

Winners of the 2014-2015 GAIA Grants

Internationalizing the Curriculum

- **Kay Cassell, Department of Library and Information Science, School of Communication and Information, Rutgers University–New Brunswick**
Expanding our Students' International Knowledge and Experience
- **Mary Curran, Graduate School of Education, Rutgers University–New Brunswick**
Global Diversity at the Graduate School of Education
- **Kyle Farmbry, The Graduate School–Newark, Rutgers University–Newark**
Expanding International Opportunities in Graduate Education at Rutgers University-Newark
- **Jeff Friedman, Department of Dance, Mason Gross School of the Arts**
Internationalizing the Dance Curriculum
- **Richard Ludescher, School of Environmental and Biological Sciences, Rutgers University–New Brunswick**
Pathways to International Study at the School of Environmental and Biological Sciences
- **Suzanne Willard, Rutgers School of Nursing, Rutgers Biomedical and Health Sciences**
Preparing Nurses for a Global Future

International Collaborative Research for Tenure-Track Faculty

- **Edward Alessi, School of Social Work, Rutgers University–Newark**
Stress, Mental Health, and Resilience among LGBT Forced Migrants in the US and Canada

This study will use qualitative methods to explore the experiences of lesbian, gay, bisexual, and transgender (LGBT) forced migrants (immigration and resettlement, mental health, victimization, and resilience) living in the United States and Canada. Thirty in-depth qualitative interviews will be conducted with individuals who fled their home countries to avoid persecution based on sexual orientation or gender identity. This study furthers the goals of the International Collaborative Research Grant program by fostering a partnership between Rutgers and McGill University. This partnership will (a) raise global awareness of the extreme human rights violations against LGBT individuals and (b) improve mental health and social service delivery by offering empirically-supported recommendations to North American organizations serving LGBT forced migrants. Data from this study will be used to obtain external funding to develop and test a counseling intervention that reduces psychological distress, improve coping skills, and promotes resilience in LGBT forced migrants.

- **Maureen Donaghy, Department of Public Affairs and Administration, Camden College of Arts and Sciences, Rutgers University–Camden**
Urban Politics in Brazil: Removals and Resistance in Foz de Iguacu

This proposal is to establish a new partnership between Rutgers University and the Federal University for Latin American Integration (UNILA). Dr. Maureen Donaghy from the Departments of Political Science and Public Policy and Administration at Rutgers-Camden will participate in a research study with faculty from UNILA, led by Dr. Cecilia de Moraes Machado. The study assesses the social impact of large-scale development projects in the city of Foz de Iguacu, located on the border of Brazil, Argentina, and Paraguay. Our goal is to analyze this case in the context of on-going work by the researchers and other scholars working in the network of the Observatory of Removals, based in São Paulo, Brazil. In the city of Foz de Iguacu approximately 30 large-scale development projects are planned for the coming years, which is significant given the small size of the city. The city represents a contrasting case to Sao Paulo because of its unique position on the frontier of three nations.

- **Asher Ghertner, Department of Geography, School of Arts and Sciences, Rutgers University–New Brunswick**
The Anatomy of a Suburb: Informal Urbanism in Delhi and Mumbai

This project brings leading urban scholars from Rutgers and the School of Habitat Studies at the Tata Institute of Social Sciences in Mumbai together to form an urban research network and to carry out

two months of collaborative field research on processes of informal suburbanization in Delhi and Mumbai. The research focuses in vernacular forms of property development and how they tie into and draw upon regional, national and global flows of real estate investment and political patronage. The project will involve one Rutgers PhD student and at least three TISS Masters students and will include two workshops on urban informality that will engage wider audiences, one to take place at TISS and one at Rutgers, New Brunswick. The project builds on already existing research ties between Rutgers and TISS, and moves Rutgers one step closer to an official MOU with this leading social science university. The Rutgers workshop further promises to align with the 2015-2016 GAIA Biennial Theme on Global Urbanism.

