



THE NEXT THREE YEARS

A STRATEGIC PLAN

FOR THE INSTITUTE FOR SUSTAINABILITY, ENERGY, AND ENVIRONMENT

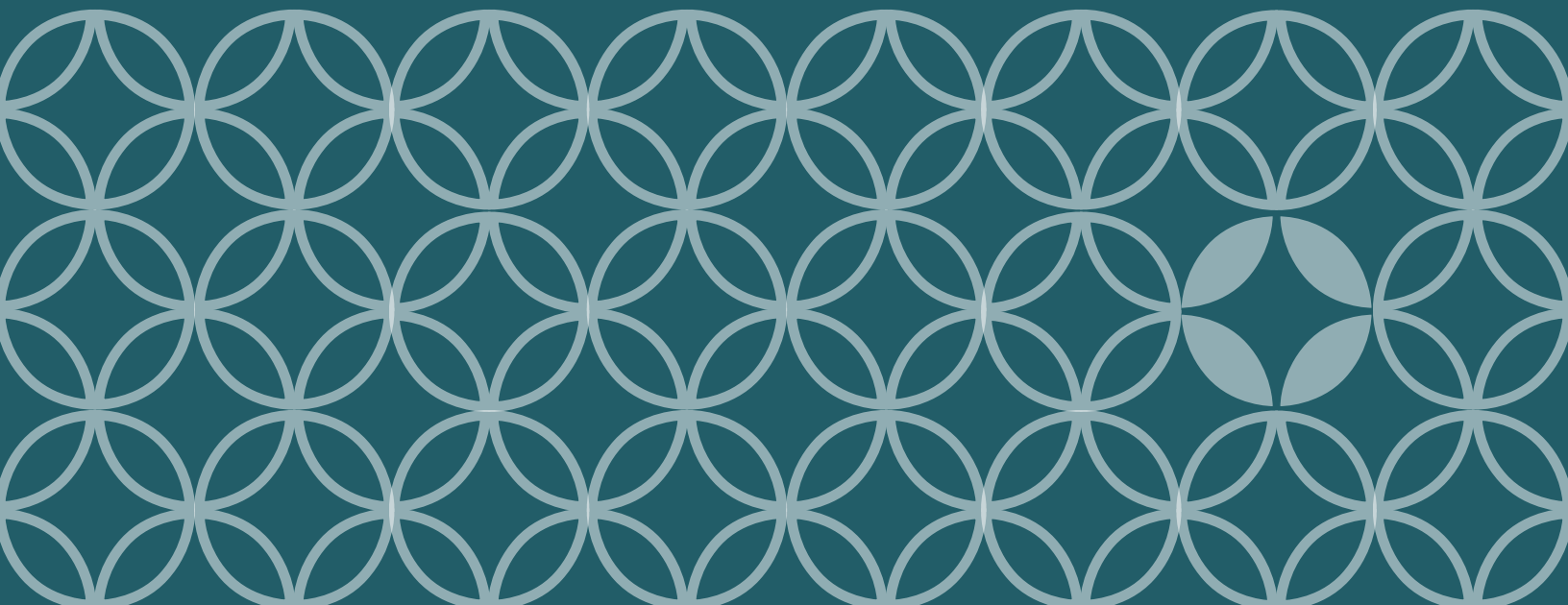


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WELCOME

Climate change. Clean energy. Food security. Community adaptation and resilience. The environment. Solving world grand challenges requires interdisciplinary research with real-world implications, and the Institute for Sustainability, Energy, and Environment (iSEE) intends to meet those challenges boldly now and in the future.

iSEE is shepherding and supporting research in distinct themes covering sustainable solutions in climate, energy, infrastructure, water, land, transportation, and agriculture. The outcome will be to help save the world's environment and ecosystems and ensure the future of human society. We engage faculty members from across the Illinois campus because this research, by its very nature, requires interdisciplinary collaboration — gathering the brightest of the bright to solve the world's problems. We also are coalescing Illinois experts within our research themes to answer calls for grand challenge project proposals.

But iSEE was created for more than research. We are bringing smart, passionate campus community members together to make Illinois a model of sustainability, energy efficiency, and eco-friendliness for the world to emulate — with a top priority of having a carbon-neutral campus by 2050 or sooner. Climate change is real, and our Institute will lead the charge on a resilience plan for campus and the surrounding cities.

The Institute is also committed to educating students to become employable leaders in sustainability — and to be good Earth citizens personally and professionally.

In addition, iSEE will bring together experts from campus, the nation, and abroad for frank dialogue each year about the world's current and future sustainability, energy, and environmental needs — and innovative research ideas to address those needs. These “critical conversations” will happen in an atmosphere of openness, where no idea is too small or too big to be considered.

