

# uncg research

Spring 2022

Research, Scholarship, and Creative Activity

## GROUND WORK

Local knowledge,  
real change **p10**





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*Cover: St. Phillip Garden of Peace acting farm manager  
Nathan Lewis with Dr. Etsuko Kinefuchi*



## PARTNERSHIPS.

It's the first sentence of our cover feature story.  
And it's a lifeline running through UNCG research  
and scholarship.

Just look at the breadth, depth, and longevity of  
the partnerships highlighted in this one issue.

With nonprofits, businesses, and faith  
communities like the Beloved Community Center,  
Communities in Schools, Disney, El Futuro, Greensboro History Museum,  
Greensboro's Magnolia House, Guilford Urban Farming Initiative,  
Montagnard Dega Association, Neighborhood Markets, St. Phillip AME  
Zion Church, and World Health Organization.

With educational institutions and public entities, like Dudley High  
School, Duke, Hillsborough Police Department, Greensboro Public  
Libraries, Guilford County Prison Farm, Johnson C. Smith University,  
Maria Mitchell Observatory in Massachusetts, UNC Chapel Hill, and  
UNC Charlotte.

With funders like the National Archives, National Communication  
Association, National Endowment for the Humanities, National Institutes  
of Health, National Institute for Standards and Technology, and the  
National Science Foundation.

And last but by no means least – between faculty and the  
undergraduate and graduate students who play critical roles in the  
generation of new knowledge.

Partnership and collaboration are fundamental to the teacher-scholar  
model that makes our university so special.

Whatever your definition of the characteristics of a good partnership –  
trust, transparency, mutual benefit, respect, reciprocity, common vision  
or goals or values – you'll find them in abundance in this issue's stories  
and across UNCG. Bridging communities and crossing borders and  
disciplinary boundaries.

Partnerships take more work, can take more time, and can be messy.  
They're not for the faint of heart.

But as the proverb says: "If you want to go fast, go alone. But if you want  
to go far, go together."

We are going far.

**TERRI L. SHELTON, PHD**  
Vice Chancellor for Research and Engagement

UNCG Research is online. Enjoy additional photography, shareable stories, and  
more at [researchmagazine.uncg.edu](https://researchmagazine.uncg.edu).



## FEATURES



### Words Into Action

Community starts with communication. A new center tackles food security, democracy, and social justice issues – with the end goal of cultivating more resilient communities.



### Press Start to Begin

In high pressure situations, first responders need all the information they can get. What if they had it at their fingertips – or right in front of their faces? A computer scientist prepares augmented reality interfaces for a safer, better future.



### A History with Herbert

Seventeenth-century poet George Herbert and UNCG go back a ways. Meet the University's internationally renowned Herbert scholar and peek into our world-class collection.

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# uncg research

## DEPARTMENTS

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A Dudley High School senior practices taekwondo with grad student Yongsun Lee, as Coach Darlene Mitchell and Dr. Michael Hemphill look on.





## RESTORING PEACE

A rare moment of quiet falls over the dozen Dudley High School freshmen seated in a circle in Coach Mitchell's physical education class. It's Tuesday, so the class is being led by UNCG's Michael Hemphill, Jeremy Rinker, and Omari Dyson.

Rinker, an associate professor of peace and conflict studies, has asked the students to share an example of a hero in their lives.

"My mother," the first student answers. "She works and then comes home and cooks us dinner."

As they move around the circle, each student has a chance to share. The goal is to build trust, so everybody feels safe, respected, and included. "At the start of each year, most people aren't comfortable sharing, but over time, as we build relationships, they trust us and each other enough to open up," says Rinker. These relationships are foundational to the practices of restorative justice – a collaborative and peacemaking approach to conflict resolution.

This is the final year of a three-year curriculum designed by Dr. Hemphill, Dr. Rinker, and Dr. Dyson to introduce restorative justice to Dudley High School students.

"Communities in Schools is a dropout prevention nonprofit that is embedded in schools five days a week," Hemphill explains. "Through our contact with them, we found that a lot of Dudley students were ending up at in-school suspension. Our partnership with Communities in Schools and Dudley High School aims to change the school climate from punitive to restorative, so kids feel safe and like they're part of a community, even when they make mistakes."

Ultimately, Hemphill says, this assets-based approach, which builds on the strengths and perspectives of children in the community, should reduce suspensions and dropouts and help students develop conflict resolution skills they will take through life.





**“During partner drills, students can check if their partner is ready to hold a punch or kick pad before starting, and punch and kick more strongly only with their partner’s permission,” says Lee. “Knowing how to interact with others in positive ways is an essential factor for peace.” The doctoral student came to UNCG from South Korea to study kinesiology and youth sport development.**

Restorative justice’s values could be taught in any class, but Hemphill, an associate professor of kinesiology, realized a golden opportunity in the PE elective. “To graduate from high school in NC, you have to take health and PE, and our state’s essential curriculum standards prioritize teaching conflict-resolution skills,” he says. “Students typically take PE in the 9th grade, so over the course of a few years, you can impact an entire high school.”

The three-part class meets twice a week. After circle time, students work with Yongsun “Sun” Lee, a doctoral student and taekwondo instructor, to practice the restorative values they’ve learned while they learn taekwondo fundamentals. “I emphasize bowing to partners before and after drills as a way to show respect and trust,” Lee says. “And I ask students to share the ways they show respect in school, home, or community – and in physical education.”

Lee points out that, while many Westerners think of martial arts as the art of fighting, the Chinese character “wu,” which is often translated into the word “martial,” means to put down weapons. “The true meaning of martial arts practice is to seek peace by knowing how opposite forces, like peace and conflict, can be interrelated.”

The class ends with a final, more informal circle where students give a shout-out to others who exhibited values they talked about. “The second circle ensures we’re hearing the perspectives of everybody – the loud kids and the shy kids,” Rinker says, and it verifies the kids’ understanding of new concepts.

In a recent article published in the *Journal of Teaching in Physical Education*, the researchers identified pedagogical strategies that were effective. These included “listening, building community, and healing circles in response to interpersonal and structural conflict or harm,” Hemphill says. Success was tracked by documenting how students connected the lessons they learned to other aspects of their lives. “Transfer is the important thing – when young people take these values beyond the context of PE and apply them in their school, communities, and homes.”

Darlene Mitchell, who heads up Dudley’s PE department, believes these restorative justice practices are especially

important as the students return to school following the pandemic. “COVID has done a number on these kids, mentally. They hold a lot of things in, and they don’t trust just anybody,” she says. “When kids keep things bottled up, the smallest conflict causes them to explode. This program has given them a space where they feel comfortable opening up.”

The class meets in the last academic period of the day. “During fourth block, it’s hard to keep their attention,” Mitchell says. “I’ve seen a major difference in how students responded during this class. Kids have really taken to it, and they’re engaged and respectful. When I step in to observe, I notice that the students are expressing themselves. I absolutely love it.”

As their UNCG-funded project comes to a close, Rinker, Hemphill, and Dyson are pursuing opportunities to scale their curriculum to other schools.

“I wish every high school kid could take this class,” says Mitchell. “When students don’t understand or know how to handle conflict, it’s difficult when they become adults. Now, when they graduate and go out into the real world, they’ll remember what they learned.”

*by Robin Sutton Anders • learn more at [restoriueyouthsports.uncg.edu](https://restoriueyouthsports.uncg.edu)*



A man with a shaved head and a friendly smile, wearing a red V-neck sweater over a collared shirt and tie, is standing next to a whiteboard. He is holding a green marker and has just finished writing the Arabic phrase 'التعلم باليد' (The learning by hand) in green calligraphy on the whiteboard.