- **Heidi Hausermann, Department of Human Ecology, School of Environmental and Biological Sciences, Rutgers University–New Brunswick**

Producing Disease in Commodity Landscapes: A Pilot Study from Ghana's Alluvial Gold Mining Belt

This pilot study examines new health concerns in landscapes transformed by commodity production in Ghana. Our broad hypothesis is rural communities are experiencing increases in malaria, onchocerciasis, and gastrointestinal illnesses due to landscape and hydrological changes from unregulated gold mining. Moreover, we expect to see differentiated vulnerabilities within communities as certain people- for instance, lowest income households and those who collect water – are particularly susceptible to illnesses based on factors and behaviors associated with age, gender, resource availability, etc. We employ a mixed-methods and interdisciplinary approach in this pilot study, which will result in preliminary data and identification of additional field sites. This information will enable development of a larger proposal for external funding that employs a comparative case study approach. Finally, this project will formalize and strengthen interdisciplinary collaborations between the University of Mines and Technology and Rutgers University, and explicitly engages undergraduates and community members as research collaborators.

- **Qingyu Meng, School of Public Health, Rutgers Biomedical and Health Sciences**

Air Pollution Campaign in Uganda

Air pollution exposure increases the susceptibility to Mycobacterium tuberculosis (M.tb) and may modify the course of HIV infection. We have been the first to publish air quality data from Kampala (Uganda's capital city) in 2014 and air quality monitoring systems have been unavailable to date. This pilot project will allow us to expand our air pollution work in Kampala and supports the development with local community leader's of culturally customized intervention approaches for air pollution exposure reduction as suggested by the Environmental Protection Agencies (EPA) for the US. The GAIA project also supports exploration in the laboratory of the impact of PM2.5 (fine air particulate matter) on cells infected with M.tb and HIV. With GAIA project funds we will be able to address several highly relevant public health problems in Uganda using a multidisciplinary approach. The GAIA project will also strengthen existing collaborations between Rutgers and Makerere University in Kampala.

- **Michal Szostak, Department of Chemistry, Newark College of Arts and Sciences, Rutgers University–Newark**

New Vistas in Catalytic Activation of Amide Bonds: Development of a General Model for Amide Bond Distortion through Spectroscopic and Computational Methods

The amide bond is one of the most fundamental functional groups in chemistry and biology. The major objective of this research proposal is the development of a general model for amide bond distortion using advanced spectroscopic methods. In contrast to planar amides, very little is known about properties of distorted amides despite their profound implication for structure, reactivity and significance in biology and medicinal chemistry. At the center of this proposal is the collaboration between the PI at Rutgers University (Prof. Michal Szostak – an expert in the chemistry of non-planar amides) and the International Collaborator at the University of Vienna (Prof. Wolfgang Holzer – a world-wide expert in NMR spectroscopy), which brings together the expertise of partners in synthetic organic and analytical chemistry in a dynamic, interdisciplinary fashion. If successful, this research will establish new concepts for activation of amide bonds for an array of wide-ranging downstream applications in synthesis and drug discovery.

- **Saunjuhi Verma, School of Management and Labor Relations, Rutgers University–New Brunswick**
How Does a State Identify Citizen Need? A Case Study of Government Rationale in Social Policy Design

My study analyzes the relationship between social practices and nationalized regulatory mechanisms by asking: How do bureaucrat's definitions of citizen need frame design of social policy? In an effort to modernize its social policy and welfare state, the Indian government has introduced biometric IDs to improve equity in the distribution of state resources. My mixed methods approach evaluates these state innovations to shed insight into unexamined process of bureaucrat's rationale in policy design; the project will contribute to theories of state governance. As a recipient of the Fulbright Nehru Fellowship, the data collection will be conducted in collaboration with the Tata Institute of Social Sciences in Mumbai, India. As a premiere institute for social science theory, the university's intellectual space will allow for knowledge sharing and a foundation for collaborative training and research for future projects. Additional funding is sought from the GAIA Grant for the data analysis and knowledge sharing stage of the research study.

