

The logo for STIRIDE is composed of seven large, white, block letters. Each letter contains a different scientific or environmental image: 'S' shows a person at a computer; 'T' shows a blue fish school; 'I' shows a line graph with 'abundance' on the y-axis and 'Environmental effects' on the x-axis; 'R' shows a person speaking; 'D' shows blue code on a screen; 'I' shows a person speaking; 'D' shows blue code on a screen; 'E' shows a complex network diagram.

2018 ANNUAL REPORT

MESSAGE FROM STRIDE LEADERSHIP


The STRIDE faculty and project team are pleased to share with you the exciting STRIDE events and accomplishments from this past year. Our second annual report highlights the impacts and benefits of the training program to the SBU community as well as to broader populations.

It is very rewarding to look back at the origins of the STRIDE program and to see how far we have come in just the second project year. We have witnessed tremendous progress in our first cohort of STRIDE Fellows in their abilities to communicate science and have welcomed the second group of fellows, some of whom began as STRIDE trainees. In addition to our expanding student cohort, we have also welcomed additional faculty on-board, including, Zhenhua Liu, assistant professor of Applied Mathematics and Statistics and an affiliate of Computer Science; Laura Wehrmann, an assistant professor from the School of Marine and Atmospheric Sciences, and Jaymie Meliker, associate professor of Family, Population and Preventive Medicine from the School of Public Health. This year was the first offering of the brand-new MAR 534: Scientific Decision Support, which is a 1-credit seminar style course featuring guest speakers from many realms of science and the various uncertainties they face. This was also the first year of the specialized CSE 564: Visualization offering, which was tailored especially for STRIDE trainees with an increased level of assistance from dedicated teaching assistants (TAs). Feedback from STRIDE trainees included the following statement: "I think it will be a skill that I will be able to use. I will be much better at conveying messages to my manager. My advisor has already liked the Plotly graphs I have made for our meetings."

The advanced graduate certificate, C-STRIDE, continues to garner interest from students studying in the affiliated departments, and we have officially graduated our very first alumna of the program! In the spring semester, Xin Zhou completed his PhD from the School of Marine and Atmospheric Sciences and received the advanced graduate certificate. Congratulations, Dr. Zhou!

We enjoyed the 2nd annual STRIDE-Con and Visualization contest as well as Many Paths to Science. In addition to these annual events, we have offered monthly brown bag lunches and various other programming. One of the newest offerings is one that was developed by Joshua Comden—a STRIDE fellow—and is known as Pizza and Policy. This informal lunch seminar brings students and faculty together to discuss science policy and/or a particular piece of legislation. STRIDE is a dynamic program, and we strive to continue to bring forth new and exciting programming for our students.

We invite you to continue reading this annual report for more in-depth coverage of our 2nd year accomplishments. We end by thanking our students for whom this program exists for all of their contributions towards its success.



Robert Harrison
IACS Director



Jennifer McCauley
STRIDE Program Coordinator

VISION & MISSION

We have developed an innovative training program that will provide STEM graduate students with unique interdisciplinary skills to assist, create, and eventually lead in the translation of complex data-enabled research into informed decisions and sound policies. These include skills such as data analytics and visualization that science students are traditionally taught, but also the skills of decision support such as understanding the perspectives of various stakeholders, science communication, and translating scientific uncertainty, that are too often not explicitly taught. The end-to-end training program transcends traditional graduate education by integrating multiple disciplines and novel training elements that span spatial data, advanced visual data analytics, high-performance and data-centric computing, a domain discipline, communication including interpersonal skills and modern media, decision making, and relevant internships.

Vision:

Our vision is to grow this NSF funded training program into a scalable and sustainable model that will continue past the award period and to increase diversity of students and faculty within STEM.

Mission:

To realize our vision, we will:

- Grow our faculty and students emphasizing excellence and diversity;
- Create lasting partnerships with affiliates and internship organizations

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C-STRIDE CERTIFICATE



Professor Christine O'Connell and STRIDE trainees

The advanced graduate certificate, C-STRIDE, consists of three major components:

- 1.) a set of specially designed courses on decision support, spatial data analysis, visualization, and communication required of all students;
- 2.) training in a STEM domain discipline; and
- 3.) a set of non course-based program elements in which all students will participate.

Affiliated Departments:

Applied Math and Statistics
Biomedical Informatics
Computer Science
Computer and Electrical Engineering
Ecology and Evolution
Journalism
Materials Science / Chemical Engineering
Marine and Atmospheric Sciences
Public Health
Technology and Society

Course Title

JRN 503: Improvisation for Scientists – 1 credit
Policy or applied science elective – 3 credits
Statistics Course – 1 credit
JRN 511: Scientific Communication for Decision Makers – 1 credit
MAR 534: Scientific Decision Support – 1 credit
CSE 564: Visualization – 3 credits
JRN 501: Distilling Your Message – 1 credit
Seminar Electives, Environment or Energy – 2 credits

Total Required Credits: 15

FELLOWS SHOWCASE



1. Rachael Herman

Rachael Herman is a PhD student from the Department of Ecology & Evolution, studying in the lab of Professor Heather Lynch. She studies the foraging ecology, genetics, and conservation of seabirds across the globe. Rachael received her M.Sc in Oceanography and Coastal Sciences from Louisiana University.

2. Zahraa Krayem

Zahraa Krayem is a doctoral student in the Department of Electrical and Computer Engineering, studying in the lab of Professor Mónica Bugallo. Zahraa's research area of interest is Statistical Signal Processing where she studies data algorithms and builds data mathematical models to aid in data-driven decisions. She also designs and instructs Engineering Teaching Laboratories to get pre-college students interested and aware of STEM education and STEM opportunities in many different fields.

3. Adelle Molina

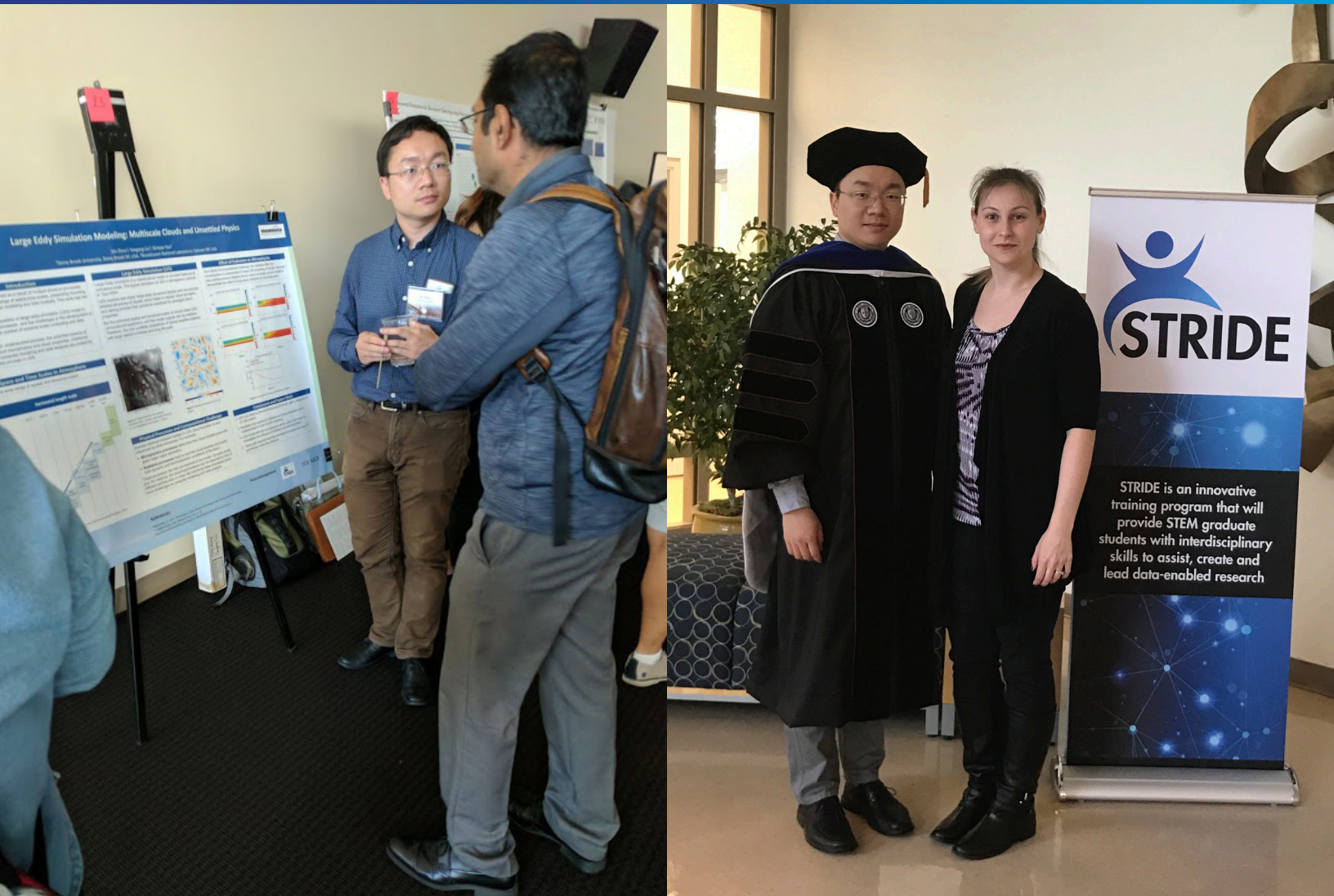
Adelle Molina is broadly interested in both the direct and indirect effects of climate change and climate variability on species distributions and assemblages, with a particular focus on valuable fishery species. More specifically, she analyzes the physiological and ecological effects of temperature and other environmental factors, such as salinity and dissolved oxygen, on population dynamics and species distributions, with the end goal of applying this research in the context of climate change. Her research has largely focused on the blue crab (*Callinectes sapidus*) population in Long Island estuaries; the goal is to understand the current status of this population, to examine how and why this population has varied over time, and to evaluate the potential effects of climate change on this temperate species.