التعلم باليد

## learning by hand

Learning a new language seems like a matter of the mind, but the body matters more than you think.

That's what Assistant Professor Robert Wiley – director of the Cognitive and Neural Science of Learning Lab – discovered during a recent study he conducted. He gathered 42 people between the ages of 18 and 35 and asked them to learn 20 Arabic letters over the course of several weeks. None of them knew Arabic before they started the study.

He then split the group into three categories. The first learned Arabic characters by looking at them on a screen and hearing the letters pronounced. The second did the same as the first group but matched the letters they saw on their screens with characters on a keyboard – basically typing the letters. The last cohort had to write out the letters onto paper. The group that did the best?

"The overall pattern showed that the writing group clearly wins," says Wiley.

Subjects were tested on identifying and writing letters, spelling words, and reading words out loud. In every instance, the group that learned by handwriting outperformed the others.

"The more ways you can learn something the better. Handwriting makes the letter richer because you're involving your body in another way," Wiley says. "The basic idea is that the way we think about things is tied to our body, to our senses. We're not just minds floating in space. It's about making connections across modalities – motor with visual, what you're hearing, what you're speaking. Letters are all of those things."

Part of the reason why Wiley picked Arabic for his study is because of his own history with the language. He completed his bachelor's and master's degrees in Arabic and went on to teach French and Arabic in the years after college. What he learned from teaching students impacted how he conducts his studies.

"I would find that ten percent of students every year would make wild mistakes," Wiley explains. "So when I started looking at psychology for my higher education degrees, I was very much motivated by trying to understand how people learn languages."

His findings were published in the flagship journal for the Association for Psychological Science last July. The study was conducted at Johns Hopkins University, where Wiley completed his doctorate and a Distinguished Science of Learning Fellowship. "A lot of my work there was part of a multisite NIH study on post-stroke aphasia and how strokes cause spelling deficits."

Wiley next hopes to look at whether the way people write letters impacts their retention.

"How people write letters varies," he says. "We have all this evidence that handwriting matters – maybe how you write also matters."

Wiley says these findings may indicate the way many adults learn new languages is flawed. With the proliferation of apps like Duolingo and even Rosetta Stone, handwriting is lost and that can mean taking longer to learn a new language, he says.

"For adults, if you're trying to learn a new language, you should really incorporate handwriting."

by Sayaka Matsuoka • learn more at [go.uncg.edu/r-wiley](https://go.uncg.edu/r-wiley)







# Secrets of an ancient grain

Dr. Ayalew Ligaba Osená grew up on a farm in Ethiopia, where his family raised crops including tef – a grain that’s vital to his home country.

Today, as a plant physiologist and molecular biologist at UNCG, Osená is working to unlock the secrets of this versatile and largely unknown crop.

*Eragrostis tef*, commonly known as tef or teff, is an annual grass crop that produces a tiny seed about 150th of the size of a wheat grain. The plant is native to Ethiopia, where it’s a staple food crop that’s ground into flour to make fermented, spongy flat bread known as “budeena” in Osená’s native language Afan Oromo or “injera” in Amharic.

Tef has gained a foothold in the United States, where it is mostly grown as a forage grass to feed animals. But as an orphan crop – one that isn’t produced globally – it gets scant attention from scientists and funding agencies.


“Tef is a very interesting crop,” Osená says. “It has many essential traits, but also challenges.”

Among tef’s benefits: It’s packed with essential minerals like calcium, iron, and manganese, and vitamins and amino acids. It’s gluten-free, low in sugar, and high in fiber. It thrives in most soil types and tolerates most weather conditions.

But tef is temperamental. It’s susceptible to lodging – tef’s slender stalks can bend before the plant matures. The seeds can also shatter – dropping right off the plant before it’s threshed. Both conditions can dramatically reduce yields, which are already extremely low compared to wheat, corn, and other staple U.S. crops.

Osená intimately knows the challenges of tef. As a child, he spent untold hours with traditional hand tools tending to his family’s crop, before and after long walks to and from school. Now, as a researcher whose studies have taken him from Ethiopia to Germany, to Japan, and to America, he hopes to develop technologies to help tef growers globally.

“Using human cell studies, in collaboration with Cornell University, we showed that iron stored in tef is more bioavailable than that of wheat and rice grains. About 3.5 ounces of tef bread should meet the NIH-recommended daily iron intake for adults aged 19-50.”



Dr. Osená’s research group brings the latest advances in molecular biotechnology to food crops. They are genetically modifying rice (center photo), tobacco plants, and tef (bottom photo), to address issues of nutrition, health, and food security. In the top inset photo, Osená (right) works with undergraduate Colt Russell on a project to create more heat-tolerant crops that can survive global warming.



In his three years at UNCG, Osen (left) has mentored more than 25 undergraduates, providing them with the opportunity to participate in advanced molecular biotechnology research. With support from an NIH MARC U-STAR fellowship, senior Jade Lyons (right) is working to improve the vitamin content of the root vegetable cassava. Sophomore Daniel Staples (center) and senior Russell (previous page) are on projects to develop more heat-tolerant crops, with the help of genes from heat-loving species of red algae and archaea.



Working with UNCG biologist Dr. Zhenquan Jia and chemist Dr. Nicholas Oberlies, he has found that tef grain extracts have antioxidant properties in human cells, meaning the grains might relieve oxidative stress and impact diseases like diabetes, cardiovascular disease, and cancer. This year, he received \$427,800 in National Institutes of Health funding to further investigations of tef grains and tef straw, which could have benefits on human and animal health, respectively.

Osen also is investigating the genetic mechanism by which tef plants acquire minerals from soil and store them in seeds. Findings here could lead to the transfer of tef genes into other more widely consumed grains such as rice, wheat, and corn, to increase their mineral content.

As more people in the United States discover the benefits of tef, Osen hopes it will attract more research funding and growers. “To meet current demands from over 323,000 Ethiopian and Eritrean immigrants in the U.S. – as well as people on gluten-free and low-glycemic index diets – we’re importing the grain,” he says.

“With recent advances in molecular genetics and genomics opening new avenues for researchers, tef deserves more attention.”

by John Newsom • learn more at [biology.uncg.edu/osena-lab](http://biology.uncg.edu/osena-lab)

# AWARDS ADD UP

Numerical analysis is hitting its stride at UNCG.

Two researchers dedicated to the subfield recently won two prestigious NSF grants in support of their work. The three-year grants, won by less than one-third of mathematics applicants, are a particularly unusual accomplishment for more “pure” research in an applied field.

Dr. Tom Lewis and Dr. Yi Zhang work in computational applied math, a branch of mathematics that uses computers to attack all kinds of scientific problems, from how fast cancer cells can spread and how populations grow and decay, to how metals conduct heat and how gravitational fields affect objects in space.

Such problems can be described with partial differential equations, which show how changing variables relate to each other. Usually partial differential equations describing real phenomena do not have known solutions, so numerical analysts like Lewis and Zhang generate approximate solutions under specific sets of conditions.

Many applied mathematicians spend their careers working closely with engineers – writing code to find approximate solutions to partial differential equations for specific applications. But Lewis and Zhang go deeper: They’re hoping to change the methods applied mathematicians use.

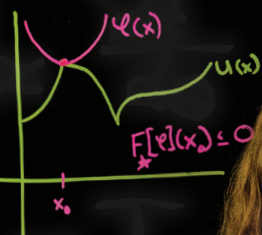
Analysts and engineers often use something called monotone methods to handle a particularly challenging class of partial differential equations. These methods require a lot of heavy lifting to find solutions, with complicated code required for each specific problem. Lewis is working to replace monotone methods with “narrow-stencil methods,” using an idea that began with Lewis’ PhD advisor, who was later also Zhang’s postdoctoral supervisor.

