



William Kisaalita, right, a biological and mechanical engineering professor in UGA's College of Engineering, works with Ryan Brush, an undergraduate student worker in his lab, on the milk cooler used in his refrigeration project in Uganda.

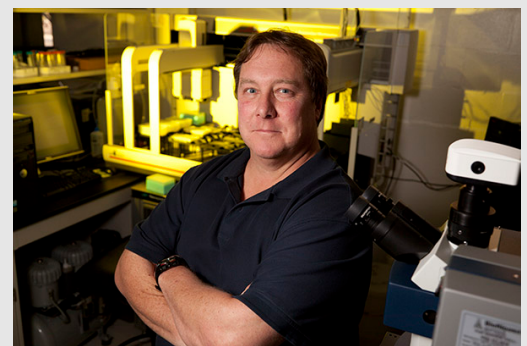
Beyond our borders

Research at UGA extends from Georgia to sites throughout the world.

From Costa Rica to Indonesia to Uganda, the University of Georgia is involved in vast array of research that improves lives both in the U.S. and in countries where UGA faculty, staff and students are conducting studies.

International research collaboration at UGA is nothing new, but the increased emphasis on producing globally minded graduates, in addition to growing concerns of the potential for local disease epidemics to become global, recently has increased the importance of quality research partnerships that cross our country's borders.

"The Office of International Education at UGA is the nexus of the university's international collaborative research initiatives," said Noel



Ralph Tripp, a Georgia Research Alliance eminent scholar in vaccine and therapeutic development, is leading a group of UGA researchers in collaboration with Australia's CSIRO Biosecurity Flagship program to guide Australia's biosecurity research focus and inform their government on policy. (Andrew Davis Tucker/University of Georgia)

Fallows, interim associate provost for international education. “These collaborations expand the global reach of the University of Georgia, forging partnerships not just across university departments and colleges, but also with peer institutions and grant-funding agencies throughout the world.”

As a major public research university, UGA is poised to lead the state and Southeast in partnering with foreign institutions to increase our capacity for basic and applied scientific research, as well as research in the arts and humanities.

“Whether it is climate change, food security or emerging infectious disease, many of the most pressing issues facing UGA researchers today are global in nature,” said Brian Watkins, director of international partnerships at UGA. “Working in tandem with faculty, departments and colleges and the Office of the Vice President for Research, the Office of International Education serves to inform faculty of existing and emerging opportunities, facilitate broad and expansive interdisciplinary grant-funding proposals, and raise the profile of the university as it generates knowledge that will have a global impact.”

We’ve collected a sampling of the many collaborative research projects currently in progress in the paragraphs below.

Engineering

Three farmers in Uganda are now putting William Kisaalita’s unique milk chilling devices to a real-world test to determine if the coolers can keep milk cold overnight and allow it to be accepted at milk processing facilities the following morning. Using the principle of evaporative cooling, the milk chillers are powered by biogas — which is supplied through the collection of cow manure — and allow farmers in sub-Saharan Africa without access to refrigeration to collect and store milk without losing so much of it to spoilage.

Kisaalita, a professor of engineering, received a grant of \$1 million from the U.S. Agency for International Development to develop the technology and then work with locals in Uganda to manufacture and distribute the coolers.

Related links:

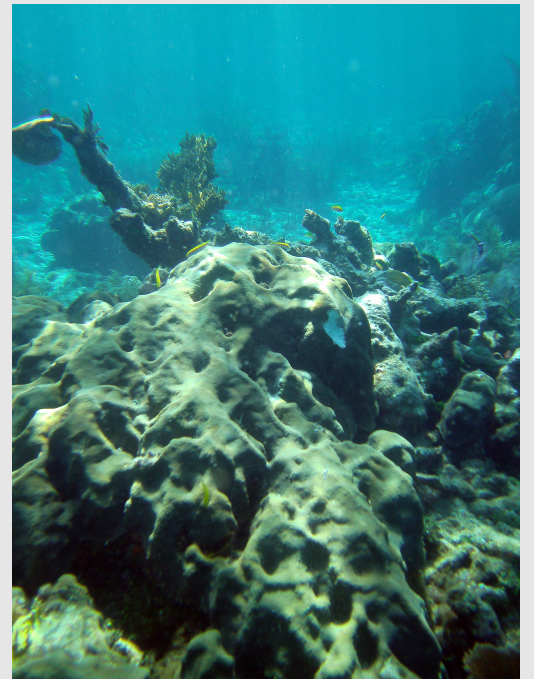
- [UGA engineer receives \\$1 million to develop milk cooler](#)
- [Modern milk is kind of miraculous](#)
- [Why You Shouldn't Take Your Milk's 3-Week Shelf Life For Granted](#)
- [UGA Prof Awarded \\$1 Million Grant for Sub-Saharan Milk Project](#)