International Collaborative Research for Tenured Faculty

- **Karen D'Alonzo, Rutgers School of Nursing, Rutgers Biomedical and Health Sciences**
The Contribution of Acculturation Stress to Excess Risk of Obesity among Low-Income Immigrant Latinas in the U.S.: A Bio-Behavioral Study of Allostatic Load (AL) and Coping Styles among Oaxacan Immigrants

Although weight gain is common following migration to the US, obesity and obesity-related illnesses are more prevalent among Hispanics. Consistent with the biobehavioral construct of allostatic load (AL), acculturation stress is hypothesized to be a contributing factor. The proposed study will examine the effect of acculturation stress on obesity and measures of AL among two groups of Mexican women in New Brunswick, NJ and in Oaxaca, Mexico. Subjects will complete measures of stress and coping and will wear a Fit Bit device to track physical activity, sleep patterns and food intake. Measures of AL will include systolic and diastolic blood pressure; BMI and waist circumference; HgbA1C, total cholesterol, triglycerides, C-reactive protein and fibrinogen. Group differences in AL will be analyzed and potentially unique predictors of elevated AL identified. Data will be used to develop a physical activity, nutrition and acculturation stress-reducing intervention to prevent weight gain among Mexican immigrant women.

- **Eric Lam, Department of Plant Biology and Pathology, School of Environmental and Biological Sciences, Rutgers University–New Brunswick**
Enabling the Creation of a Pilot Facility for Wastewater-to-Biomass Production Pipeline in the Northeast Region of Brazil

This project will create an international team between participants from Rutgers University (the PI), the Federal University of Pernambuco of Brazil and a social company from Argentina (MamaGrande), with the common goal of developing a sustainable agricultural platform in Latin America. Leveraging the recent successes demonstrated at the Totoras pilot plant of MamaGrande in Argentina, and the completion of a high fidelity genome map for duckweed generated by the Rutgers group, the aim of this project will focus on coordinating research and development efforts to implement duckweed biotechnology in the Northeast region of Brazil. Funds requested here will jump-start collaborations between the labs of the PI and Dr. Calsa's in Brazil. Also, the PI and an Agricultural Economist from Rutgers, Dr. Gal Hochman, will participate in a retreat at Recife, Brazil, that will pave the way for attracting public and private funding to implement the technology in Pernambuco.

- **Robin Leichenko, Department of Geography, School of Arts and Sciences Rutgers University–New Brunswick**
Quantum Leap: Climate Change and Social Transformation

This international collaborative project addresses the overarching question of how society can consciously transform at the rate, scale and extent required according to current scientific understandings of climate change and its observed and expected impacts on social-ecological systems. Drawing upon developments in quantum social theory, the Quantum Leap project will utilize qualitative and quantitative methods to investigate the role of collaborative power as a catalyst for generating conscious social transformations and systems change. GAIA funds will support: 1) participation of Leichenko and two Rutgers PhD students in a project planning workshop held at the University of Oslo (workshop to be funded by the University of Oslo, Office of the Rector); and 2) convening of a Rutgers workshop on climate change and social transformation. Additional outcomes of the project include development of a larger proposal to be submitted to the European Research Council and development of a special journal issue.

- **Gaetano Montelione, Center for Advanced Biotechnology and Medicine, Rutgers Biomedical and Health Sciences**
International Collaborative Research Project in Protein Dynamics and Industrial Enzyme Engineering

*The Center for Advanced Biotechnology and Medicine and the Key Laboratory for Biotechnology in Jiangnan University, Wuxi, China have developed a collaborative research program to study protein structure and dynamics, providing the basis for enzyme engineering. The focus of the research is to understand the structural and dynamic underpinnings of the mechanisms of action of important industrial enzymes. These include *Rhizopus chinensis* lipase (RCL) and various carbonyl reductases isolated from fungi, including *Candida parapsilosis* SCR and RCR enzymes. A key hypothesis to be tested is that the internal dynamics in these enzymes determine their rates of catalysis and stereoselectivity. Nuclear magnetic resonance (NMR) studies, using advanced software developed at Rutgers, will complement enzymology, mutagenesis, and molecular modeling studies at Jiangnan University, in order to better understand enzymatic mechanism and design new proteins with improved properties as industrial enzymes. Rutgers undergraduates will address some of these problems as independent research projects.*