While the 1991 proof that monotone methods would work was relatively straightforward, Lewis and his advisor’s 2021 paper for their new narrow-stencil method took 39 pages in a top journal where papers are usually capped at 20 pages. Basically,



$$F[u](x) \equiv F(\partial^2 u, \nabla u, u, x) = 0 \quad \forall x \in \Omega,$$

$$u(x) = q(x) \quad \forall x \in \partial\Omega.$$



$$\hat{F}[u, x] = 0 \quad \forall x \in \mathcal{T}_h \cap \Omega,$$

$$u_a = q(x_a) \quad \forall x_a \in \mathcal{T}_h \cap \partial\Omega,$$

$$\Delta u_a = 0 \quad \forall x_a \in \mathcal{S}_h,$$

$$\hat{F}[u] = F(\partial^2 u, \nabla u, u, x_a)$$

$$\hat{F}(p, p, q, u, x) = F(p, q, u, x)$$

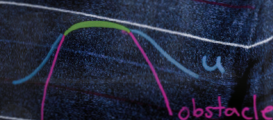
$$\tilde{\partial}_{h,h}^2 = \tilde{\partial}_{h,h}^+ \text{ SPD}$$

Minimize  $J(y, q)$

subject to  $\begin{cases} -\operatorname{div}(b(x)\nabla y(x)) = q(x) \\ y(x) = 0 \end{cases}$

with  $y(x) \leq \psi(x)$   
a.e.  $x \in D$

with  $J(y, q) \equiv \frac{1}{2} \int_D (y(x) - y_d(x))^2 dx + \frac{\beta}{2} \int_D q(x)^2 dx.$



$$B_h(u_h, v_h - u_h) \geq (f, v_h - u_h) \quad \forall v_h \in K_h^r$$

where  $B_h(w, v) = \frac{1}{2} [(\nabla_{h,0}^+ w, \nabla_{h,0}^+ v) + (\nabla_{h,0}^- w, \nabla_{h,0}^- v)]$   
 $+ \sum_{e \in \mathcal{E}_h} \frac{p_e}{h_e} \langle [w], [v] \rangle_e$

they trade onerous coding and an ‘easy’ proof for an onerous proof with ‘easy’ coding.

This approach could completely change the field. Lewis says just about “anyone can code” narrow-stencil methods, including undergraduate students.

“We basically broke analytic barriers that’ve been around since the ‘90s,” Lewis says. “There’s top research that implies what we’re doing is not feasible, and we proved that it was.”

Lewis and Zhang (above) are also creating new versions of methods that analysts have used since the 1970s to address so-called optimization problems. Think: minimizing cost or energy or maximizing a certain outcome in a complex system.

With their new funding, Lewis and Zhang will further develop these “penalty-free” methods and work to demonstrate their reliability and efficiency in solving industry problems. They’ll also apply

both narrow-stencil and penalty-free methods to expanding classes of partial differential equations – with the potential to impact areas ranging from optics to economics.

The grants are another feather in the cap of UNCG’s unique computational math program, which now offers applied-math doctoral students rigorous training in both partial differential equations theory and numerical computing, preparing them for both academic and industrial work.

“Yi and I are basically the numerical group in the computational math program, which means we’re honored to be pioneering and growing that reputation,” Lewis says.

Adds Zhang, “It helps our graduates compete and our department continue to make a name for itself.”

by Yen Duong • learn more at [go.uncg.edu/yi-zhang](http://go.uncg.edu/yi-zhang)  
& [go.uncg.edu/lewis](http://go.uncg.edu/lewis)









# WORDS INTO ACTION

**PARTNERSHIPS.** With the 30-year-old Beloved Community Center, in support of economic, social, gender, and racial justice.

With Neighborhood Markets and the Guilford Urban Farming Initiative, to combat food insecurity.

With the Greensboro History Museum and the Greensboro Library, to elevate civic conversations and make more learning more accessible.

That's what lies at the heart of the National Communication Association's Center for Communication, Community Collaboration, and Change – or NCA-CCCC, which launched at UNC Greensboro in 2019.

Why is NCA-CCCC here? That's thanks to Greensboro's long, proud history of community action and UNCG's reputation for impactful collaborations.

When the NCA announced its largest grant ever – funding communication research involving partnerships between an academic institution and its local community – department head Dr. Roy Schwartzman, Dr. Spoma Jovanovic, and other faculty members in communication studies knew that UNCG was the perfect fit.

"Our university is known for its emphasis on community-engaged research, commitment to service learning, and history of partnerships with local nonprofits," says Schwartzman. The NCA agreed.

With the grant and matching University funding, the team established the NCA-CCCC to build on existing partnerships

– and create new ones. The center's theme: to cultivate resilient communities.

They chose that focus, says Jovanovic, "because we're seeing a lot of social crises that seemed to be chronic, that are really threatening the ability of various populations to thrive."

Large income disparities, food hardship, aggressive voter suppression laws, racial violence, and incidents of insufficiently redressed police violence – all erode confidence in social institutions and threaten the resilience of communities.

These problems cannot be solved from the outside in or the top down.

"We have to build upon the strengths of our community – through people and grassroots organizers," says Jovanovic. "The people are the spark, the ones who have the direct experience, who can say that things need to be different. Tapping into that is how we find the greatest opportunity for progress."

As the NCA-CCCC scholars and their partners began work, the COVID-19 pandemic hit, adding to and amplifying the inequities they hoped to dismantle.

The center theme of resilience seemed almost prescient. "We all had to expand our capacity to address adversity," says Jovanovic.

Fortunately, these are not people who back down from a challenge.



## EVERYBODY EATS

Every Saturday at 7:30 a.m. in a church parking lot in Sunset Hills, next to UNCG's campus, farmers unpack their produce, alongside bakers, relish makers, and meat vendors. A similar group sets up on the other side of campus, in the Glenwood neighborhood, on Thursday evenings.

The two locations joined efforts four years ago to form the nonprofit Neighborhood Markets and launch the Green for Greens program, which allows Supplemental Nutrition Assistance Program – or SNAP – beneficiaries to shop at farmers markets by doubling their funds for fresh food.

The program not only expands who can shop at farmers markets and have access to fresh food, but also boosts the local economy by putting money into the hands of small farmers and entrepreneurs.

In Glenwood, market manager Liz Seymour (photo right) runs the cards and hands out the wooden tokens as co-manager Shante Woody leads the set-up. In Sunset Hills, the work falls to co-managers Kathy Newsom and Stephen Johnson, with assistance from UNCG's Dr. Marianne LeGreco.

For more than a decade, LeGreco has been one of the driving forces behind local food security initiatives, including urban garden projects, fresh food mobile markets, entrepreneurship programs, and culinary workshops.

In 2015, the Greensboro and High Point area was identified as the most food insecure area in the nation. As Green for Greens and similar initiatives were put into place, the area's food insecurity ranking fell by eight percent.

"It's hard to look at some of these things in isolation," LeGreco says. Her 2021 book "Everybody Eats," co-authored with Dr. Niesha Douglas, uses case studies in Greensboro to analyze the infrastructure of food justice. "When we're thinking about food insecurity, it's about building a stronger

system. All of the pieces work together."

Food insecurity has climbed again during the pandemic. The Neighborhood Markets responded by ensuring they were categorized as "essential businesses" that could remain open. UNCG students facilitated listening sessions with vendors and shoppers to identify changing needs, resulting in new options such as online ordering and drive-by pickups.