4. Julia Stepanuk

Julia Stepanuk is a doctoral student in the Department of Ecology & Evolution. She completed her MS in the Thorne lab at the School of Marine and Atmospheric Sciences in 2017. She obtained a B.Sc. (Honours) from McGill University in Montreal, Quebec, and completed a GIS certificate at The University of Maine at Machias. Julia has spent many years working on the ocean, both with the Sea Education Association and with whale watch companies in New England. Her Master's thesis investigated the effectiveness of a spatiotemporal approach for reducing pilot whale interactions with the pelagic longline fishery using pilot whale telemetry data, longline effort data, and data from the Pelagic Observer Program to quantify and model spatiotemporal overlap between pilot whales and longlines relative to observed interactions.

5. Stephen Tomasetti

Stephen Tomasetti is a doctoral student in Marine Science at the School of Marine and Atmospheric Sciences. He studies how the confluence of stressors related to human activities and climate change affects sea life. More broadly, his interests involve the functioning of coastal systems near urban environments—how might humans and sea life live in harmony? Before pursuing his PhD, he worked for 5 years as a high school biology teacher in Brooklyn, NY, where he developed a passion for communicating science, and became more deeply engaged with the issues affecting coastal New York. As somewhat of a shellfish enthusiast, he is passionate about the blue crabs, oysters, clams, and scallops historically found in high abundance throughout coastal New York. Much of his work emphasizes the interactions of this subset of animals with their ever-changing environments.



Left, Dr. Xin Zhou at the New York Scientific Data Summit, Right, Dr. Zhou with STRIDE Program Coordinator, Dr. Jennifer McCauley

FIRST IN CLASS: STRIDE GRADUATES ITS FIRST ALUM, XIN ZHOU, PHD

While only in its second year of implementation, the Science Training and Research to Inform DEcisions (STRIDE) program proudly graduated its first graduate student to complete the advanced graduate certificate, *C-STRIDE*.

Dr. Xin Zhou was a PhD student from the School of Marine and Atmospheric Sciences and studied within the laboratory of Professor Marat Khairoutdinov. He acknowledges STRIDE as one of his best experiences at Stony Brook University. While a STRIDE Trainee, Xin was one of the first winners of the annual STRIDE-Con visualization contest. As a result of winning this contest, he was given the opportunity to participate in the renowned Edward Tufte's one-day visualization workshop in Boston.

While he was a STRIDE trainee, Xin had the opportunity to intern at the Brookhaven National Laboratory (BNL) in the lab of Dr. Yangang Liu, a Senior Scientist and Leader of the Climate and Process Modeling group. Because of his highly successful internship experience, he was invited to attend the New York Scientific Data Summit (NYSDS) in New York City and was subsequently offered a postdoctoral fellowship position in Dr. Liu's lab.

Dr. Zhou is currently a postdoc at BNL researching applications on clouds and renewable energy to evaluate WRF-Solar for better solar irradiance forecasting.



HEATHER LYNCH A PIONEER IN PENGUIN RESEARCH

Heather Lynch, an associate professor from Ecology & Evolution, has had her name in the news for much of 2018 after discovering a “supercolony” of 1.5 million Adélie penguins on the Danger Islands, a rocky archipelago of one of the most remote regions of Antarctica.

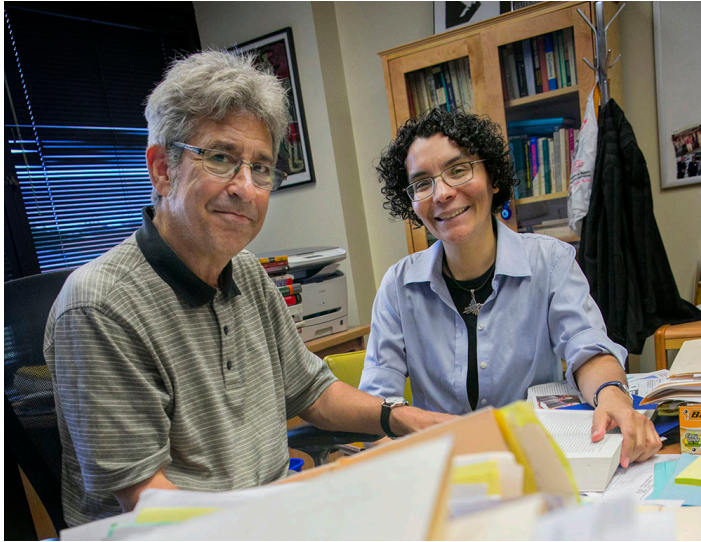
Using satellite data, Lynch and her team of collaborators initially were tipped off to the colony when satellite data demonstrated evidence of their pink-tinted guano because of the massive amounts of krill consumed. While Adélie penguins are one of the most common on the Antarctic Peninsula, over the course of the past 40 years, the total number of this group of penguins has been on a steady decline. With footage from the Landsat, an old government satellite technology, Lynch was confident that the findings warranted an expedition to the cold and rocky region.

Lynch was sure to mention that this discovery does not change the outlook on climate change and Adélie penguins in general—their population is still in steady decline and there is no reason to believe that these are penguins that had traveled to escape warming conditions elsewhere in Antarctica. Rather, these penguins have been on the Danger Islands and have not suffered the population declines associated with those along the western side of the peninsula.

Following this discovery, Lynch was selected to be a recipient of the National Geographic AI for Earth Innovation Grant and is in the first class of scientists to be chosen for this honor. Lynch was one of eleven chosen from a pool of more than 200 qualified scientists. The grant will support the creation and development of open-source trained models and algorithms that are available to other researchers doing environmental science for the purpose of improving the way we monitor, model, and manage Earth’s natural systems for a more sustainable future.



Professor Lynch with a penguin



Above: Paul Gootenberg, SUNY Distinguished Professor of History and Sociology, with Liliana Dávalos, professor in the Department of Ecology and Evolution.

While their paths had crossed in the past, it was a chance meeting on the Long Island Rail Road that brought two Stony Brook faculty members together on a new level of interdisciplinary collaboration. Liliana Dávalos, a professor in the Department of Ecology and Evolution, and Paul Gootenberg, SUNY Distinguished Professor of History and Sociology, collaborated on a topic of mutual interest — the origins of cocaine. The project? Co-editing a book.

That's right — a historian and a biologist co-edited a book.

The Origins of Cocaine: Colonization and Failed Development in the Amazon Andes (Routledge), released in 2018, June, examines how in the 1960s, the governments of Colombia, Peru, and Bolivia developed agricultural settlement programs in each country's Amazonian frontier lowlands. By the late 1980s and early 1990s, those same zones had become centers for the growing illicit cocaine trade.

Gootenberg, who is also chair of the Department of History, is the author of several books, including *Andean Cocaine: The Making of a Global Drug* (2008), before co-editing *The Origins of Cocaine*. He is considered one of the world's best-known historians on the history of cocaine. Dávalos has advised the United Nations Office of Drug and Crime on deforestation since 2017 and co-authored the *2016 World Drug Report*.

In contributing along with five other authors to *The Origins of Cocaine*, the two Stony Brook professors found common ground on an academic topic, broadening one another's perspectives on the illicit cocaine boom of the Americas.

"Liliana and I met serendipitously about 10 years ago," said Gootenberg. "She mentioned that she had a side interest in coca and deforestation. We later applied for a couple of grants together and hosted a symposium mainly about the campesinos who grow the coca plant in the Amazonian region."

Familiar with Gootenberg's work, Dávalos realized the two professors might be converging in their respective research regarding the Andean countries vast production of illicit coca

COCAINE AND COLONIZATION: STONY BROOK PROFESSORS MEET AT THE CROSSROADS OF HISTORY AND BIOLOGY

since the 1970s. She had spent many hours poring over books and journals from the 1950s through the 1970s, trying to understand the origins of the problem.

The day she encountered Gootenberg on the train, Dávalos mentioned that she was about to publish an elaborate quantitative analysis to figure out the relationships between locations of historical land colonization projects in the Andean tropics and hotspots of coca plantations today. Some of her findings were coming out in the *UN World Drug Report*. Gootenberg immediately realized they were on the same page.

"All my years of research on land use and deforestation came in handy with the UN report because I wanted to take a look at not just the Andes, but also the highlands of Southeast Asia as well as Afghanistan," said Dávalos.