- **Judy Postmus, School of Social Work, Rutgers University–New Brunswick**
Economic Empowerment of Domestic Violence Survivors in Australia: A Collaborative Research Project between Rutgers University, Curtin University, & University of New South Wales

With economic concerns listed as the top barrier to leaving the abuser, domestic violence survivors are one of the many groups in need of economic empowerment programs. An evaluation of one such program, using a randomized controlled study design, demonstrated that while both groups experienced improvements over time, women in the treatment group had significantly better outcomes on all measures immediately after and lasting twelve months. This project intends to build on this study by replicating it in Australia. The project includes developing an Advisory Committee (AC) which brings together the co-PIs with domestic violence, government, and nongovernment organizations. The AC will review and revise the research methods from the previous project to make

them more culturally applicable for women from Australia. The AC will then apply for funding to implement the study from the Australian Research Council and the Australian National Research Organization for Women's Safety.

- **Daniel Shain, Department of Biology, Camden College of Arts and Sciences, Rutgers University–Camden**

Bioenergetics of Cold-Adapted Icelandic Fauna

All life on Earth is fundamentally similar, yet even closely related organisms can occupy extremely different habitats. For example, similar bacteria thrive in environments ranging from the human gastrointestinal tract to glacier ice and thermal hot springs. This study aims to identify genetic differences between related organisms that have independently adapted to cold temperature in distinct geographic regions, namely North America and Iceland. We have shown previously that energy metabolism is a critical component of cold temperature adaptation and our focus here will be comparing specific genes and gene pathways known to regulate energy production. Collectively, these analyses will help to identify underlying mechanisms and evolutionary strategies to cope with cold temperature, yielding translatable information for developing cold tolerant crops, enzymes for industrial/food processing, and human organ storage.

- **Ian Watson, Department of Arts, Culture and Media, Newark College of Arts and Sciences, Rutgers University–Newark**

The Global Urban Civic Initiative: Research and Internationalizing the Curriculum

The Department of Arts, Culture and Media Rutgers University-Newark (RU-N) proposes the expanding the international dimension of the Urban Civic Initiative it is launching this January with the support of a Chancellor's Initiative grant. The proposed expansion is an international collaborative research component involving faculty from three institutions: Warsaw University; The University of Dar es salaam, Tanzania; and the RU-N. The collaborative research will do three things:

- a. Compare, contrast and synthesize the research, teaching, and application of the arts and creative media as generators of social change in an educational setting at the three institutions;*
- b. Produce collaborative articles on the findings to be published in major international journals;*
- c. Develop a more internationalized collaboratively curriculum in ACM (and possibly at partner institutions) that synthesizes the best pedagogical strategies and applications of engaging arts and creative media as generators of social change at the three partner sites.*

Faculty and Graduate Student Interdisciplinary Working Groups in Global Urbanism

- **Zaire Dinzey-Flores, Department of Latino and Hispanic Caribbean Studies and the Department of Sociology, School of Arts and Sciences**
Zakia Salime, Department of Sociology and the Department of Women's and Gender Studies, School of Arts and Sciences
G-local Urbanisms and Everyday Epistemologies

This collaborative project brings together faculty and graduate students at Rutgers University and international institutions whose work examines intra-scalar local and global dimensions of life in different sites across the world. The collaborative, interdisciplinary, and comparative ambit of the "glocal" offers new avenues for theorizing and describing the textured landscapes of urban space, as well as highlights the varied epistemological approaches and methods pursuant to studying these spaces in the 21st Century. Over the course of two years, our interdisciplinary group will hold working paper sessions, speaker series with international collaborators, a symposium that will culminate in curricular course development to be taught across international participant universities, as well as an accompanying course edited volume.