The scholars also gathered data, finding that the markets boosted financial security and provided community connections – during the pandemic and also during racial and political tensions brought up by instances of police brutality.

"It was a way that people could still gather, decompress, and talk about what was going on," says Newsom. "In some ways it was a payoff for a vision, to be there at a time when the community needed that kind of connection."



## TOOLS OF DEMOCRACY

Through 2020 and 2021, the Greensboro History Museum, with Dr. Jenni Simon, Dr. Christopher Poulos, Dr. Jovanovic, and their students, hosted nine city-wide public conversations on three topics: voting and democratic participation; police, community, and justice; and housing and equity.

They weren't your typical conversations. "The guidelines for Democracy Tables are based on what's called intensive dialogue," explains Poulos, whose research focuses on connections between dialogue, openness, and trust. "Rather than engaging in argument, we speak from our own point of view and listen deeply to others."

They use a three-round structure that begins with conversation about where participants are from and their knowledge base, followed by a deeper dive into the topic, and then a wrap-up and formulation of questions.

"It's storytelling, a personal experience," explains museum curator Glenn Perkins, who received his graduate degree from UNCG (photo left). "So, if the topic is voting, we're asking people to talk about the first time they voted, and why voting is important to them. What are some challenges that they've run into in registering to vote or making sure their vote counts?"

Follow up events with subject experts addressed





## BELOVED COMMUNITY

The Beloved Community Center, which has served the region for over three decades, takes its name from the “Beloved Community” Martin Luther King Jr. spoke of achieving through nonviolent dialogue and universal cooperation.

At noon-time Community Tables and evening events, community members – including local elected officials, business owners, students, and people who are homeless – talk candidly on matters of justice that require collective action. In recent years, discussions have revolved around policing, including what led to the homicides of George Floyd and, locally, Marcus Deon Smith.

“Beloved has a real open-door policy, which means we have to take on really challenging questions and things that divide us,” says Joyce Johnson, who is one of the leaders of the Beloved Community Center, or BCC.

“Despite divisions, we learn how to talk with each other, work with one another, hear each other, to figure out how we share this space on Mother Earth, so that I’m not diminished, and you’re not diminished. So that together we have something that we call the love of community.”

Jovanovic (photo, right), along with her colleagues and students, has worked with the center and conducted research on its actions for over 15 years.

Johnson and her husband Reverend Nelson Johnson (photo above, left and center) are survivors of the 1979 Greensboro Massacre, when five workers’ rights activists were killed. In 2004, the BCC helped establish the Greensboro Truth and Reconciliation Commission to



seek justice for the event – it was the first commission of its kind in the nation and, in 2020, led to the Greensboro City Council releasing an apology. Among the first scholarly products of Jovanovic’s relationship with BCC was her 2012 book “Democracy, Dialogue, and Community Action: Truth and Reconciliation in Greensboro.”

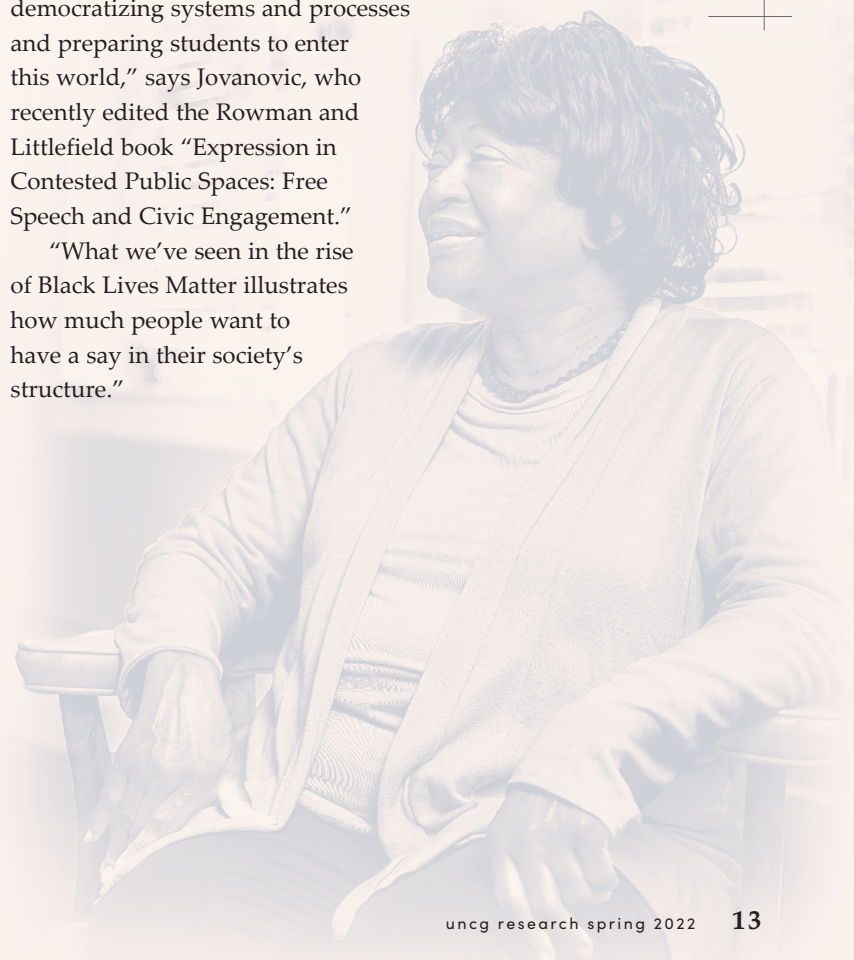
The BCC’s veteran organizers always welcome new voices, so they can share what they’ve learned over time and help facilitate action and understanding. “A lot of the focus has been on democratizing systems and processes and preparing students to enter this world,” says Jovanovic, who recently edited the Rowman and Littlefield book “Expression in Contested Public Spaces: Free Speech and Civic Engagement.”

“What we’ve seen in the rise of Black Lives Matter illustrates how much people want to have a say in their society’s structure.”

questions raised by table participants.

The project aims to engage community members, especially those from underrepresented backgrounds, and to strengthen community leadership – giving citizens tools to influence city policies and governing processes.

Responses from the Democracy Tables and surveys fed into infographics to be shared with decision-makers in Greensboro – and a museum display is under development by a UNCG museum studies graduate student. The researchers also presented their work at a 2021 Smithsonian conference and are preparing a manual for other museums interested in pursuing similar experience-based dialogues.





UNCG faculty and students have helped develop and refine communication strategies and storytelling techniques for BCC.

“Part of the gift of this relationship with UNCG’s communication studies department,” says Johnson, “is that so much of what we do requires communication, storytelling, really listening, hearing, understanding, and then being able to translate that into action.”

Johnson and Jovanovic say that what sets BCC apart is its ability

to keep connecting people and to keep moving society in a more equitable direction, during times of widespread social unrest, through calm periods, and over decades.

“People don’t always intend to be organizers,” says Johnson. “You see something, it hurts you, it touches your heart, and you move. But then you might move on. What Beloved does is provide continuity.”



## DEMOCRATIZATION OF LEARNING

Dr. Cristiane S. Damasceno first participated in the international Learning Circles project when it was piloted at the Chicago Public Library in 2015.

“They’re different from college classrooms, where experts are in charge of things,” she says. Instead, students direct learning together and “group interactions prompt them to cultivate the skills to learn independently.”

Now, Damasceno and her colleagues are working with Greensboro Public Library to host Learning Circles locally.

The project relies on materials and logistical support from Peer 2 Peer University, a global network that developed early Massive Open Online Courses and works with organizations worldwide to promote free access to information and self-guided learning. In the free study groups, a facilitator, who does not need to be a content expert, keeps conversations flowing.