Our vision is clear: We intend to leave a lasting mark of helpfulness both here and the world over. We hope you will join us in our mission.



Evan H. DeLucia,

Baum Family Director, iSEE

ABOUT THE INSTITUTE



Sustainability is meeting the needs of the present without compromising the ability of future generations to meet their own needs.

OUR VISION

With the world population projected to increase rapidly in the coming decades, we want to find solutions for the ever-growing demand for food, water, and energy while ensuring a safe, productive, and sustainable environment for all global citizens.

OUR MISSION

To foster actionable, interdisciplinary research to address fundamental challenges in sustainability, energy, and environment; to provide national and international leadership in these areas through interdisciplinary education and outreach activities; and to develop and implement strategies for a sustainable environment on the University of Illinois' Urbana-Champaign campus and beyond.

OUR ENDOWMENT HISTORY

- A \$2 million founding sponsorship from the Alvin H. Baum Family Fund, and the naming of the Baum Family Director of iSEE;
- A \$500,000 gift from Stuart L. and Nancy J. Levenick of Peoria creating the Levenick iSEE Fellows Fund, which will support the Institute through resident Research Fellows, Teaching Fellows, and Scholars who will study — and teach about — specific problems of campus and global sustainability; and
- A match of the Levenicks' gift by Caterpillar Inc., to be used to renovate rooms in iSEE's home building for the iSEE Collaboratory — a space for teaching, research, communications, and collaboration.

OUR REACH

Within its research, education, outreach, and campus sustainability efforts since its inception in December 2013, the Institute has engaged people from across the campus, including:

- More than 300 faculty;
- 33 administrative and research support staff (APs and Civil Service);
- 10 Postdoctoral research associates;
- more than 50 graduate students; and
- more than 100 undergraduate students.

OUR LEADERSHIP



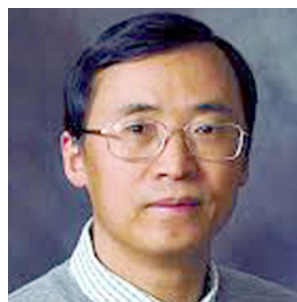
Evan H. DeLucia

Baum Family Director



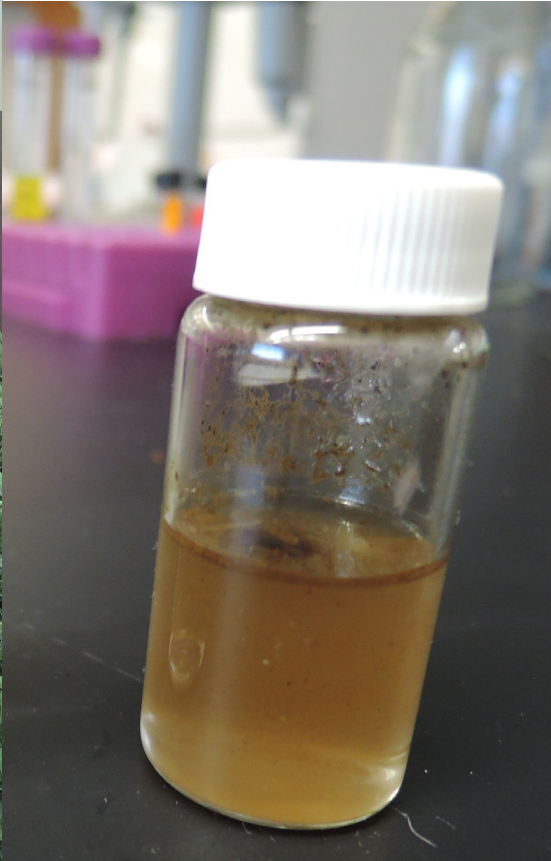
Madhu Khanna

Associate Director for Education & Outreach



Ximing Cai

Associate Director for Campus Sustainability



The Institute has seed-funded seven interdisciplinary research projects, including the Smart Water Disinfection Project (next page), as well as, clockwise from top left, Crops *in silico*, Crude Oil Pollution Treatment, Stormwater and Mosquito Control, Agroforestry for Food, Critical Infrastructure and Transportation, and Stored Solar Stove.





iSEE thematic research employs faculty, students, postdoctoral researchers, and technicians from across campus. The Smart Water Disinfection project, led by Civil & Environmental Engineering Head Benito Mariñas, also includes academic units such as Chemistry, Microbiology, and Business as it seeks to create a kit that would detect and inactivate viral pathogens in water sources.

RESEARCH

iSEE will conduct “actionable research” — science that progresses toward real-world solutions that can have immediate and lasting impact on global problems involving sustainability, energy, and the environment.