Bioinformatics

In addition to working with colleagues at the University of Liverpool in the U.K. and other American institutions that contribute to the EuPathDB bioinformatics database, Jessica Kissinger has been working to expand



Jessica Kissinger and a local colleague, Jules, visit in Dakar, Senegal, in 2014.



Brian Hopkinson and others in his lab study coral reefs to see how environmental impacts like varying pH levels and ocean temperatures can stress corals, causing them to lose their necessary algae. This photo shows coral in the Florida Keys. (Anna Tansik/University of Georgia)



UGA epidemiology professor Dr. Christopher Whalen, left to right, talks with master's of public health graduate student Stephen

bioinformatics research on parasites in Brazil for more than 11 years.

Kissinger, a professor of genetics and director of UGA's Institute of Bioinformatics, will spend one month each year through 2017 in Brazil as part of her "Science without Borders" fellowship at the Centro de Pesquisas René Rachou—FIOCRUZ in Belo Horizonte, Brazil. Kissinger has a long-standing relationship with this institution; she completed two years of postdoctoral work there in the mid-1990s. Her fellowship also funds two graduate students to work in her lab for one year and a postdoctoral researcher in Brazil.

Her work was funded previously through a 10-year National Institutes of Health Fogarty International Center training award, through which Kissinger taught hundreds of Brazilian students in their home country and at UGA.

Related links:

- [Infectious Disease Genomics and Bioinformatics training in Brazil](#)
- [Professor receives Brazilian award to train infectious disease researchers](#)
- [Grant will help provide informatics training to Brazilian scientists](#)

Veterinary medicine — infectious diseases

Infectious diseases researcher Ralph Tripp, a professor in the College of Veterinary Medicine and Georgia Research Alliance eminent scholar in vaccine and therapeutic development, is leading a group of UGA researchers in collaboration with Australia's CSIRO Biosecurity Flagship program to guide Australia's biosecurity research focus and inform their government on policy. A combined approach to animal, human and environmental health — often referred to as One Health — is key to the program's research.

Currently UGA, CSIRO and biotech company Proventus Bio are working to engineer cell lines specifically for the rapid development of vaccines for emerging and important pathogens such as polio, influenza virus, measles virus and Zika virus. The development of appropriate cell lines, along with humanitarian-purpose licensing agreements, will allow developing countries to benefit from vaccines and treatments for these diseases globally, while also aiding the biosafety of the U.S. and Australia.

In addition to the research agreement, UGA and Deakin University in Geelong, Australia, have a student exchange program to cross-train scientists. Currently, one of Tripp's doctoral students is working on the Hendra virus with a Deakin faculty member whose lab is located in CSIRO's Australian Animal Health Laboratory.