“It’s that open-source model,” says the library’s specialist Beth Sheffield, who manages the program. “You take any kind of class

and come together, access the material, and learn together. The library provides the framework. For us, it’s about how can we make material accessible to people and meet them where they are.”

In the last two years, learning circle topics – chosen through community member surveys – included healthy cooking, American Sign Language, jobs skills, technical support, coding for kids, poetry, and “21 Days of Racial Equity and Social Justice,” which was offered three times because of its popularity.

Circles have been mostly online during the pandemic, but some were offered in person (photo above) at a Greensboro Urban Ministry-managed apartment building for those who have recently experienced homelessness.

The research team has produced reports on the work with recommendations and a training guide, available on the Peer 2 Peer website. “Initiatives like these,” says Damasceno, “are transforming the ways people learn together and redefining the educational landscape for the 21st century.”





## SHARED GROUND

On Martin Luther King Jr. Day in 2021, volunteers broke ground for a neighborhood agriculture project in Southeast Greensboro, with the Guilford Urban Farming Initiative. The land is part of St. Phillip AME Zion Church, a main partner on the project to establish “St. Phillip Garden of Peace.”

“We wanted it to be not only a garden of sustenance, but a place of peace,” explains Pastor Lisa Caldwell, who facilitated the use of the land and involvement of congregant volunteers, many of whom grew up in the neighborhood.

Dr. Etsuko Kinefuchi (photo above) and her UNCG students are volunteering in the garden and conducting surveys with St. Phillip neighbors, to gauge their level of interest in the garden and in farming, and their attitudes about protecting the Earth.

Kinefuchi studies ecological approaches to culture, identity, and communication. “An eco-justice lens is tied to social justice,” she says. “So, the garden is a good way to look at that – food access as a social justice matter, but also ecojustice, cultivating the land sustainably.”

ADA-accessible raised beds stand alongside open in-ground vegetable plots. There’s a greenhouse, and garden designer Brandon King has included areas for a children’s garden, flowers, pollinators, and fruit. Seeds, plants, and supplies come from the agricultural extension office, the Guilford County Prison Farm, and Truist Bank, with the NCA-CCCC filling in some funding gaps.

On workdays, acting farm manager Nathan Lewis and project director Paula Sieber share their knowledge with volunteers about basic gardening and sustainable practices. One goal is to help more people achieve what is known as “food sovereignty” or being able to control their own nutritious, culturally appropriate food supply.

“Most of us aren’t anywhere near food sovereign,” says Lewis, who joined the Guilford Urban Farming Initiative with more than seven years of farming experience. “It starts with saving seeds and using them to grow your own food. It’s not a very common skill anymore, but there are sustainable cycles you can maintain.”

They use organic permaculture methods for pest control and fertilizing, and guild – or companion – planting to support the crops. Composting helps with soil nutrient cycling. “Responsible farming can regenerate the landscape,” says Lewis. “We’re capturing more carbon with the garden.”

Along with volunteer days, the garden hosts tasting events for the neighborhood, to show what can come out of the garden.

“To see people getting healthier, eating better, to see people provide for themselves, has been the journey,” says Caldwell.

by Susan Kirby-Smith • learn more at [cccc.uncg.edu](https://cccc.uncg.edu)

Lead images, pg. 10: People’s Market on Grove Street, St. Phillip Garden of Peace, Democracy Tables event at LeBauer Park



# Illuminating Strengths

*Dr. Gabriela Livas Stein received 2021's Junior Research Excellence Award for scholarship on impacts of Latinx cultural values, cultural stressors, and mental health care access. A leader in the Latinx child development field, the psychology professor has over 70 peer-reviewed articles and \$5.5 million in funding.*

## COMMUNITY RESILIENCE

"I began identifying resilience factors in minoritized communities because much of the existing research focused on deficits. There wasn't much on what I experienced in my life – community processes that promote positive outcomes for kids and families.

"My work has highlighted the protective role of Latinx familism values – loyalty, obligation, respect, support, and identification through one's family network. Familism values support family-based coping and a sense of meaning and predict greater self-esteem and academic achievement and motivation, and fewer depressive symptoms."

## CULTURAL STRESSORS

"Discrimination impacts depressive symptomology, self-efficacy, self-esteem, academic motivation, and college-going. It has a long shadow. Discrimination kids experience in fifth grade predicts symptoms to the end of 12th grade.

"I've also studied acculturation gap conflict, where kids and parents acculturate to American values at different speeds. That can lead to family conflict, but it's a unique stressor where we also see differences in attributions. If a parent tells their child, 'Hey, clean your room,' and the child doesn't, in this scenario, they might say, 'My kid is becoming disrespectful,' or the kid might think, 'They're too Latinx – I wish they were like other parents.'

"The gap exacerbates effects of family conflict and predicts depressive symptoms among kids and moms. For kids, it also impacts self-esteem and racial ethnic group pride, reducing protective effects familism might otherwise provide."

## THE COSTS OF ACHIEVEMENT

"In Latinx communities, greater risk for depressive symptoms starts in adolescence – they have the highest levels among racial ethnic groups. But we were surprised to find depressive

symptoms weren't associated with decreased academic motivation or grades, differing from what's seen in White, non-Latinx groups.

"The double-edged sword of familism may mean youth struggling with depression, discrimination, and more prioritize family goals over mental health. There's a cost to achievement."

## NO MAGIC BULLET

"I'm interested in what can buffer against discrimination, though of course nothing completely erases its effects.

"For example, I've explored shift and persist coping, which is protective for Latinx youth experiencing economic stress. You move away from the stressor cognitively and persist with what provides meaning and optimism. But we found these methods insufficient to protect youth from discrimination's impacts.

"We're testing different factors and putting together pieces that might be useful. Kids need a menu of resilience strategies – shift and persist, familism, strong ethnic racial identity, and so on."

## FINDINGS TO IMPACT

"Less than 10% of people with mental health distress in communities of color access support. Our NIH Strong Minds, Strong Communities project tackles that issue by providing culturally responsive care through community health workers – to address not just language barriers, but also those related to trust and stigma.

"Community work is where I draw inspiration. For example, we collaborated with Latinx mental health clinic El Futuro on Padres Efectivos in response to their long waitlist. The program helps families support kids' mental health while waiting for individualized care, and it's being disseminated across the state now.

"More recently, community partners were asking us to talk to families about coping with discrimination, and I was lucky enough to partner with great researchers to develop 'One Talk at a Time' online, to help parents with these conversations.

"I'm proud of my research team and the collaborative environment we've built, where we work with community partners to answer questions that push the field forward."



learn more at [caminoslab.org](https://caminoslab.org) & [go.uncg.edu/stein](https://go.uncg.edu/stein)

Stein holds a piece of traditional Mexican folk art. Since she was a teenager, she has collected suns and moons during her travels.



# mental **ACTIVITY**

*Dr. Jennifer Etnier received the Senior Research Excellence Award for her scholarship on physical activity and cognition. A fellow of the National Academy of Kinesiology and the American College of Sports Medicine, Etnier is known internationally as an expert on exercise's impact on aging brains, with more than 90 peer-reviewed articles and over \$6 million in funding. The Julia Taylor Morton Distinguished Professor also holds five teaching awards and is a youth sports advocate who was 2017's Greensboro United Soccer Association's Coach of the Year.*

## **MOVING INTO KINESIOLOGY**

"I started out as a college athlete pursuing computer science and math. But I realized I didn't want to spend all day on a computer, so I did a sports psychology master's, planning to work with athletes. As I did my PhD work, I became interested in the broader benefits of physical activity for health.