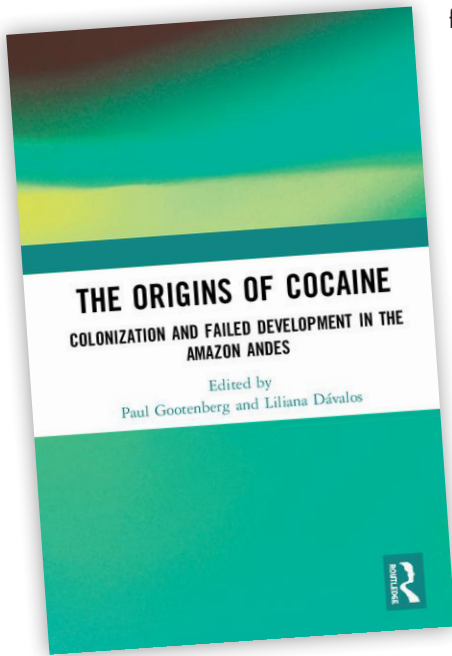
"At this point we were working on exactly the same problem," added Gootenberg. He was further impressed that Dávalos was asked to be an environmental advisor on the *World Drug Report*, a publication that is read by hundreds of specialists and throughout the global public sector. Gootenberg told her he had read the 2016 report and found it fascinating that the UN had suddenly changed its position on the environment: development not drugs by itself was the source of harm in such biodiverse regions. He only realized later, however, that the reason the UN had changed its view was because of Dávalos' findings.

By this time, Gootenberg had assembled a team that included a historian, a geographer, a sociologist, and a political scientist to do a series of similar case studies on development projects and drugs in Bolivia, Peru and Colombia.

"I realized that what I was trying to show in a comparative, empirical and archival way, Liliana had already proven in a much more succinct, quantitative and direct way," said Gootenberg. "At that point, we decided to join forces."

By that time, Dávalos had already devoted a decade to trying to understand through math and quantitative models what effect the coca plantations were having on the forest.

"On one hand, you might say people planting coca in the



forest are destroying it,” said Dávalos. “On the other hand, if they weren’t planting coca they’d have cattle that would require a lot more space. So in that respect, coca was thought by some to actually have a positive effect.”

Both professors are deeply interdisciplinary scholars drawn to issues of contemporary concern, such as drug policy and tropical forest conservation.

“We found a broad bridge of convergence in our shared sense of historical social science,” said Gootenberg. “Mine is informed by archival historical case studies and sometimes larger

social theory questions and Liliana’s is by the forest, geography, labor and land use, and quantitative and spatial methodologies.”

Where the pair found total agreement is in a critique of the overarching themes of “lack of development” and “isolation from the state,” which Gootenberg described as the commonplace policy assertions about why illicit economies flourish. In fact, he notes, “coca was born from failed development projects and collapsed state interventions.”

Gootenberg contends that when these mid-century Cold War modernization projects collapsed, they left the seeds of illicit cocaine trades in tropical Bolivia (the Chapare region), eastern Peru (the Upper Huallaga Valley) and lowland Colombia (Meta, Putumayo), something that also occurred in other drug zones of the global south.

He also pointed out that it is critical to question the artificial divide between illicit and legal or legitimized capitalist economies.

“They go together, they overlap, move in cycles and can spur one another, much like smuggling and commerce have for centuries,” said Gootenberg.

Dávalos said that it is “unhindered development,” not the drug trade on its own, that is destroying what is left of the western Amazon. She gives as one example the vast cattle ranches and corporate plantations that have replaced small-holder coca crops in parts of Colombia.

This is an area where the professors are in agreement — how the big push for

development set the stage for what has happened and how future policy can be reshaped in the region.

Dávalos said she has always wanted to collaborate with researchers who have radically different backgrounds, offering that “it’s exceedingly rare for different disciplines to examine a similar problem and draw parallel conclusions with social issues such as this.”

She said she welcomes the outcome because by presenting dual perspectives, she and Gootenberg can reduce scientific jargon and explain what the terms and perspectives mean across disciplines.

Who will be most likely to read and heed the message in *The Origins of Cocaine*?

“I’d be delighted if my closest scholarly colleagues and students in Latin American history all read the book,” Gootenberg said. “But I suspect its specialized and pointed message will actually appeal more to experts and practitioners in the larger development and drug policy communities.”

Gootenberg and Dávalos presented their book at Stony Brook University in October; previously, they had presented their findings to the Washington Office on Latin America, located in the nation’s capital, and will hold comparable workshops this year at the Soros Foundation and Drug Policy Alliance, both based in New York City.

“We’re eager to connect with these takeaways with NGOs and development and drug agencies,” said Gootenberg. “They’re listening.”

— Glenn Jochum

<https://news.stonybrook.edu/alumni/cocaine-and-colonialism-stonybrook-professors-meet-at-the-crossroads-of-history-and-biology/>



Coca farmers in Bolivia (Getty Images)

G-WISE WOMEN IN STEM SHOWCASE



From Left: Dr. McCauley, Professors Lynch, Balasubramanian, and Chiu

During the spring semester, Professor Heather Lynch and Dr. Jennifer McCauley were invited to serve as panelists at the Graduate Women in Science and Engineering (GWISE) Women's Research in STEM Showcase.

Women graduate students presented their research, engaged in a panel discussion, and presented during the subsequent poster session. Professor Lynch and Dr. McCauley were invited to be part of the panel discussion based on their accomplishments and success in the field of science. Other panelists included Professor Aruna Balasubramanian of Computer Science and Melanie Chiu of Chemistry.

The panelists shared their personal accounts of how they got to where they are now, and the unique struggles they have faced as women in the field of science. Current graduate students sought advice on how to navigate academia. Professor Lynch and Dr. McCauley shared personal stories of starting families, negotiating salaries, and balancing work and home life.

Following the discussion, the panelists enjoyed evaluating the research posters and engaging with the students on their projects. Following the poster session, students and faculty convened for a catered dinner sponsored by GWISE.





STRIDE LAUNCHES WOMEN IN STEM TOUR FOR HIGH SCHOOL GIRLS

Panel from left: Professor Lynch, Professor Chiu, Dr. McCauley, Professor O'Connell and STRIDE Fellows, Julia Stepanuk, Zahraa Krayem, Tara Dolan, and Kylie Langlois.

When a science teacher from Hicksville High School reached out to STRIDE with hopes of exposing her female students to science and engineering, Dr. Jennifer McCauley developed a personalized itinerary for her group of students comprised solely of women scientists. As one of the fundamental goals of the STRIDE program is to increase the diversity and inclusivity of STEM for women and underrepresented groups, this was an opportunity to expose young women to various areas of science and to dispel the notion that women cannot succeed in science.

On December 6, 2018, the Institute for Advanced Computational Science (IACS) hosted 32 high school girls through a very special day of science talks, a panel event, as well as a hands-on engineering project led by women graduate students and faculty. When the girls arrived on campus with their teacher, they were escorted into the Institute, where they were each presented with red Stony Brook University backpacks full of information for these prospective future Seawolves!

Jacqueline Gatta, the program coordinator for Women in Science and Engineering (WISE) Honors, began by giving the girls a presentation about the program, various STEM majors within WISE, and information about applying to the Honors program. The girls had the opportunity to listen to three science talks given by STRIDE Fellows; Lisa Herbert, Tara Dolan, and Kylie Langlois. Though the three doctoral candidates study marine science, their research areas are very different. Lisa Herbert gave an inspirational talk about her own personal journey with science—though she had once struggled with chemistry, she has now gone on to become a biogeochemist who studies the trace metals within the ocean floors of the high arctic, the result of melting glaciers. Tara Dolan studies fisheries ecology and the management of winter flounder on Long Island. She spoke to the girls about her research as well as her own educational experiences between college and graduate school, encouraging the girls to seek out opportunities to obtain experience in science—many of which are paid positions. Kylie Langlois presented her research on solving Long Island's nitrogen problem with microbes, a project she has been working on with the Center for Clean



Water Technology. Because of their involvement with STRIDE, the fellows have received extensive training in science communication, which gave them the ability to give educational talks on a level that the high school girls could both understand and be engaged in. The high school students were interested and asked many thoughtful questions after each presentation.

After the presentations, there was a panel Q & A with Heather Lynch, PhD (Ecology & Evolution); Christine O'Connell, PhD (Alan Alda Center for Communicating Science); Melanie Chiu, PhD (Chemistry), Jennifer McCauley, PhD (STRIDE); and graduate students, Lisa Herbert, Tara Dolan, Kylie Langlois, Julia Stepanuk, and Zahraa Krayem. Following the panel, Zahraa Krayem, who is a STRIDE fellow and PhD student from Electrical and Computer Engineering, escorted the girls to the Light Engineering building for a hands-on activity in the brand-new Engineering Teaching Laboratory. Once in the lab, the girls equipped themselves with safety goggles and got to work on building a working nightlight, which they got to decorate and take home with them.

The day concluded with a Research Café hosted by the Center for Inclusive Education, where they observed a talk on Parkinson's Disease research, presented by Jinelle Wint, a PhD candidate from the Department of Molecular & Cellular Biology. As the girls walked towards the school bus waiting to take them back to Hicksville High School, the conversations among the girls were animated with chatter of the future and some envisioning themselves on this very campus in the future as college students. Exposing young women and underrepresented students to science is so important and is a mission that STRIDE has taken on in an effort to make STEM fields more diverse and equitable for all. We look forward to future partnerships like this one with other schools throughout Long Island.



