

FEWS Fellows Program Participants

Fall 2016

Individual Objectives

Program Participant	Objective
<p>Baabak Ashuri Associate Professor and Brooks Byers Institute for Sustainable Systems (BBISS) Fellow Director, Construction Research Center <i>Building Construction/Civil & Environmental Engineering</i></p>	<p>Quantifying Transit-Food Relationships: Examining the Effects of Alternative Transportation Modes on the Accessibility to Healthy Food</p> <p>As the term “food desert” gains its popularity in the past few decades, the identification of low accessibility areas has become a critical issue. The objective of this research is to analyze the relationship between access to transit and access to fresh healthy food. City of Atlanta will be investigated as the testbed for this study. For instance, the effects of opening farmers markets at MARTA stations will be examined. The goal is to better understand fresh market shoppers’ behavior and investigate what effects fresh market opened at the West End Marta Station in summer 2015 have had on the food choices of the neighboring residents and MARTA riders. By considering the heterogeneity in food accessibility for automobile drivers and transit takers, this research refines the definition of “food desert” proposed by the USDA. Results from this research will help create a healthier and more accessible food environment and will inform transit/transportation planners about the significant impact of not car-based transportation alternative on people’s eating habits.</p>
<p>Justin Biddle Associate Professor <i>Public Policy</i></p>	<p>Politics, Values and Food Safety</p> <p>This project hypothesizes that two of that factors contributing to polarization in debates over food safety—particularly regarding genetically engineered crops—is that different stakeholders in the debates (1) adopt different conceptions of what food safety is and (2) differ on the weight that should be placed on food safety as a criterion for evaluating foods. The project seeks to investigate strategies for fostering communication in situations in which the meanings of fundamental concepts and evaluative criteria are contested.</p>

<p>Joe Brown Assistant Professor <i>Civil & Environmental Engineering</i> FEWS Fellows Program Faculty Co-Director</p>	<p>Low-cost Sensor Networks for At-Scale, Real-Time Water Safety Monitoring</p> <p>Through the FEWS Fellows program, I hope to continue development and application of tools that have the potential to characterize environmental contamination in data-scarce settings, with applications from agriculture and food systems to ecosystems to drinking water supplies. I'm interested in working with other Fellows to pursue new directions in FEWS research, especially those aligning with national funding priorities and the Engineering Grand Challenges.</p>
<p>K. Daniel Cooksey Research Engineer <i>Aerospace Engineering</i></p>	<p>Monitoring of Coral Reefs Via Autonomous Naval Vehicles</p> <p>Students will be asked to research the needs in coral reef health monitoring, and examine and implement the tasks (where feasible) on a series of autonomous naval vehicles.</p>
<p>Bistra Dilkina Assistant Professor <i>Computational Science and Engineering</i></p>	<p>Integrating FEWS Topics in Computational Sustainability</p> <p>I will be focusing on understanding the opportunities for computational techniques and models to help understand and address pressing challenges in the Food-Energy-Water nexus. At the same time, I will work on ways to integrate this topic into my course on Computational Sustainability.</p>
<p>Carl DiSalvo Associate Professor <i>Literature, Media, and Communication</i> FEWS Fellows Program Faculty Co-Director</p>	<p>Documenting the Role of Foraging in Local Food Systems</p> <p>For the FEWS fellowship my individual project is to document and analyze the activities of local foragers and their roles in the Atlanta food system. By participating in the FEWS fellowship I hope gain insight in techniques for representing systems (mapping and diagramming) as well as theories for the description and interpretation of systems.</p>
<p>Michael Evans Freshman Chemistry Laboratory Coordinator <i>Chemistry and Biochemistry</i></p>	<p>Integrating Analysis of Community and Environmental Samples into Freshman Chemistry Laboratories</p> <p>I am interested in networking with community organizations and other partners to develop chemistry laboratories based on environmental samples or samples with relevance to the broader community.</p>
<p>Alice Favero Lecturer <i>Public Policy</i></p>	<p>Wood and Food Under Climate Mitigation Scenarios</p> <p>Assessment of potential role of land to mitigate climate change and its effects on agricultural and wood prices.</p>