"The irony is, as a researcher, I spend all day on a computer. But there's nothing more fun than finding and figuring out how to answer an interesting question."

## **EXERCISE AND COGNITION**

"Older adults in my family had differences in quality of life relative to cognitive capacity, which triggered my interest in exercise to protect cognitive performance.

"My lab found a single session of moderate intensity aerobic exercise improves memory – in the short term and after 24 hours. Even better, if you participate in physical activity on a regular basis, cognitive benefits accumulate. Formerly sedentary people saw benefits in our studies at the four-month mark and more at the eight-month mark."

## **COMMITMENT TO A CAUSE**

"Our NIH clinical trial explores whether physical activity can delay or prevent Alzheimer's. Participants, all with family histories of Alzheimer's, spend a year in our study. I've learned how committed research volunteers can be. We have someone in Florida driving to Greensboro three times a year to participate. It's really special and makes research particularly rewarding."

## **APOE GENOTYPE**

"APOE genotype is the strongest susceptibility gene for Alzheimer's. You could have 0, 1, or 2 copies of APOE, giving you lowest, heightened, or dramatically increased risk.

"Our PAAD2 study will verify our findings that physical activity improves memory for aging adults with a stronger research design. But our major question is whether exercise will cognitively protect people with genetic risk for Alzheimer's, and whether genetic risk changes that effect.

"We're also doing MRIs. Individuals with highest genetic risk have structural brain changes as early as their 30s. If we can capture brain changes mitigated by exercise, that would be really powerful.

"Any findings that exercise can protect people at risk would be great. Alzheimer's is a leading cause of American deaths. If we can delay onset, that's more years with better quality of life – more years with your children and grandchildren."

## **CHILDREN AND YOUNG ADULTS**

"We've found impacts across the lifespan. For example, exercise during the school day produces improvements in memory, which persist 24 hours later. This suggests physical activity may maximize the learning experience.

"Students: Exercise before you study, and you may improve your test performance the next day."

## **COACH AT HEART**

"Mentoring is one of my biggest joys. Seeing students develop into independent scholars is a remarkable transition.

"I love to help people move towards their potential. I also get that coaching soccer.

"We know physical activity is so important for our physical and mental health. The two books I wrote on youth sports psychology focus on helping young athletes achieve their potential and helping coaches ensure kids have a great experience and find a sport they fall in love with. And then they hopefully become lifelong physically active individuals."

*interviews by Sangeetha Shivaji  
learn more at [go.uncg.edu/etnier](http://go.uncg.edu/etnier)  
[go.uncg.edu/paad2](http://go.uncg.edu/paad2)*





PRESS

START

TO BEGIN





This year UNCG launches a PhD in computer science. Dr. Kopper's interdisciplinary research projects offer incoming students an unusual experience: "A lot of times in our field, we are confined to our labs and implications of the work we do are not immediately visible. It's nice to be able to see the effect and the potential."



## VR LAB ADVANCES NEXT-GEN TECH

As flames rapidly engulf a burning building, the heat becomes overpowering. Thick, choking smoke rises quickly. Firefighters drop to the ground and crawl beneath the haze. They are looking for victims but can barely see the hands in front of their faces.

Now imagine if they could wear specialized glasses that could "see through" the smoke – illuminating each room's floor plan, identifying victims' locations, and pointing out where fellow first responders are in the building.

**This is augmented reality, or AR. Dr. Regis Kopper believes AR will transform many aspects of public safety within the next 10 to 20 years.**

While this and similar next generation tools are not fully developed yet, the assistant professor and his computer science students are working with police, firefighters, and EMTs right now to design the interfaces that these technologies will require.

Funded by the National Institute of Standards and Technology, the projects use virtual reality – VR – to simulate future AR technologies, with a goal of determining what types of interfaces will work best for the end users.

With tech like this, EMTs of the future could glance at an armband they're wearing and "see" a patient's real-time vital signs pop up on a virtual computer screen that appears almost in thin air. By simply pointing at the virtual screen, the EMT could toggle from a patient's vital signs to other relevant information such as medical history, prescription information, and allergies.

Kopper and his Interactive Realities Lab team gather information through interviews and ride-alongs to develop the simulations. This allows first responders to provide critical input in the design of future systems. "It's

always important to have the end user be a part of the design, and in public safety, not doing so could be particularly dangerous," Kopper says. "There is risk involved in public safety operations, and we want users to be able to operate and trust these systems."

When it comes to law enforcement, VR will be used both to simulate upcoming technologies and to improve current training protocols. Kopper and his team are currently launching a project with the Hillsborough Police Department to test their tech – while also helping officers learn to handle or avoid potential escalations in routine traffic stops. Instructors will be able to tweak each scenario to include different types of cars, circumstances, and driver demographics such as race and gender.

"One of the great benefits of VR is that you can repeat a scenario as many times as you need and control very precisely what you want in the simulation," Kopper says. "It will offer the ability to debrief, discuss, and even replay the scenario."

Next-gen tech will eventually take this work a step further. Police officers of the future could glance at a license plate through AR glasses – or even contact lenses – and immediately access relevant information such as the car's ownership, a driver's criminal history, or other potential risks.

"The hypothesis is that officers could more immediately make decisions based on real-time evidence rather than potential bias or profiling," Kopper notes. And, by not having to turn their backs and return to their patrol cars to access critical information, officer safety would be enhanced as well.

The researchers are sharing the data from the public safety project, so that others can access the findings.

**"Our goal for this project specifically is not to make profit, but to make impact," Kopper says.**





## USER EXPERIENCE

As the saying goes: You only have one chance to make a first impression.

Kopper's lab members keep that in mind as they work toward streamlining users' experience with virtual reality.

"VR technology has the potential for so many important and useful applications, but if you have a bad experience with it the first time, you will become a skeptic," says Kopper. "It's difficult to go back and want to give it another try."

One of the pitfalls of VR is that it can cause "cybersickness."

Feelings of nausea or motion sickness can arise when a user's eyes tell the brain they are in motion, but signals from the rest of the body disagree.

To combat this, Kopper and his Duke University PhD student Zekun Cao theorize that adding small static elements will lessen viewer discomfort. For instance, if viewers sense they are inside a stationary cockpit while "flying" in VR, that might help with feelings of stability. Or perhaps even less obtrusive elements could help, such as tiny dots that don't move in the user's peripheral vision.

"We are running studies on this right now," Kopper says, "and we are getting some promising results."

The lab is also interested in how well virtual reality training translates to real life learning. Think of it this way: When you bowl in a Wii video game, you are holding a controller, but not an actual bowling ball. It makes for a fun and entertaining game, but without the weight of the ball, you won't learn accurate techniques for how to bowl in real life.

*Photos: Kopper and UNCG undergraduate Kadir Lofca are looking at how users in VR training perceive time.*

"In virtual reality, time passes differently," Lofca says. The weight of the controller may matter.

For example, firefighters must hold a Hazmat gauge up to an air vent for 30 seconds to measure the level of poisonous gas being emitted. In a virtual reality setting, researchers need to know whether mimicking the weight of an actual Hazmat gauge versus using a regular lightweight VR controller impacts how firefighters estimate the 30 seconds.

Measurements like these are vital.

"When we're talking about training firefighters, police, and first responders," says Lofca, "it has to be accurate."







*Photos: Magnolia House site manager Melissa Knapp tours the historic hotel in virtual reality, alongside the UNCG team that designed the experience.*

*“Every single detail adds up to create the overall experience,” says Lofca, who used VR to showcase period furnishings, color schemes, and even specialized sound effects such as birdsong outside the house and music that grows stronger as viewers approach an upstairs bedroom where a victrola is playing.*

## REBUILDING HISTORY

Books, documentaries, and museum exhibits offer us peeks into history, but what if you could actually walk back in time?

