endowment
- Establish a BBISS Excellence Fund (expendable contributions)
- Endow Center for Sustainable Communities Research and Education
- Endow Executive Director Chair

Catalyzing High-Impact Interdisciplinary Research

- Support promising and emerging affiliated centers
- Secure core funding for thematic faculty cluster hires
- Endow six BBISS chairs (one per college)
- Grow the number of BBISS professorships to 10
- Endow 10 BBISS Early-Career Professorships
- Endow 10 BBISS Faculty Fellowships

Developing Future Leaders

- Establish 20 BBISS Graduate Fellowships
- Establish 10 BBISS Postdoctoral Fellowships
- Establish Global Experience Program
- Fund the Sustainable Communities Internship Program
- Fund an Interdisciplinary Climate Science, Solutions, and Policy Ph.D. program

Advancing Partnerships and Commercialization

- Endow five BBISS Professorships of the Practice
- Establish Executives-in-Residence Program
- Endow Sustain-X Program

Informing Policy and Advancing the Public Good

- Establish Economic and Policy Studies Fund
- Establish Public Engagement Fellows Program
- Establish Community Fellows-in-Residence Program

Leading by Example on Campus

- Establish a Living Campus Research and Education Fund
- Establish Fund for Sustainable Student Campus Service Project



The Tech Wreck, an example of early 20th century radical innovation, parked in front of the Kendeda Building for Innovative Sustainable Design, a radical innovation of the 21st Century.



Students discuss their 3-D printed design models in the Bio-inspired Maker Space in the Kendeda Building for Innovative Sustainable Design.