<p>Jessica Fisch Graduate Student <i>City and Regional Planning</i></p>	<p>Issues of Equity and Justice in Planning for Green Infrastructure</p> <p>This research will examine the impacts of green infrastructure projects with regard to potential impacts of reduced affordability and displacement; planners’ perceptions of their roles as they relate to supporting sustainability and justice goals in developing green amenities; and planners’ and residents’ perceptions of the success of local efforts to prevent potential negative impacts of green projects, including reduced affordability and displacement.</p>
<p>Sabrina Grossman Program Director – Science Education <i>CEISM</i></p>	<p>Designing Sustainable Communities in our Schools (FEWS in Schools)</p> <p>I would like to explore how to use K-12 education as a platform to explore issues in access and equity in relation to food, energy, and water systems through developing/designing a program/partnership with schools to drive community engagement and determine how to motivate communities to commit to developing more sustainable practices through using the school as a nexus.</p>
<p>Marta Hatzell Assistant Professor <i>Mechanical Engineering</i></p>	<p>Understanding the Role Industry, Science and Citizens May Play During Nutrient Recovery</p> <p>Change needs to take place with respect to recycling global Nitrogen and Phosphorous, but it is not something that a single technology will be able to answer. I am interested in better understanding who will need to drive this change, and at what level (infrastructure, community, individual).</p>
<p>Basak Kalkanci Assistant Professor <i>Operations Management Group, Scheller College of Business</i></p>	<p>Value Chain Transparency</p> <p>As part of the SLS Fellows program, my research objective is to develop collaborative relationships with industry partners in order to share the insights developed from my research and to obtain practitioner input and expertise. As the next phase of the project, I would like to develop and implement field studies with industry partners to measure the consumer and employee reactions to sustainable operations. My teaching objective is to write a case study on the findings and insights from this research, which can be incorporated into teaching material in the Scheller College of Business and/or as part of GT 1000.</p>

<p>Catherine Kwon Graduate Student <i>GTRI</i></p>	<p>Low-Cost Technology to Assess Risk of Obstructed Labor in Ethiopia</p> <p>Cephalopelvic disproportion (CPD) is a mismatch between fetal head size and maternal pelvis size and accounts for 8% of maternal deaths worldwide. The goal of this project is to develop and test a simple, ultra-low-cost, portable technology using an off-the-shelf Microsoft Kinect sensor, combined with machine learning tools to quantify an obstructive risk score to identify women at high risk for obstructed labor due to CPD.</p>
<p>Emanuele Massetti Assistant Professor <i>Public Policy</i></p>	<p>Analysis of Climate Change Economic Impacts on Agriculture and Food Systems</p> <p>Climate change is going to have a large impact on agriculture and water demand. Adaptation to climate change is going to be a key ingredient in the recipe for future sustainable development. Adaptation can reduce adverse impacts on food production, thus alleviating potentially adverse effects of climate change on food prices and on poverty. Adaptation will reduce the pressure of a changing climate on farmers and on low-income households</p>
<p>Dima Nazzal Executive Director, Academic Administration and Student Experience <i>Industrial & Systems Engineering</i></p>	<p>Analytical Modeling of FEW Systems</p> <p>I would like to focus on assessing the opportunities for analytical modeling of an interconnected Food-Energy-Water system. Such a model would provide a basis for quantifying the interrelationships between food, water, and energy requirements for a system and developing tradeoff analysis for system-wide performance assessment to inform policy-makers.</p>
<p>Ennis Parker Niles Bolton Professor of Practice <i>Building Construction</i></p>	<p>Continuation of the Multi-Disciplinary Class in Design and Construction</p> <p>Continuation of a course initiated in spring 2016 semester following a service oriented, sustainable architecture and construction project (homeless shelter)</p>

<p>Raghu Pucha Senior Lecturer <i>Mechanical Engineering</i></p>	<p>Service-Learning in Corner-Stone Design Course Through Design-for-Community Aspects</p> <p>The primary objective is to (1) identify key themes related to sustainable communities that can fit into course curriculum; and (2) plan and integrate service-learning in freshman design course in meeting the following ABET/School ME learning outcome: an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability.</p>
<p>Melissa Sexton Marion L. Britton Postdoctoral Fellow <i>Literature, Media, & Communication</i></p>	<p>From Disaster to Design: An Assignment Sequence for English 1101/1102</p> <p>The English 1101 and 1102 courses that I teach at Georgia Tech challenge students to think critically and historically about environmental disasters. During my time as a FEWS fellow, I am hoping to develop a new assignment sequence for these courses, one which helps students to connect critical thinking and historical context with interdisciplinary conversations and practical design questions. I want students to develop creative communications projects that explain how insights gained through the environmental humanities can impact the design of future food, energy, and water systems.</p>
<p>Jenny Smith Associate Professor <i>History & Sociology</i></p>	<p>The Environmental Legacy of Famines in the 20th Century</p> <p>Study the history of famines, exploring their common causes and their unique environmental and economic impacts on different agrarian societies around the world.</p>
<p>Xinyi Song Assistant Professor <i>Building Construction</i></p>	<p>Assessing the Impact of Occupant's Thermal Autonomy on Building Energy Efficiency and Comfort in Multi-Zoned Spaces</p> <p>The purpose of this project is to investigate the relationship between occupant's thermal autonomy and building's energy efficiency. We define thermal autonomy as the different levels of control given to occupants over their local thermal environment. The most common way of achieving thermal autonomy is through the VRF systems, which provide individual comfort control for each occupant unit and public space.</p>