While most of the Interactive Realities Lab’s projects look to the future, a few look back, shining a light on lost history.

Last year, undergraduate Kadir Lofca created a virtual walk-through of Greensboro’s Magnolia House. The former “Green Book” hotel provided lodging known to be safe for African American travelers during the Jim Crow era.

The work was conducted in partnership with Dr. Asha Kutty and UNCG’s Interior Architecture Department, and the immersive experience is based on the designs of undergraduate Hannah Tripp. Now, viewers can “walk” through the hotel as it would have looked decades ago.

“School children who participated in the experience said they felt as if they had been transported to a different place and time,” Kopper says.

That is also one of the goals of a two-year project funded through the National Archives to virtually reconstruct two African American neighborhoods destroyed decades ago in Charlotte’s urban renewal. Viewers will be able to “walk” throughout the Brooklyn and Greenville neighborhoods, where residents were displaced by the thousands during the 1960s and 70s.

The project team includes principal investigators from Johnson C. Smith University and researchers from UNC Charlotte. Kopper’s lab and Duke University’s Office of Information Technology and Digital Humanities Lab are building the interactive experience, which can be navigated with a keyboard and mouse or a VR headset. Viewers will even be able to “enter” some of the buildings, where every detail is grounded in historical records, photographs, interviews with residents, city documents, and audio recordings.

It’s a powerful way to visualize once-vibrant Black communities – and see how they were devastated by systemic racism and segregation.



*“Virtual reality can help us experience history from a first-person perspective,” Kopper says. “It gives people a unique experience and can really leave an impression.”*

*by Dawn Martin • learn more at*  
[go.uncg.edu/kopper](https://go.uncg.edu/kopper) & [go.uncg.edu/MagnoliaHouseVR](https://go.uncg.edu/MagnoliaHouseVR)





# COMMUNITY → LED

When Xuem Siu first arrived in the U.S. as a 24-year-old in 2008, he barely spoke any English. He could count to ten and exchange basic greetings, but that was about it. Now the master's student in public health considers English his fourth language, behind Jarai, Bahnar, and Vietnamese.

Siu is part of Greensboro's Montagnard community, which at about 7,000 members is the largest gathering of the people outside of Vietnam. Many Montagnards, who come from several ethnic groups in the Vietnamese highlands, were resettled here after supporting U.S. troops during the Vietnam War. Siu is working to address the challenges faced by his and other local refugee communities, particularly when it comes to the pandemic.

Morrison and Siu (top photo, left to right) assist at a vaccine clinic co-hosted by the Montagnard Dega Association and the Sudanese and Congolese communities. At the same event, volunteers put together and distribute PPE bags.

Already a UNCG graduate with a master's in peace and conflict studies, Siu returned to the University last year to become the first community health scholar directly supported by the Montagnard Dega Association, a local nonprofit. "This job is so important, that's why I took this role," he says. "I wanted to contribute to the community."

Siu's work is part of research his mentor Dr. Sharon Morrison has conducted with refugee communities in Greensboro for more than 15 years. This community-based participatory research, she says, involves working alongside communities to identify problems and implement solutions together. "The community identifies the issue and we get the data to inform strategies."





When Al Amin (photo below) came to the U.S. from Bangladesh in 2018, he was drawn to UNCG's reputation for community-engaged research: "Working for the community has always been the preference for me."



Al Amin's focus was social media and digital assets to increase awareness of COVID-19. Salmi (lower left photo), who also has a bachelor's from UNCG, focused on infographics and distributing food and PPE to families in need. Al Amin and Salmi both graduated with MPH degrees in 2021. Salmi now works for UNICEF, while Al Amin is entering the epidemiology PhD program at UNC Chapel Hill.

The team has also documented the Montagnard nonprofit's response to the pandemic, with a resulting publication in the North Carolina Medical Journal. Publications, they say, will help others see how community-based participatory research can work to directly help underserved communities.

"When we talk about community engagement, we take our lead from the community and that's how work gets done," says Morrison. "Whatever we find, we then give back to the community."

And their efforts are working. Community members are accessing the information they need more readily now, Siu says, because of social media efforts, and community leaders are more aware of how to engage. The Montagnard nonprofit is growing, and new generations of community leaders are feeling empowered to create positive change, tapping into resources like the Kate B. Reynolds grant that's supporting Siu's work.

Now, Morrison's research group is assisting as the Montagnard Dega Association trains Cambodian and Bhutanese community leaders in emergency preparedness and responses.

And while Siu may not admit it himself, he too, has emerged as a leader within his community.

"I see a lot of smiles," he says. "They're working together. We have more resources, more networks. What I see is really successful."

by Sayaka Matsuoka • learn more at [hhs.uncg.edu/phe](https://hhs.uncg.edu/phe)