- **Brett Anitra Gilbert, Department of Marketing and Global Business, Rutgers Business School**
Building Culture for Technology Entrepreneurship in Developing Countries

Entrepreneurship is an important vehicle for economic development. Many nations are implementing entrepreneurship policies to drive economic growth. With a significant percentage of the world's population living in developing contexts, entrepreneurs, and particularly those who are job creators, should be at the forefront of this movement. However in developing contexts, entrepreneurs are not always well-represented. Technology sectors, which produce some of the fastest growing firms, are also under-represented. This workgroup explores local culture as a factor that influences entrepreneurs. It examines three nations that are undergoing significant development- Brazil, India and S. Africa. We seek to understand the factors that make it difficult to start technology firms in developing contexts. Our group's objectives are to build models that link culture and technology to entrepreneurship outcomes, and to identify policy tools that are effective for cultivating the cultural change that fosters technology entrepreneurship in developing contexts.

- **Kathleen John-Alder, Department of Landscape Architecture, School of Environmental and Biological Sciences**
Housing and Open Space in Two Post-Industrial Landscapes: The Urban Core of New Jersey, United States and the Ruhr Region, Germany

This proposal is for a graduate design studio in the Department of Landscape Architecture in which students will undertake a comparative study of housing and open space in the urban core of New Jersey and the Ruhr Region, Germany. The proposed studio will provide students with the opportunity to observe how landscape designers, urban planners, and urban policy experts in Germany have combined housing and ecological restoration to create innovative re-configurations of

the post-industrial landscape in order to improve habitability and service needs of the current population. The intent is to allow students to creatively apply their study of Castrop Rauxel to similar housing and open space issues in the Ruhr and the post-industrial landscapes of the urban core of New Jersey. Our team includes faculty and graduate students from Rutgers University, and Susanne Moebus, from the German Center for Urban Epidemiology, University of Duisburg-Essen.

- **Jamie Lew, Department of Sociology and Anthropology, Newark College of Arts and Sciences**
Mara Sidney, Department of Political Science, Newark College of Arts and Sciences
Building Global Urban Studies at Rutgers University–Newark: Learning from the Global Grassroots

The proposed working group, Building Global Urban Studies at Rutgers-Newark: Learning from the Global Grassroots, will elevate Rutgers' profile in the study of global urbanism through developing innovative components of a Global Urban Studies doctoral program.

The group will:

- 1) convene urban researchers from across disciplines,*
- 2) research and develop models of international partnerships to connect students and faculty with academics abroad and grassroots organizations,*
- 3) research and develop global curriculum for doctoral students.*

- **Jeffrey Robinson, The Center for Urban Entrepreneurship & Economic Development, Rutgers Business School**
Global Perspectives on Urban Social Innovation and Entrepreneurship

By 2050 two-thirds of the world's population will be living in urban areas. While these urban areas are important hubs of human activity and commerce they are also centers of economic inequality and an array of social problems. Therefore, social and economic development of these areas has become one of the most significant challenges of the 21st century. To address these challenges, social innovators are using new approaches and developing new ventures that make a difference in the quality of life and socioeconomic outcomes in urban areas. We are interested in studying social innovators and entrepreneurs that are addressing these challenges in global urbanism in the economies of South Africa, Kenya, Russia and China and propose an interdisciplinary working group with faculty members and center directors from the Rutgers Business School and the School of Social Work. We are already establishing relationships with faculty, centers, and institutes in Russia, Kenya, South Africa and China. Our objective is to use the grant funding to develop these relationships, write case studies for publication and classroom use, and develop a research agenda for future projects.

- **Derek Shendell, Department of Environmental and Occupational Health, School of Public Health**
Global Urbanism & Youth/Young Adults: Built Environment & Social Factors Affect Public Health & Worker Safety

The focus of our proposed interdisciplinary working group in global urbanism is the intersection of four key issues in modern society:

- i.) Rapidly increasing urbanization in less developed countries (LDCs);*

- ii.) Evidence of negative effects from acute and chronic exposures to environmental pollution, resulting in risks to safety and health (S&H);*
- iii.) Child labor -- whether legal or illegal, in agricultural/food and non-agricultural work, increasing S&H risks; and,*
- iv.) Reintroduction of child soldiers from rural areas of LDCs into new communities/schools located in suburban/urban settings.*

The proposed team's experiences in urban environmental public health and the built/physical environment, occupational S&H, and social work have included projects in Africa, the Middle East, Asia, and in the Latin America/Caribbean region.