VISION

To support The Illinois Strategic Plan goal of fostering scholarship, discovery and innovation, iSEE deploys the campus’ world-renowned academic strengths and interdisciplinary collaboration in five research themes: Climate Solutions; Energy Transitions; Sustainable Infrastructure; Water and Land Stewardship; and Secure and Sustainable Agriculture.

EARLY ACHIEVEMENTS

- In our first three years, we seed-funded seven research projects across all five themes, compiled a team and received funding for an eighth project, seed-funded a research center, and obtained nearly \$1 million for another center.
- iSEE facilitated (and submitted) dozens of major grant requests, and has brought in \$1.4 million for Institute-affiliated projects and centers on campus with several major proposals outstanding as of November 2016.
- iSEE has brought together

experts from across campus in specific areas, forming the Illinois Water Scholars and the Illinois Energy Scholars to answer major funding calls for interdisciplinary research project.

GOALS & STRATEGIES

To ensure the success of actionable research during the next three years — and to support the Illinois Strategic Plan goal of stewarding current and generating new investment resources — iSEE will take steps in the near term to:

- Diversify the funding portfolio for research in sustainability, energy, and environment by engaging with corporate, foundation, government, and non-government partners to address challenges of mutual interest;
- Strengthen our internal capacity to support principal investigators in the application and budgeting processes; and
- Build collaborative, interdisciplinary research capacity that leverages scholarly strengths

across campus to conduct research with solutions for pressing environmental and energy challenges; and

- Continue to explore new Illinois Scholars Groups to proclaim the breadth of expertise on campus — and to take advantage of major funding opportunities.

And in the long term undertake activities to:

- Increase visibility of the Institute’s research breakthroughs and contributions;
- Increase iSEE’s off-campus reputation as a sustainability expert and leader;
- Work with academic units to identify and fill key expertise gaps in our faculty with scholars who could synergize new, cross-campus research and education initiatives in sustainability, energy, and environment; and
- Hire a grant writer to help bring tangible funding and team-building opportunities and support to research on campus.

MEASURING SUCCESS

- Realize substantial financial returns from external funding on existing iSEE-funded projects.
- Find, facilitate, and fund new cross-disciplinary projects in iSEE themes.
- Launch and support scholar communities in each of iSEE’s research themes, adding climate, food, sustainable infrastructure, and soil/land to existing water and energy scholars.
- Procure substantial new funds annually from public or private foundations for research — and to launch an “Experts in Residence” program, securing time for collaborative solutions to grand world challenges.

CAMPUS SUSTAINABILITY

iSEE will help the campus become a living laboratory for research and education and a model for sustainable decision-making that engages students, faculty, and staff in an environmental world view.

VISION

To support The Illinois Strategic Plan goal of making a significant and visible societal impact, iSEE wants to lead efforts to make campus a model of sustainability for all to emulate — and to inspire students toward future achievements in sustainability as they move into the workforce.

EARLY ACHIEVEMENTS

- A Chancellor-approved Procedure for Formulating & Evaluating Campus Sustainability Policies & Initiatives.
- After publishing the 2015 Illinois Climate Action Plan (iCAP), iSEE worked with partners across campus to bring about ...
 - The largest clean power purchase in campus history;
 - The creation of a Certified Green Office Program (CGOP) and a Styrofoam recycling program;
 - Two major sales of verified carbon credits;

- The installation of a biomass boiler at the campus Energy Farm; and
- The implementation of a “Net Zero Increase in Space” policy.
- Through those efforts, the campus has become a three-time Gold Level honoree in the Sustainability Tracking, Assessment & Rating System (STARS) — the nation’s most comprehensive rating system — and an annual Top 50 member of The Princeton Review’s Green Schools list.

GOALS & STRATEGIES

- iSEE will increase faculty and staff engagement via ...
 - Promoting more active involvement of faculty and staff in student-led projects;
 - Developing research-oriented campus sustainability projects;
 - Coordinating research-focused iCAP objectives; and

- Helping connect faculty and staff to a campuswide culture that infuses sustainability and the iCAP through multiple channels, e.g. town hall meetings, or having SWATeam faculty members appointed by deans or campus administration.
- The Institute will help bring more campus sustainability recommendations to fruition by strengthening communication of the iCAP objectives and recommendations to responsible units.
- iSEE will promote personal responsibility for emissions with the creation of a campus store-room of verified carbon credits and a website through which to purchase these credits to offset University energy expenditure and travel.
- We will evaluate the ability of campus to reach its carbon neutrality target by 2035 instead of 2050 — and advance major actions that will enable the campus to be carbon neutral as soon as possible.