Kylie Langlois gives a talk

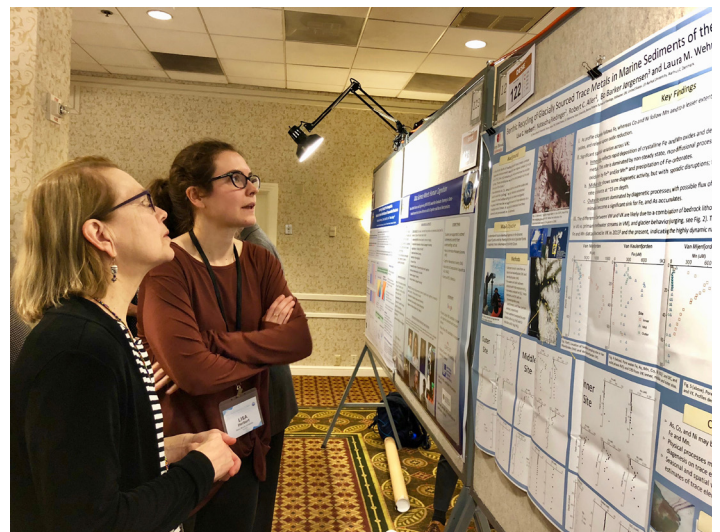
NATIONAL SCIENCE FOUNDATION NRT MEETING



Professor O'Connell (center) with Dr. Jennifer McCauley (right) and STRIDE Fellow, Lisa Herbert (left).

The 2018 National Science Foundation (NSF) Research Traineeship (NRT) Annual Meeting took place this year in Arlington, Virginia. The meeting provides an informal, collegial atmosphere where NRT participants can come together to share experiences and explore ideas. The two-days long conference featured talks on topics such as program sustainability, broadening participation, or innovative trainings, as well as poster sessions, and networking opportunities.

Dr. Christine O'Connell, a co-PI on the project and STRIDE Program Coordinator, Dr. Jennifer McCauley traveled with Lisa Herbert, a funded STRIDE fellow to attend the meeting. Dr. O'Connell gave a talk for the session on innovative training in communication, entitled *Improvisation for Effective Science Communication*. Dr. McCauley presented *Career Focused Programming for STEM Students in STRIDE* for the session on innovative training in career pathways and presented a poster on the progress of the STRIDE program. Lisa Herbert presented her poster, *Benthic Recycling of Glacially Sourced Trace Metals in Marine Sediments of the High Arctic*, exploring the work that she had done in Svalbard, a Norwegian archipelago between mainland Norway and the North Pole.



Lisa Herbert discusses her poster

JOINT SCIENCE MEETING



STRIDE Fellows enjoy dinner with a visiting student from Tokyo Institute of Technology. From left: Adelle Molina, Orié Sasaki, Lisa Herbert, and Kylie Langlois

The Institute for Advanced Computational Science held its “Joint Science Meeting;” the central enabling activity of the partnership between Tokyo Institute of Technology and Stony Brook University. The meeting was an opportunity for faculty and students, as well as external collaborators, to share their knowledge and passion, and to identify and develop new opportunities for collaboration.

In May, participants from Tokyo Institute of Technology (TIT), Stony Brook University (SBU), Brookhaven National Laboratory (BNL), and others from the Northeast region of the United States traveled to SBU to participate in a 3-day workshop to discuss the common threads among the following topics: Quantum computing; materials science, HPC/big data, environmental science and/or engineering.

Lisa Herbert, a PhD candidate from the School of Marine and Atmospheric Sciences and a STRIDE Fellow had the opportunity to present her talk, entitled, *Benthic recycling of glacially sourced trace metals of the high Arctic*. She discussed how dissolved metals like iron, manganese, cobalt, and nickel, among others, can act as either essential nutrients or deadly toxins for living things in the ocean. The purpose of her research is to understand whether metals are trapped in, or released from glacial sediment along the coast of Svalbard, an island located north of Norway.

On the evening of her talk, Lisa and several STRIDE Fellows accompanied Orié Sasaki, a visiting student from TIT, to dinner. The group enjoyed a meal while talking about their science.





RECRUITING & DIVERSITY



STRIDE Fellow, Adelle Molina (second from left) poses with affiliates of the Center for Inclusive Education.

One of the goals of the STRIDE program has been to make STEM departments more inclusive and diverse at Stony Brook University.

We have been participating in strategic recruitment; visiting and building relationships with local colleges that have higher numbers of underrepresented students in math and the sciences in an effort to bring them into our STEM graduate programs at Stony Brook.

STRIDE representatives traveled near and far, from very local Suffolk County Community College (SCCC) to the College of New Rochelle in Westchester County, to the University of Maryland - Baltimore County campus. Additional trips were made to City University of New York (CUNY), Queens College, and to the PRISM program at John Jay College of Criminal Justice.

Each visit was well received with broad interest in the STRIDE program. We look forward to future recruiting trips to these and other colleges.

Right Photo (Top): Diversity Outreach Coordinator, Rosalia Davi (left) with students from the College of New Rochelle.

Right Photo (Bottom): (From right) Dr. Jennifer McCauley, Professor Mónica Bugallo, and STRIDE Fellow, Zahraa Krayem with students and faculty from College of New Rochelle.



ADVANCED VISUALIZATION SKILLS

STRIDE TRAINEES LEARN ADVANCED VISUALIZATION TECHNIQUES

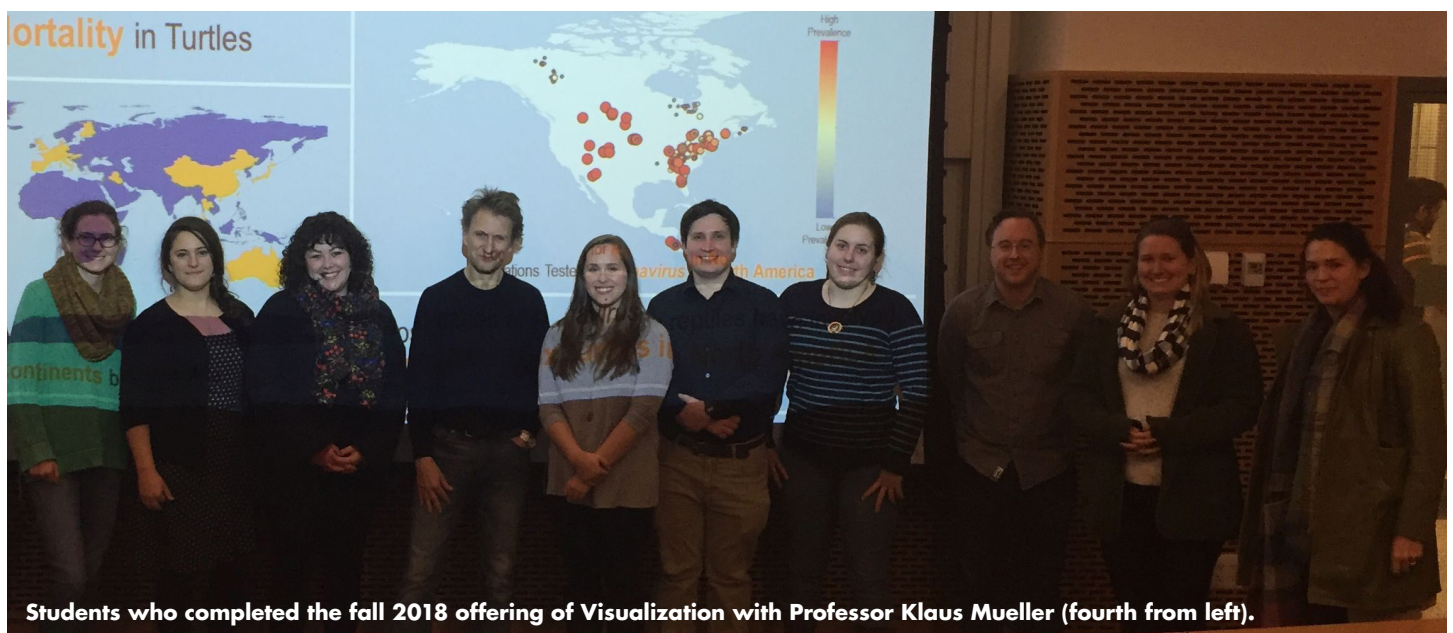


Through participation in the Science Training and Research to Inform DEcisions (STRIDE) program, trainees acquire interdisciplinary skills to assist, create, and eventually lead data-enabled research. As part of their training, graduate STEM students pursuing the 15-credit advanced graduate certificate, C-STRIDE, are required to enroll in CSE 564: Visualization. STRIDE trainees receive extra attention and support with a dedicated Teaching Assistant (TA) for the course.

During the fall 2018 semester, the first iteration of this specialty Visualization course—tailored to students who are not pursuing a degree in Computer Science—was implemented. In preparation of the course, the Institute for Advanced Computational Science arranged a two-day introductory bootcamp in the Python programming language. Over the course of 15 weeks with the support of Professor Klaus Mueller and specialized teaching assistants, Ayush Kumar and Tyler Estro, STRIDE trainees from areas such as marine science, ecology and evolution, and applied math and statistics were able to transform their data into vivid, meaningful graphs and visualizations.