Specific foci for events and proposals include chemical, biological and physical exposures and social stress; poor hygiene/sanitation and nutritional concerns; youth/young adult work in e-waste recycling and street markets (food/vegetable and flowers).

- **Lena Struwe, Department of Plant Biology and Pathology and the Department of Ecology, Evolution, and Natural Resources, School of Environmental and Biological Sciences**
Formation of a Worldwide Urban Plant Evolution and Education Network

We propose to start a global working group and network centered at Rutgers with international researchers to collaborate long-term on how the evolution and distribution of wild plants ('weeds') in urban, temperate areas across the globe have been and will be affected by human migration, local and global climate change, and increased urbanization. The evolution and natural history of urban weeds are closely linked to cultural histories of urbanized areas, ethnobotanical uses by various ethnicities, global phylogenetic evolution of plant diversity, and major trade and migration routes, so interdisciplinarity is a must in addressing this type of important research questions. Hundreds of plant species live wild in our cities and adapt to these human-made environments, but few studies have addressed how, why, and when. Our planned Worldwide Urban Plant Evolution and Education Network would start with an interdisciplinary workshop and symposium held at Rutgers in spring 2016.

NJ Global Connections

- **Karen D’Alonzo, Rutgers School of Nursing, Rutgers Biomedical and Health Sciences**
Buen Vecino: A proposed partnership between Rutgers School of Nursing, FOCUS Wellness Center, and the Mexican Consulate of NYC to Improve the Health of Mexican Immigrants

The city of New Brunswick sits at one end of a transnational migration stream that begins in southern Mexico. It is estimated that 40 % of the full-time residents of New Brunswick are immigrant families from Oaxaca. Many of these immigrants are undocumented, and have limited access to health care services. The proposed project Buen Vecino (Good Neighbor) represents a multi-disciplinary collaborative effort between Rutgers School of Nursing, FOCUS Wellness Center, and the Mexican Consulate of New York City to provide wellness services, health education and preventive health screenings to members of the Mexican community living in New Jersey. Students and faculty from Rutgers School of Nursing and the FOCUS Wellness Center, along with promotoras de salud, will partner with staff from the Ventanillas de Salud Program/Mexican Consulate on Wheels to deliver health education, onsite screenings, nutritional and pharmacological counselling on a monthly basis in New Brunswick.

- **Gary Farney, The Graduate School–Newark, Rutgers University–Newark**
Globalizing New Jersey Teachers

This project proposes to help globalize NJ teachers of various levels by encouraging them to enroll and participate in a variety of Rutgers global summer programs. Some of these summer programs, all of which offer graduate credit currently exist, but others are in the final stages of development. Many schools, private and public, within New Jersey already have funding opportunities for the “professional development” of their teachers, and many small grants encouraging teachers to learn abroad already exist. This program proposes to reach out to teachers to encourage them to apply to these programs, and to help them find other funding opportunities. From this experience we hope to expose NJ teachers to global experiences that they can take back to their classrooms, and as a secondary goal, encourage them to use the credits they earn from the programs to realize a graduate degree at Rutgers.

- **Archer St. Clair Harvey, Department of Art History, School of Arts and Sciences, Rutgers University–New Brunswick**
CHAPS World Heritage Outreach Project

As PK-12 teachers in New Jersey work to prepare their students for global citizenship, they need professional development and support. This proposal seeks funding for a summer program for pre-service and in-service teachers who aim to foster global competence through teaching curricular units about World Heritage Sites. The UNESCO World Heritage Sites are excellent points of reference

for curricular design focused on global citizenship. These tangible and intangible sites are constructions that embody our cultural diversity and local community values. Learning about these sites and the urgency of their preservation requires that we put the core components of global competence into play and become curious about the world, view multiple perspectives, communicate across difference, and take action (Boix-Mansilla and Jackson, 2008). Funding for this project would support the development and implementation of a pilot summer program offered to Rutgers students and New Jersey teachers.