MEASURING SUCCESS

- Create a carbon storehouse website, and engage 200 campus community members in buying offsets.
- Engage offices, units, or other space holders in a new CGOP, reaching 2,000 campus community members.
- Continue to track, assess, influence, and assist campus progress toward iCAP goals — and explore new ideas to reach carbon neutrality by 2035.
- Develop two major research projects each year involving campus sustainability.
- Use sustainability projects on campus for both undergraduate and graduate education.
- Obtain substantial new external funding each year in grants or private endowments for campus sustainability.



The student-run Styrecycle program is one of several sustainability initiatives on campus. Students collect expanded polystyrene (Styrofoam) packaging, and then it is taken to an off-site densifier. Thus, a very lightweight but high-volume waste product is diverted from landfills and instead converted into reusable material.

Sustainable Farming Business Case

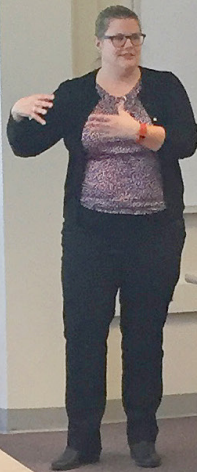
One of the many reasons farmers don't transition to more sustainable practices is because of the lack of knowledge on how a farmer makes this transition and financial examples of the inputs needed to transition. Organic grains continues to rise in our region as a major opportunity for farmers to farm more sustainably, but when farmers hear about the potential for financial and production success, they have a hard time believing the truth in these stories. Therefore, we would like students to help us investigate the business case for why farmers should transition to more sustainable farming systems, working with regional farmers to build and present the case from true, local successes.

Contact Info

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ISEE



ISEE is partnering with industry, government agencies, and non-governmental organizations to offer practical capstone research projects for groups of seniors in its Sustainability, Energy, and Environment Fellows Program, a campuswide minor.

EDUCATION & OUTREACH

iSEE trains the next generation of leaders equipped to find actionable solutions to sustainability challenges, and to serve as a gateway for increasing awareness and communicating research-based knowledge to achieve a sustainable, resilient society.

VISION

To support The Illinois Strategic Plan goal of providing transformative learning experiences, iSEE is developing vibrant programs and courses to enrich the education of students on the Illinois campus. The Institute provides opportunities for interdisciplinary learning, creative thinking, and solving real-world problems related to sustainability, energy, and the environment. Through its outreach activities, iSEE facilitates two-way communications about the challenges and solutions to sustaining our natural resources and environment.

EARLY ACHIEVEMENTS

- The Sustainability, Energy, and Environment Fellows Program (SEE FP), a campuswide, interdisciplinary, undergraduate minor was launched to promote systems-level thinking about energy and sustainability and to develop an integrated view of the economy, society, and the environment. Two related courses were developed to teach tools of sustainability and to provide a

capstone research experience. In addition, the Institute has spearheaded an Undergraduate Certificate in Environmental Writing (CEW) and two new companion writing courses. iSEE also has developed courses in which students gain practical experience through projects that advance campus sustainability.

- An iSEE Congress each year helps foster scientific exchange with leading scholars and industry speakers and to highlight an agenda for actionable research on grand societal challenges: feeding 9 billion people; conserving water; and transitioning to sustainable energy pathways. iSEE hosts and supports numerous campus lectures and events devoted to sustainability, energy, or environmental challenges.

GOALS & STRATEGIES

- We will grow enrollment in the SEE FP by expanding opportunities for internships and career placement through a strengthening of ties with external partners;

and we will engage graduate students in iSEE's interdisciplinary research themes through externally funded scholarships and internships.

- The Institute will coalesce the scholarly community on the Urbana-Champaign campus and beyond with several major public events each academic year, including the Congress, high-impact lecture series, campus sustainability events with broad student participation, and a "Critical Conversation" forum with diverse external stakeholders to discuss a road map for solutions to iSEE theme-related challenges.
- The Institute will implement a Community Climate Resilience Action Plan by leading a joint campus-community task force that will assess the likely impacts and vulnerabilities of the local community to climate change, then recommend strategies for building resilience and capacity to adapt our utilities, infrastructure, and public health care to address these impacts.

MEASURING SUCCESS

- Enroll 150 students in the SEE FP — and 50 students in the CEW — by Fall 2020.
- Develop a written report on the status and road map to building resilience to climate impacts in the community.
- Draw 400 people to iSEE Congress each year, and increase national and international participation in the event.
- Draw 200 people to the Earth Week lecture series.
- Hold a Critical Conversation event annually.

ISEE 

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ENERGY, AND ENVIRONMENT**

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