For the final project, the 10 STRIDE trainees enrolled had to give presentations of their visualizations. Prof. Mueller arranged to have a panel of three guest judges and awarded trophies to the top two visualizations. Ayush Kumar, Darius Coelho, and Jun Wang served as award judges. Lisa Prowant (Ecology & Evolution) took home the trophy for best project award and Tara Dolan (School of Marine & Atmospheric Sciences) was awarded the runner-up trophy.

Following the completion of the course, STRIDE Fellow, Joshua Comden's research advisor, Dr. Zhenhua Liu, noted how impressed he is with the visualizations his student has been creating in the lab.



Students who completed the fall 2018 offering of Visualization with Professor Klaus Mueller (fourth from left).



Dr. Brian Zikmund-Fisher.

The STRIDE program's annual STRIDE-Con is a day-long event showcasing talks on science communication, data visualization, and policy. On Friday, September 14, the 2nd Annual STRIDE-Con took place at the Institute for Advanced Computational Science.

Dr. Christine O'Connell, one of the founding members of the Alan Alda Center for Communicating Science, gave a talk on science communication, with a focus on empowerment and challenging stereotypes with diverse voices. Dr. Thomas Woodson from the Department of Technology & Society presented a talk on science policy, highlighting just how pertinent science policy is to science and how without science policy, much of the research being done in science would not be able to happen.

STRIDE-Con's keynote speaker, Dr. Brian Zikmund-Fisher of the School of Public Health at the University of Michigan, offered thoughtful insights towards aiding the decision-support process—particularly in regards to deciding which data to emphasize to a particular audience. Especially when communicating with people about their own health, he suggested that it is best to give them easily digestible information rather than coming at them with numbers and statistics.

At the close of the day, the STRIDE-Con annual visualization contest took place with guest judges; Klaus Mueller (Computer Science), Kathleen Flint Ehm (Graduate and Postdoctoral Professional Development), and Lauren Sheprow (University Media



Professor Robert Harrison discusses visualizations with STRIDE students.

Relations) as well as the keynote speaker, Dr. Zikmund-Fisher. Of the seven visualizations submitted to the contest, the winning figure was submitted by Jessica Maghakian, a graduate student from Applied Mathematics and Statistics, entitled "Detecting Gerrymandering: A Data-Driven Look at the US Congressional Districts from 2003-2013." Winners of the visualization contest are given an opportunity to attend the renowned Edward Tufte one-day data visualization workshop on a date and location of their choosing, with expenses covered by STRIDE.

MANY PATHS TO SCIENCE



From left: Professor Heather Lynch, Professor Erez Zadok, Dr. Deb Aronson, Dr. Mehdi Namazi, and Dr. Tomasz Bakowski

The Many Paths to Science event is an annual networking panel comprised of PhDs whose careers have taken several directions. As an increased number of graduate students plan for careers in industry rather than academia, it is important to showcase the varying applications of their science.

This year's installment of Many Paths to Science featured a focus on consulting and entrepreneurship. Panelists included STRIDE's own Erez Zadok, PhD, Stony Brook alumni, Mehdi Namazi, PhD, Tomasz Bakowski, PhD, Deb Aronson, PhD.

MANY PATHS PANELISTS:

Erez Zadok, PhD

Professor Zadok, who earned his PhD from Columbia University in 2001, studies operating systems and file systems from many aspects. Zadok is a named inventor on four US patents and is experienced with small-business and consulting.

Mehdi Namazi, PhD

Dr. Namazi, a recent alum of Stony Brook University, earned his MsC in Nanophysics at the University of Tehran in Iran and his PhD in Computer Science at SBU. Namazi is now a postdoctoral fellow at Yale University and the co-founder and CEO of Qunnect, LLC.

Tomasz Bakowski, PhD

Dr. Bakowski earned his BS in Physics as well as his PhD in Biomedical Engineering from Stony Brook University. At the time of the event, Bakowski was a senior consultant at Acsel Health, a boutique science consulting firm. Currently, he serves as Senior Manager of Enterprise Strategy Analytics, Forecasting and Strategic Planning at Bristol-Myers Squibb.

Deb Aronson, PhD

Dr. Aronson earned her BA in general science from Brandeis University and her PhD in Biomedical Science at the Albert Einstein College of Medicine. Aronson serves as Director of Medical Strategy at Intouch Solutions and is an energetic and self-professed outspoken science blogger with various startups under her belt focusing on science communication.

SEMINARS & EVENTS

Seminars: Brown Bag Lunches

Spring 2018

Navigating Adobe Illustrator

Heather Lynch, PhD
January 24, 2018

NASA Applied Science Program: Woodland Fire

Vincent Ambrosia
February 8, 2018

Science for Policy and Policy for Science: Lessons Learned from AAAS, Federal Budgeting, and the Obama White House

Kei Koizumi
March 1, 2018

Writing a Press Release

Lauren Sheprow, Media Relations Officer, Stony Brook University
April 5, 2018

Science Communication: Blogging

Christine O'Connell, PhD
May 9, 2018

Designing an Effective Résumé and Cover Letter

Jennifer R. McCauley, PhD
May 18, 2018

Fall 2018

Conducting Big Data Science on the Seawulf Cluster

Firat Coskun
September 19, 2018

National Weather Service Decision Support – Recent Strides and persistent Challenges in Effective Communication

Rosemary Auld, National Oceanic and Atmospheric Administration (NOAA)
September 25, 2018

Women in STEM

Janet Nye, PhD
October 17, 2018

Engineering Education and Needs for New Programs

Kevin Moriarty
December 5, 2018

Seminars

Pizza & Policy

November 28, 2018

Introduction to Python

September 1 – 2, 2018

Events

2nd Annual STRIDE-Con and Visualization Contest, Plenary

Speaker: Brian Zikmund-Fisher, PhD
September 14, 2018

Many Paths to Science

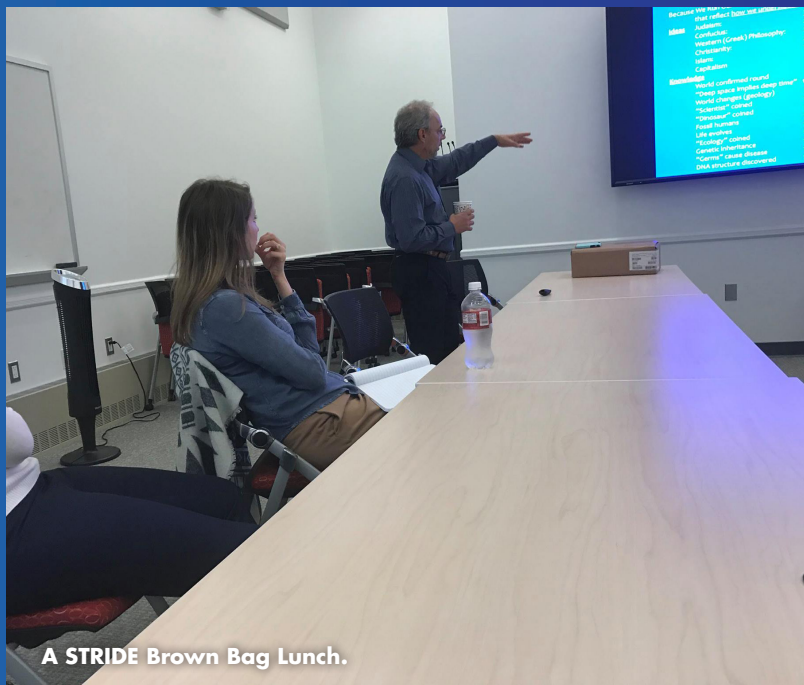
Panel: Erez Zadok, PhD; Deb Aronson, PhD; Mehdi Namazi, PhD; Tomasz Bakowski, PhD
October 25, 2018



STRIDE Fellows and faculty at the Fellowship luncheon.



2018-2019 STRIDE Fellows: from left - Rachael Herman, Julia Stepanuk, Stephen Tomasetti, Zahraa Krayem, and Adelle Molina



A STRIDE Brown Bag Lunch.



STRIDE trainees and faculty at an installment of Pizza & Policy.

FACULTY



Robert J. Harrison, PhD

Robert Harrison is a distinguished expert in high-performance computing. Through a joint appointment with Brookhaven National Laboratory, Professor Harrison is also Chief Scientist of the Computational Science Institute at Brookhaven National Laboratory. Dr. Harrison comes to Stony Brook from the University of Tennessee Knoxville and Oak Ridge National Laboratory, where he was Director of the Joint Institute of Computational Sciences, Professor of Chemistry and Corporate Fellow. He has

a prolific career in high-performance computing with over one hundred publications on the subject, as well as extensive service on national advisory committees.



Jonas Almeida, PhD

Jonas Almeida is the Chief Technology Officer at the Biomedical Informatics Department of Stony Brook University. His current research interests are at the intersection of Semantic Web abstractions and distributed Cloud Computing approaches to Bioinformatics application development in the pervasive Web Platform. The use of computational statistics at the intersection of those two fields now gets a fancy new name, Big Data Science, which is also the focus of his educational and service activities.