<p>Supraja Sudharsan Graduate Student <i>Public Policy</i></p>	<p>Interaction and Innovation of City/Community around FEWS</p> <p>A number of transnational partnerships enable local government, cities and communities to innovate towards sustainable goals. Goal is to understand how the City of Atlanta is involved in these partnerships and how this may be utilized towards innovation and integration around food,energy and water systems.</p>
<p>Yuanzhi (Yua) Tang Assistant Professor <i>Earth and Atmospheric Sciences</i></p>	<p>Metal and Nutrient Recycling from Waste Streams for Sustainable Food and Energy Production</p> <p>I will develop a research program that focuses on recycling critical elements (e.g. nutrients, metals) from solid waste streams such as biowastes and energy production/storage byproducts.</p>
<p>Cassandra Telenko Assistant Professor <i>Mechanical Engineering/Industrial Design</i></p>	<p>Systems Representations and Concrete Experiences in Food and Water Systems</p> <p>While energy is commonly part of mechanical engineering, agriculture and innovation in agriculture are rarely discussed, unless students live in an agricultural area. My objective is to develop case studies, collect data, and build relationships for advancing research and education in environmental and social life cycle assessment (LCA) and systems thinking using LCA, systems engineering and causal modeling for agriculture and water systems.</p>
<p>Valerie Thomas Anderson Interface Professor of Natural Systems <i>Industrial & Systems Engineering/Public Policy</i></p>	<p>Unimaginable Transitions: Mapping the Food-Energy-Water Phase Space</p> <p>This project will seek to map the combinations of physically feasible food-energy-water system development dynamics, and will identify phase change transition boundaries, both technical and social, that mark the divide between system regimes with distinct characteristics.</p>
<p>Steven Van Ginkel Research Associate II Civil & Environmental Engineering</p>	<p>Urban, Algae-fueled, Aquaponic systems - The Food, Energy, Water Nexus in Atlanta</p> <p>Our objective is to continue to research how more urban farming practices, especially aquaponic systems, can make for a more efficient and sustainable food system in America.</p>
<p>Robert Wallace Scientist <i>GTRI</i></p>	<p>Alternative Animal Feed</p> <p>Provide more animal protein to at-risk populations by lowering the cost and increasing the availability of feed for domestic animals.</p>

<p>Malte Weiland Sustainability Project Manager <i>Campus Services</i></p>	<p>Sustainable Food Production and Integration on an Urban Campus</p> <p>I plan on developing our student involvement in Campus Food systems primarily, while looking at ways to channel Water and Energy projects into the demands of running a full-scale food system on campus. Management of food systems on campus is increasingly involving local and student-run initiatives, and there is a great opportunity to move this into the framework of SLS.</p>
<p>Bill Winders Associate Professor of Sociology <i>History and Sociology</i></p>	<p>Global Meat Production and World Hunger</p> <p>his project aims to understand the connections between global meat production and how it relates to world hunger. Meat production uses important resources -- e.g., grains, land, and water -- in ways that can exacerbate hunger and food insecurity by focusing economic production on profitable and more expensive food production that uses grains/food and water in very inefficient ways.</p>
<p>Perry Yang Associate Professor and Director, Eco Urban Lab <i>City and Regional Planning and School of Architecture</i></p>	<p>Near Zero Energy District Research, in Collaboration with Disney Research China and Covestro (Bayer Material Science)</p> <p>The project aims to creating sustainable, low carbon, near zero energy cities at district-level, using advanced simulation technology to integrate urban design and infrastructure systems including water, smart grids, renewable energy, waste and smart system.</p>
<p>Fumin Zhang Associate Professor <i>Electrical and Computer Engineering</i></p>	<p>A Cyber-Physical Approach Towards Sustainable Aquaculture</p> <p>I will develop systems solutions towards increased production of aquaculture with reduced pollution and energy consumption.</p>
<p>Rui Zhou Graduate Student <i>Interactive Computing</i></p>	<p>Sustainable Food Consumption in Southern Rural China</p> <p>Residents in Southern rural China, being able to get access or to grow foods themselves, are often considered as the ones who can eat healthily. However, this doesn't mean the food consumption practice is sustainable. I aim at tracing and researching people's food consumption habit in Southern rural China, and help build a more sustained food consumption practice with possible intervention from Information and Communication Technology (ICT).</p>