Related links:

- [Division of One Health](#)
- [Animal Health Research Center](#)
- [Zoonotic disease threat](#)

Asiimwe and recent graduate Simon Luzige as they look over an x-ray of a patient with tuberculosis. (Andrew Davis Tucker/University of Georgia)



Cows wander around the biodigester overview area on the UGA Costa Rica campus. The biodigester provides wastewater treatment, generates methane gas for cooking and is used as a teaching tool for students and outreach to regional businesses. (Quint Newcomer/University of Georgia)



Gregg Coyle, with camera, a professor in the College of Environment and Design, and Fabricio Camacho, general manager of the UGA Costa Rica campus, test the gas flow to the kitchen from the biodigester at UGA Costa Rica. (Quint Newcomer/University of Georgia)



A gas storage tank is held suspended above the biodigester at EARTH University in Guacimo,

Marine Sciences

Along the Spermonde Archipelago in Indonesia, coral reefs serve as a source of livelihood, food and island protection and are a rich source of biodiversity. Brian Hopkinson, assistant professor of marine sciences, is working with Indonesian scientist Nita Rukminsari of Hasanuddin University to identify corals in Indonesia that are either highly sensitive or resistant to high temperature and low pH in order to assist conservation efforts in the archipelago.

Rising carbon dioxide levels in the atmosphere cause ocean temperatures to increase to the point where corals “bleach” — or lose their symbiotic algae — more frequently, causing stress to the corals. Knowing which corals are more or less sensitive to these stresses will help researchers prioritize management strategies. Additionally, these researchers want to identify areas the ocean that are less stressful to corals — those areas with naturally lower temperature and higher pH.

Hopkinson will travel to Indonesia in April to train researchers on how to run temperature and carbon dioxide stress experiments on corals. The project is funded through the U.S. Agency for International Development via Hasanuddin University, and Hopkinson was asked to join the project as an adviser because of his existing work on the effects of ocean acidification on corals.

Related link:

- [Coral vulnerability assessment study](#)

Public Health

Dr. Christopher Whalen, Ernest Corn Professor of infectious disease epidemiology, has long-standing research and training relationships with public health and academic institutions in Uganda and has trained many of their local public health officials. His most recent grant, \$1.49 million from the NIH Fogarty International Center, will help train Ugandan scientists to study the transmission of HIV and tuberculosis — a global health threat that kills 50,000 people annually in East Africa alone.

Working alongside Whalen is Dr. Juliet Sekandi, a postdoctoral and teaching associate in the College of Public Health who earned her medical degree in Uganda. They study community networks and how these networks affect TB diagnosis and transmission. The largest public health hazard related to TB lies in patients’ inability to reach a quick diagnosis, which in turn delays treatment of the patient.

Related links:

- [Whalen receives \\$1.49 million grant for HIV, TB research training in Uganda](#)
- [Study looks at reasons for delayed tuberculosis diagnosis in Uganda](#)

UGA Costa Rica

Costa Rica. The large biodigester built at UGA Costa Rica has a similar design. (Quint Newcomer/University of Georgia)

Fabricio Camacho, the general manager of the UGA Costa Rica campus, recently co-authored a paper in the Biochemical Engineering Journal about the use of tubular anaerobic digesters in developing countries to produce biogas from livestock waste. The study found that household-scale digesters can provide enough biogas to meet households' cooking energy needs; the gas may also be used to heat water and buildings or generate electricity on-site, reducing deforestation and air pollution by eliminating the need for firewood. Households that implement anaerobic digesters also reduce water pollution by decreasing the amount of organic livestock waste left exposed on their farms.

Related link:

- [Use of physical and biological process models to understand the performance of tubular anaerobic digesters](#)

Global Research Collaboration Grant Program

The Office of the Vice President for Research and Office of International Education recently announced a matching seed grant program to encourage the development of sustainable, collaborative international research and service.

These grants may be used for videoconferencing, travel and other collaborative efforts, preliminary data collection, feasibility studies and proposal preparation. Proposals must identify and commit to pursuing specific sources of external funding. To help researchers identify potential support, OVPR and OIE have developed a database of international funding opportunities, searchable by geographical location or subject matter. Proposals are due April 5.

Related link:

- [New Global Research Collaboration Grant Program](#)

— Sue Myers Smith, Office of International Education

Related content in **THE UGA NETWORK**



Extraordinary

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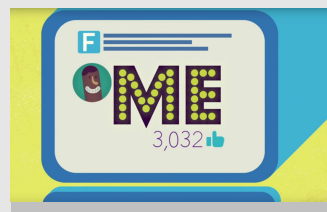
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