Mónica Bugallo, PhD

Mónica Bugallo is a professor of Electrical and Computer Engineering and the Faculty Director of the Women In Science and Engineering (WISE) Honors program at Stony Brook University. She received her B.S., M.S., and PhD degrees in computer science and engineering from University of A Coruna, Spain. She joined the Department of Electrical and Computer Engineering at Stony Brook University in 2002 where she is currently a Professor. Her research interests are in the field of statistical signal

processing, with emphasis on the theory of Monte Carlo methods and its application to different disciplines including biomedicine, sensor networks, and finance. In addition, she has focused on STEM education and has initiated several successful programs with the purpose of engaging students at all academic stages in the excitement of engineering and research, with focus on underrepresented groups. She has authored and coauthored two book chapters and more than 150 journal papers and refereed conference articles. Bugallo is a senior member of the IEEE, serves on several of its technical committees and is the current chair of the IEEE Signal Processing Society Education Committee. As part of her professional service, she has organized various professional conferences. Bugallo has received several prestigious research and education awards including the award for Best Paper in the IEEE Signal Processing Magazine 2007 as coauthor of a paper entitled "Particle Filtering," the IEEE Outstanding Young Engineer Award (2009), for development and application of computational methods for sequential signal processing, the IEEE Athanasios Papoulis Award (2011), for innovative educational outreach that has inspired high school students and college level women to study engineering, the Stony Brook University Hispanic Heritage Month (HHM) Latino Faculty Recognition Award (2009), and the Chair of Excellence by the Universidad Carlos III de Madrid-Banco de Santander (Spain) (2012).



Liliana M. Dávalos, PhD

Liliana M. Dávalos is an associate professor of Conservation Biology at Stony Brook University (New York). Dávalos is a 2012 National Academies of Sciences Education Fellow in the Life Sciences, a 2013 Kavli Frontiers of Science Fellow for outstanding early career, and has advised the United Nations Office of Drug and Crime on deforestation since 2007. She is a coauthor of the 2016 World Drug Report. Dávalos is interested in the forces shaping biodiversity in time and space. She focuses on the

evolution of species and trait diversity, and on how to conserve ecosystems today and into the future.



Zhenhua Liu, PhD

Zhenhua Liu is an assistant professor of Applied Mathematics and Statistics. He is an affiliate of the Department of Computer Science and Smart Energy Technology Cluster. Liu received his PhD in Computer Science at the California Institute of Technology. Before Caltech, he received his MS degree of Computer Science and Technology and BE degree of Measurement and Control from Tsinghua University with honor. He also received a dual degree of Economics from Peking University. Liu's

research interests include cloud computing, online convex optimization, energy-efficient computing, machine learning, internet of things, market design, and distributed control. His research combines rigorous analysis and system design, and goes from theory, to prototype, and eventually to industry to make real impacts.



Heather J. Lynch, PhD

Heather J. Lynch is an associate professor of Ecology & Evolution and the Institute for Advanced Computational Science at Stony Brook University. Prior to Stony Brook, Dr. Lynch was an Adjunct Professor of Applied Math and Statistics at UC Santa Cruz and a Research Scientist in the Biology Department at the University Maryland. Dr. Lynch received her A.B. in Physics from Princeton University in 2000, an A.M. in Physics from Harvard University in 2004, and a Ph.D. in Organismal and Evolutionary

Biology from Harvard University in 2006. Dr. Lynch's research is focused on spatial population dynamics of Antarctic penguins, with a particular focus on statistical and mathematical models to integrate patchy time series with remote sensing imagery. These data will allow Dr. Lynch and colleagues to develop mathematical models to explore how coloniality constrains the colonization and extinction of individual habitat patches and, ultimately, the metapopulation dynamics of colonial seabirds.



Jaymie Meliker, PhD

Jaymie Meliker is an associate professor of Family, Population, and Preventative Medicine in the Department of Public Health. His research contributes to the fields of exposure science, health geography, and environmental epidemiology. Highlights of his work include pioneering development of space-time information systems for lifetime exposure reconstruction, and epidemiology of low-level exposure to arsenic in drinking water. He has published on drinking water contaminants, air pollutants, arsenic,

cadmium, asthma, osteoporosis, stroke, and different types of cancers, and enjoys tackling environmental epidemiologic and spatio-temporal methodological problems to advance population health. Meliker received his PhD and MS from the University of Michigan School of Public Health and his BA in Neuroscience from Oberlin College.



Klaus Mueller, PhD

Klaus Mueller is currently a professor in the Computer Science Department at Stony Brook University and is also a senior adjunct scientist in the Computational Science Initiative at Brookhaven National Labs. He received an MS in Biomedical Engineering and a PhD in Computer Science, both from The Ohio State University. His current research interests are visualization, visual analytics, data science, medical imaging, and high-performance computing. He won the US National Science Foundation

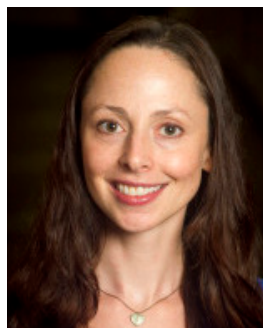
CAREER award in 2001, the SUNY Chancellor Award for Excellence in Scholarship and Creative Activity in 2011, and the IEEE Meritorious Service Award in 2016. Mueller has authored more than 170 peer-reviewed journal and conference papers, which have been cited more than 7,500 times. He is currently an Associate Editor-in-Chief of IEEE Transactions on Visualization and Computer Graphics, and he was until recently the chair of the IEEE Technical Committee on Visualization and Computer Graphics. Klaus is a senior member of the IEEE.



Janet Nye, PhD

Janet Nye is a quantitative fisheries ecologist, using mathematical and statistical methods to study fish populations and coastal ecosystems. Although she has conducted research on a variety of issues in fisheries ecology, Dr. Nye's current research is focused on how climate variability and anthropogenic climate change affects marine ecosystems and fisheries. Her past research examined shifts in spatial distribution of fish in response to warming water temperatures and fishing. Dr. Nye's

current research seeks to understand how large scale climate variability (like the NAO and AMO) translates to more local oceanographic processes and how those processes influence North Atlantic ecosystems. Naturally, the study of how historic climate variability has affected ecosystems sparked her interest in how future climate change may affect ecosystems. Dr. Nye works with climate scientists using global climate models to project changes in abundance and distribution of living marine resources. Although her current research focuses on climate variability and change, an important emphasis of her work is to look holistically at the many drivers of environmental change such that her research can be used to inform ecosystem-based management.



Christine O'Connell, PhD

Christine O'Connell is an expert in the field of science communication, policy, and engagement. She provides strategic direction to grow non-profit and academic organizations, research initiatives, and environmental and community campaigns. She was the founding Associate Director at the Alan Alda Center for Communicating Science at Stony Brook University where she helped create and build the Center and its curriculum to international acclaim. She led the growth of many of the Alda Center's

flagship programs and under her direction, the Alda Center's workshop program trained thousands of scientists worldwide to be more effective communicators. Dr. O'Connell received her BS from Cornell University, and PhD in Marine and Atmospheric Sciences at Stony Brook University. She currently teaches and builds research and curriculum initiatives at the Alda Center and is an Assistant Professor in the School of Journalism. She is an affiliate faculty member in the School of Marine and Atmospheric Sciences, Institute for Advanced Computational Science, and the Women in Science and Engineering (WISE) program. Her research focuses on best practices in science communication, science policy, and women in STEM. She runs an international research collaboration with Australia National University on communication challenges and stereotypes for women in STEM, where she is a visiting Associate Professor. She recently organized and lead two sessions at the 2018 Annual AAAS conference on Imposter Syndrome and communication opportunities and challenges for women in STEM. In 2018, Christine was named a Women InPower fellow (www.womeninpower.org), a NY based fellowship for rising leaders in business, nonprofits, law, arts, technology, philanthropy, science, and higher education.

Dr. O'Connell created and piloted a new course this year as part of the STRIDE certificate, Communicating to Decision Makers, where she taught students how to connect with policy makers about their research in clear, concise and engaging ways. She also designed an exciting new interactive mentoring workshop with STRIDE Program Coordinator, Jennifer McCauley, PhD for STRIDE faculty and trainees. Dr. O'Connell has given several brown bag presentations for STRIDE faculty and students on storytelling and women in STEM, and is the faculty advisor for the STRIDE student blog, www.scienceappliance.org. She is also an integral part of the STRIDE evaluation and planning teams.



Jason Trelewicz, PhD

Jason Trelewicz is an associate professor of Materials Science and Engineering with a joint appointment at the Institute for Advanced Computational Science. His research explores the science of interface engineered alloys using in situ and analytical characterization tools coupled with large-scale atomistic simulations to design materials for extreme environment applications. Trelewicz received his PhD in Materials Science and Engineering from the Massachusetts Institute of Technology. Prior to

joining the faculty at Stony Brook University, he spent four years as Research Director at MesoScribe Technologies, Inc., responsible for managing the development of harsh environment sensor technologies produced by additive manufacturing processes. Professor Trelewicz is a recipient of the 2017 DOE Early Career Award and 2016 NSF Faculty Early Career Development (CAREER) Award. He was also selected as the Inaugural Recipient of the Fusen and Yijun Chen Prize for Innovative Research in 2018, received the 2015 TMS Young Leader Professional Development Award, and selected as a TMS representative for the 2014 Emerging Leaders Alliance Conference.

FACULTY



Laura Wehrmann, PhD

Laura Wehrmann is an assistant professor within the School of Marine and Atmospheric Sciences. She earned her PhD at the Max Planck Institute for Marine Microbiology in Bremen, Germany. Her research focuses on several aspects of (bio)geochemical element cycling in marine systems, ranging from subseafloor sediments to glacially influenced fjords. She is specifically interested in the drivers of early diagenetic processes and the connections between different element cycles, e.g., the carbon, sulfur, and iron

cycles. She also investigates the response of microbially mediated processes in the deep sub-seafloor biosphere to changing (paleo) environmental conditions over different temporal and spatial scales. Her work combines classical inorganic geochemical techniques with stable isotope analyses and the application of radiotracer methods.



Thomas S. Woodson, PhD

Thomas S. Woodson is an assistant professor at Stony Brook University in the Department of Technology and Society. He specializes in science and technology policy and international development. For his current projects, Thomas is investigating the effects of technology on inequality throughout the world and the emergence of science and technology universities in Sub-Saharan Africa.

Thomas received his Ph.D. from the Georgia Institute of Technology (Georgia Tech) in public policy with a specialization in science and technology policy. While at Georgia Tech, he was a part of the Technology Policy Assessment Center and the Center for Nanotechnology in Society at Arizona State University. At these centers, he investigated the effects of nanotechnology on inequality and poverty throughout the world. Thomas received numerous awards while at Georgia Tech including the Georgia Tech Presidential Fellowship and the NSF Graduate Student Fellowship.

Before arriving at Georgia Tech, Thomas lived in Africa. For 18 months Thomas worked with college students, refugees and orphans in South Africa. Then, he worked in Burkina Faso as a visiting research fellow at the International Institute for Water and Environmental Engineering (2iE). At 2iE, he designed, built and tested an earth air heat exchanger for rural West Africa villages.

Thomas received his B.S.E. at Princeton University. He studied electrical engineering with a focus in electrical materials. Thomas and his wife currently reside in Stony Brook, NY although he was born and raised in Texas. In his spare time, Thomas does triathlons. His current goal is to complete a full Ironman Triathlon.

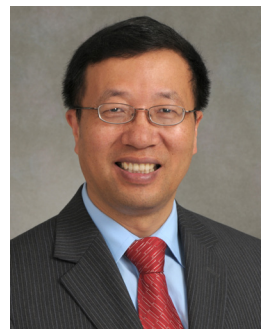


Erez Zadok, PhD

Erez Zadok earned his PhD from Columbia University in 2001. Erez Zadok's research focuses on operating systems, with a specialty in file systems, storage, and security. He studies operating systems and file systems from many aspects: security, efficiency, energy use, scalability, reliability, portability, survivability, usability, ease-of-use, versatility, flexibility, and more. Special attention is given to balancing five often-conflicting aspects of computer systems: performance, reliability, energy use,

security, and ease-of-use. Since joining the faculty of Stony Brook in 2001,

Zadok and his group in the Filesystems and Storage Lab (FSL) developed many file systems and operating system extensions; examples include a highly-secure cryptographic file system, a portable versioning file system, a tracing file system useful to detect intrusions, a replaying file system useful for forensics, a snapshotting and sandboxing file system, a namespace unification file system, an anti-virus file system, an integrity-checking file system, a compiler to convert user-level C code to in-kernel efficient yet safe code, stackable file system templates, and more. Zadok's research has been supported by several NSF grants including an NSF CAREER award, two IBM Faculty awards, two NetApp awards, and several equipment gifts. Zadok is the winner of the 2004 Computer Science Department bi-annual Graduate Teaching Award, the winner of the 2006 Computer Science Department bi-annual Research Excellence Award, and a recipient of the 2008 SUNY Chancellor's Excellence in Teaching award. Zadok's lab exposes students to internals of over a dozen different operating systems. Zadok co-chaired several conferences and is on the steering committee of some (e.g., ACM SYSTOR, USENIX FAST), as well as on the editorial board of ACM TOS. Zadok is the author of "Linux NFS and Automounter Administration" (Sybex, 2001). Zadok's published several dozen conference and journal articles in the past few years—in IEEE, ACM, and Usenix venues; three papers won awards. Zadok is named inventor on four U.S. patents. Zadok is now the Graduate Academic Adviser at Stony Brook's CS department.



Minghua Zhang, PhD

Minghua Zhang is an expert on climate modeling. He was Director of the Institute for Terrestrial and Planetary Atmospheres for ten years, Dean and Director of the School of Marine and Atmospheric Sciences for six years. Dr. Zhang's research focuses on numerical modeling of climate and global climate change. It includes development and analysis of physical parameterizations in general circulation models, diagnostic study of feedback processes in the climate system, understanding of past and future climate

changes, by using models and measurements from satellites and other sources. His research on model development focuses on moist processes related to clouds, radiation, convections, boundary layer turbulence, and their interactions, with the goal of improving global models to more accurately predict climate change on a wide range of time and spatial scales. He has also participated in several field large-scale atmospheric field experiments and developed a variational method to integrate heterogeneous measurements from multiple measurement platforms with results used by most major climate modeling centers in the world. He also does research on the dynamics of large-scale atmospheric waves, such as their excitation, propagation, dissipation, and interaction with atmospheric circulations

Dr. Zhang has authored more than 150 papers and two books on climate and atmospheric sciences. He has served on many editorial boards, including as Editor of the Journal of Advances in Modeling Earth Systems (JAMES), and Editor-in-Chief of the Journal of Geophysical Research (JGR)-Atmospheres. He has also served on many advisory and professional committees, including the Advisory Committee of the US Department of Energy on Biological and Environmental Research (BERAC), the Steering Committee of the International Global Water and Energy Cycle Program (GEWEX). He is an elected member of the Eurasian Academy of Sciences, Fellow of American Meteorological Society, and a co-recipient of the 2007 Nobel Peace Prize for his work with the Intergovernmental Panel on Climate Change (IPCC).

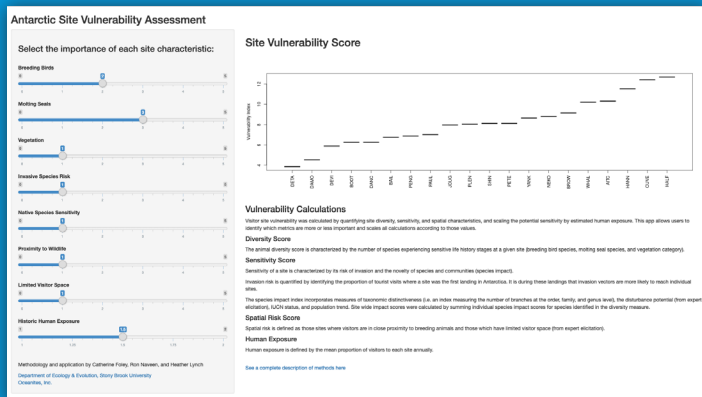
SCIENTIFIC DECISION SUPPORT

Scientific Decision Support (MAR 534) is one of the innovative courses developed specifically for the STRIDE program. In this interactive course, professional government and industry scientists as well as policy makers and other decision makers present and lead discussions on the challenges associated with decision support in their respective fields. A wide range of decision support systems are explored, ranging from decision making in public health, natural resource management and climate adaptation, as well as exploring different career paths and work environments involved in scientific decision making.

Seminars were presented from scientists at NOAA, NASA, NIH, DOE, Global Electric, IBM, and CDC laboratories, also from officials of multiple local, state, and federal agencies. Vivian Fisher, a Suffolk County legislator was a guest lecturer, as was Dr. Paul R. Marantz, a Professor of Epidemiology and Population Health and Medicine and the Associate Dean for Clinical Research Education at the Albert Einstein College of Medicine in New York.

In its first semester, this course enrolled 16 graduate students in addition to a number of faculty and postdocs who audited the course out of interest.

EXAMPLES OF AVAILABLE DECISION SUPPORT TOOLS FROM THE LAB OF HEATHER LYNCH



Calculation of Antarctic Tourist Site Vulnerability

Visitor site vulnerability was calculated by quantifying site diversity, sensitivity, and spatial characteristics, and scaling the potential sensitivity by estimated human exposure. This app allows users to identify which metrics are more or less important and scales all calculations according to those values.

The app is located at https://cmrfoley.shinyapps.io/site_sensitivity_app_v2/.



Mapping Application for Penguin Populations and Projected Dynamics

The MAPPD website is located at <http://www.penguinmap.com>, and it has now been live for public use for nearly two years. The database underlying MAPPD includes all available (published and unpublished) data on the four Sphenisciforme penguins for the region south of 60° S (Emperor; Aptenodytes forsteri; Gentoo; Pygoscelis papua; Chinstrap; P. antarctica; and Adélie penguins; P. adeliae). A Bayesian population model was developed to integrate all available data to estimate penguin abundance for each site and for each year since 1982; estimates are easily aggregated across multiple sites to obtain abundance estimates over any user-defined area of interest. Our website is now in wide use in the Antarctic community. While decision makers were our primary end user at the beginning of the project and remain one of our biggest user groups, we have been surprised by the usage among other scientists and by educational groups interested in penguin biology. The paper describing the MAPPD interface, which was published in Polar Records, has been cited numerous times just in the time since its first launch, and an increasing number of scientists are using MAPPD regularly as a research tool.

ADVISORY BOARD



Kirk E. Jordan, Ph.D.

kjordan@us.ibm.com

Dr. Kirk E. Jordan is an IBM Distinguished Engineer in the DataCentric Solutions organization at IBM T.J. Watson Research Center, an IBM Technical Executive position in IBM's Research Division, and is the Chief Science Officer for IBM Research UK responsible for high performance computing (HPC) direction and strategy. Dr. Jordan is also a member of the IBM Academy of Technology. He has a Ph.D. in Applied Math and has held computational science positions at Exxon R&E, Argonne National Laboratory, Thinking Machines and Kendall Square Research before joining IBM in 1994. A Research Affiliate in MIT's Department of Aeronautic and Astronautics, he holds leadership positions in SIAM, is a member of the Committee on Science Policy, and is a SIAM Fellow. He is also a Fellow of AAAS. He is a Visiting Scientist in the Scientific Computing Department of the Science and Technology Facilities Council in the United Kingdom. He is on several boards including the Board of Visitors for the Institute Computational Engineer and Science at the University of Texas at Austin and the National Advisory Committee of the Statistical and Applied Mathematics Institute in North Carolina.



Bonita London, Ph.D.

bonita.london@stonybrook.edu

Dr. London's research examines how individuals perceive, experience, and negotiate their social and academic worlds, both through the lens of their social identities (e.g., race and gender), and through their individual competence beliefs (e.g., do I have the skills and ability to succeed?).

Dr. London developed the social-cognitive Sensitivity to Gender-Based Rejection model for women (London, Downey, Romero-Canyas, Rattan, & Tyson, 2012) to explore the dynamic interaction among individual and situational/contextual factors that can both interfere with or facilitate the successful achievement and well-being outcomes of members of traditionally marginalized or stigmatized groups. Her research on Gender-based Rejection Sensitivity (Gender RS) explores individual differences in how women anticipate, perceive and cope with gender-based evaluative threats in select contexts.



Christopher Martinez, Ph.D.

cmimartinez@ucdavis.edu

Christopher Martinez's research concerns the diversity of fish forms and its implication for lifestyle variation. He is interested in understanding the evolutionary processes involved in morphological diversification and the extent to which shape impacts function and performance. He has worked with a number of systems, from sexual dimorphism in skate pectoral fins to co-variation of body and jaw shapes in cichlids. At University of California Davis, he is using geometric morphometrics to study cranial kinesis in cichlid fishes as a novel way to understand their trophic evolution and niche segmentation.



Carlos Medina, Ed.D.

Carlos.Medina@suny.edu

Dr. Carlos Medina is a Vice Chancellor and the Chief Diversity Officer at the State University of New York (SUNY). He is charged with leading SUNY's efforts in promoting and advancing the University's diversity goals and ensuring that they are properly captured within all university policies and procedures. He provides leadership and strategic direction to SUNY campuses in connection with the recruitment and retention of faculty, staff and administrators who come from groups within our society that are underrepresented in higher education and in SUNY.

He received his B.S. in Education from the State University of New York, College at Cortland, M.P.S. in Human Services Administration from Cornell University and his Doctorate in Education from St. John Fisher College. Dr. Medina has more than 25 years of progressive responsibility in state government and higher education with proven experience in leadership, management, and staff development.



Mark Montgomery, Ph.D.

mark.montgomery@stonybrook.edu

Mark R. Montgomery is a population researcher in the Population Council's Poverty, Gender, and Youth program, and is a professor in the Economics Department at Stony Brook University. He studies the increasing urbanization of the world's population.

Before joining the Council in 1993, Montgomery was in the Office of Population Research at Princeton University and was a Rockefeller Foundation senior fellow at the University of Lagos. He is a member of the Population Association of America and the International Union for the Scientific Study of Population. He also sits on numerous editorial and advisory boards, e.g. the *Journal of Urban Health*; the Wittgenstein Center for Demography and Global Human Capital; the Urban Health Resource Centre in New Delhi, India; and the Integrated Demographic and Health Surveys Project (I-DHS) and the Minnesota Population Center.



Cynthia Peterson, Ph.D.

cbpeterson@lsu.edu

Dr. Peterson, Louisiana State University's College of Science's first female dean, earned a B.S. in biochemistry at LSU, followed by a Ph.D. in biochemistry from the LSU Medical School in Shreveport. She then pursued postdoctoral training at the University of California, Berkeley. She formerly was a professor in the Department of Biochemistry and Cellular and Molecular Biology and associate dean of academic personnel in the College of Arts and Sciences, University of Tennessee-Knoxville.



Ellen K. Pikitch, Ph.D.

ellen.pikitch@stonybrook.edu

Dr. Ellen K. Pikitch is Executive Director of the Institute for Ocean Conservation Science and Professor at Stony Brook University School of Marine and Atmospheric Sciences. She is an international expert in ocean conservation science and management whose research has focused on the assessment of fish stocks, the management of bycatch, and ecosystem-based fishery management. Dr. Pikitch spearheaded the first scientific consensus on ecosystem-based fishery management, which was published in the journal *Science* in 2004, and she is Chairperson of the Lenfest Forage Fish Task Force, which will develop scientific recommendations to sustainably manage forage fish using an ecosystem approach.

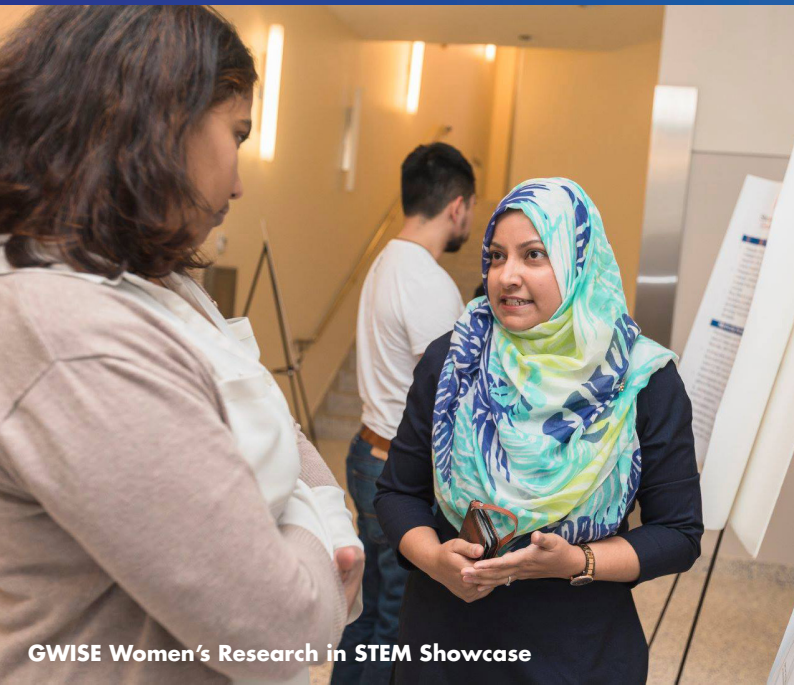


Robert Tribble, Ph.D.

rtribble@bnl.gov

An experimental physicist whose work spans a broad range of topics, Tribble has conducted groundbreaking research exploring fundamental symmetries, the Standard Model, nuclear structure and reactions, nuclear astrophysics, and proton spin. He is widely credited with developing new tools and techniques that have advanced the field, and has also served as a member or chair of numerous long-range planning committees for the American Physical Society (APS) and the Nuclear Science Advisory Committee (NSAC, an advisory committee for the Department of Energy and National Science Foundation).

Tribble earned his B.S. with honors in Physics from the University of Missouri, Columbia (1969), and his Ph.D. from Princeton University (1973). He joined the Texas A&M University faculty in 1975, served as Department Head of Physics 1979-87, has been a Distinguished Professor at Texas A&M University since 2010, and has served as Director of the Cyclotron Institute since 2014.



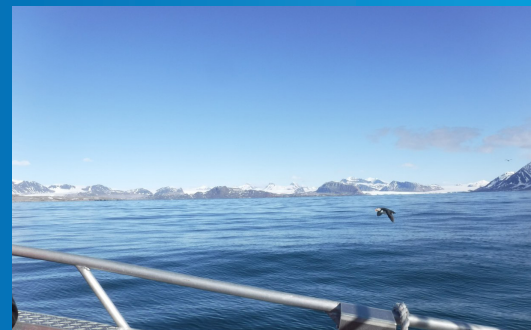
GWISE Women's Research in STEM Showcase



Women in STEM High School Tour



STRIDE-Con





STRIDE-Con



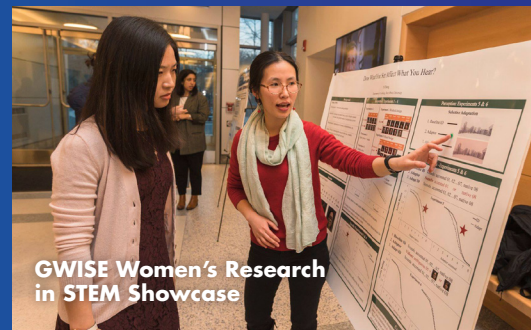
GWISE Women's Research in STEM Showcase



GWISE Women's Research in STEM Showcase



Women in STEM High School Tour



GWISE Women's Research in STEM Showcase



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