# A HISTORY WITH HERBERT

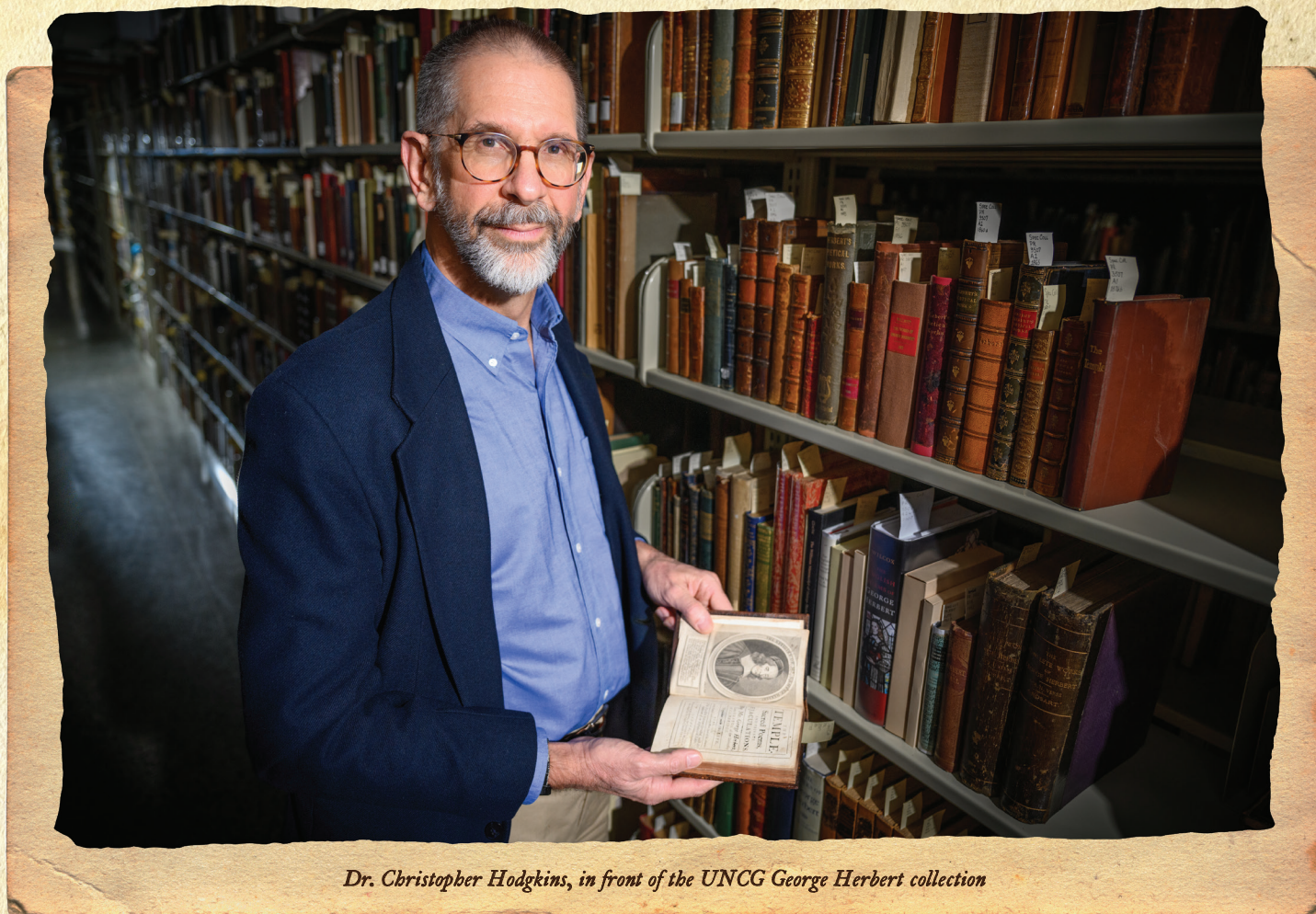


Over the course of three decades at UNC Greensboro, Dr. Christopher Hodgkins has served as author or editor of eight books on Renaissance literature, the Bible, and the British imperial imagination. Along the way, he's been at the forefront of efforts to re-shape the way we read and interpret the works of seventeenth-century English poet and clergyman George Herbert.

"Nearly all of Herbert's poems are quite brief," says Hodgkins, "but they're all different. He's a profound artisan, a craftsman of tremendous precision."

Herbert gives us, he says, "a master class in craft—how to handle a variety of voices within an individual lyric poem and through a sequence, how to stir surprise and drama and wonder with just a few words, how to experiment with form and structure in creative ways that are not quite free verse."





*Dr. Christopher Hodgkins, in front of the UNCG George Herbert collection*

Herbert also resonates with Hodgkins' own Christian outlook – from his first reading of Herbert's "The Temple," published posthumously in 1633, Hodgkins felt Herbert was putting into words much of his own experience with God. But he notes that Herbert has had a huge following among secular readers and poets as well, despite the devotional nature of his poetry. "There's something universal in Herbert's work that appeals across these divides of ideology and belief," he says.

"The night before King Charles I was beheaded by the Puritans in January of 1649, he is said to have read 'The Temple.' But many of the Puritans – including some who beheaded the king – were reading 'The Temple,' too."

Hodgkins' own research has expanded modern understandings of the Cambridge-educated poet-priest. "He's mainly a figure who's interested in the

inner spiritual life, but for a long time, people assumed that's all that interested Herbert. He was seen as like a medieval monk who retired from the world."

Yet, in comparing Herbert's poetry with other texts, Hodgkins found that Herbert continued to be far more engaged with current events and politics than many nineteenth- and twentieth-century literary critics recognized. "We discovered in his writings that even while he was out in this little village parish church in Wiltshire, he was still thinking very pointedly about national and international politics of his time. We now see him as much more topically engaged. He was a member of Parliament and wrote about how to deal with contemporary social problems and political issues – including a poetic critique of rising imperialism."

Hodgkins' initial interest in religious poetry and the political and religious contexts for literature brought him to

what he calls the question of the imperial imagination, a subject of his second book.

"How do people imagine their right to go and either take or conquer – or colonize – other lands and people? Do they just say 'I'm doing it because I can?' Usually not. Various European explorers sailed across the ocean and found lands inhabited by other peoples – and they built a system whereby they could exploit those resources while telling themselves they were bringing blessings to those people."

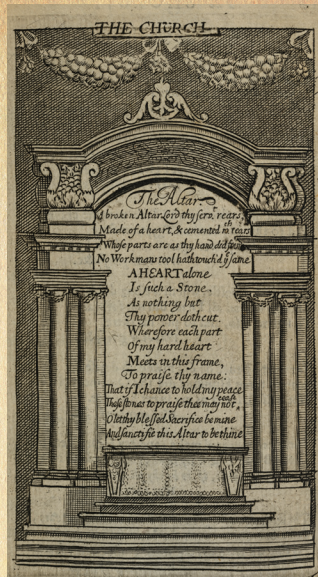
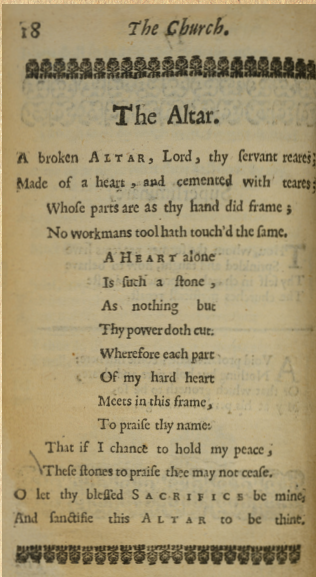
Today, Hodgkins continues his exploration of how cultures collide, collaborate, or combine – specifically in the context of transatlantic exchange – through his work with the Atlantic World Research Network. Connecting scholars across six continents, the UNCG-based network, which was founded and is directed by Hodgkins, is approaching its 20th anniversary.





Hodgkins holds a first edition of “The Temple” from UNCG’s collection. It was travel-sized, he says, by design.

“One of the secrets of Herbert’s success was the design of “The Temple’s” early editions. It came in a small duodecimo book – about the size and shape of a modern smartphone – so that the book fit in your pocket and could be carried everywhere. It even had an index for locating poems on different topics to interest varied readers: “Grief” for some, “Gratefulness” for others, and everything from “The Sinner” to “The Star,” from “Doomsday” to three poems simply called “Love.””



Above are two versions of “The Altar” from different editions of “The Temple” in UNCG’s collection: a second edition from 1633 and a tenth edition from 1674. The piece is one of Herbert’s best-known “shaped” poems, which use visual elements, Hodgkins says, to reinforce and add meaning.

““The Altar” is shaped like an ancient Hebrew stone sacrificial altar and opens Herbert’s sequence of poetry titled “The Church.” Significantly, it is also shaped like the letter “I,” for Herbert’s “Altar” is “made of a heart, and cemented with teares.” The poet offers up his poem and his book and himself for divine service.”

## THE HERBERT COLLECTION AT UNC GREENSBORO

A little-known fact: the first modern biography of George Herbert came out of UNCG in 1977. The author was Dr. Amy Charles, who began working at the University when it was still Woman’s College. She also purchased with her own money almost every one of the earliest editions of “The Temple.”

“By the time of her death in 1985,” says Hodgkins, “she had donated all of these to UNCG Special Collections.” The collection was completed at the University through the work of Chancellor William Moran and Special Collections librarians Emmy Mills and William Finley.

“Thus our Herbert collection is one of the world’s best, ranking with those at Harvard, the Folger Shakespeare Library, and the Bodleian at Oxford,” he says. UNCG Libraries is a point of pride for Hodgkins. “I was here when Jackson Library acquired its millionth volume. I can only praise our librarians’ commitment to building and preserving our book collection – not just rare books but all books.”



Hodgkins has served as author or editor of four books that deal directly with Herbert, and co-edited "The Digital Temple," which was selected by the American Library Association's Choice magazine as an Outstanding Academic Title of 2013. "The Digital Temple" allows online users the opportunity to explore manuscript versions and the first print edition of Herbert's most celebrated work.

Hodgkins, who has twice held UNCG's Class of 1952 Distinguished Professorship in English, has also organized a series of conferences focused exclusively on Herbert: the first in Salisbury, England, in 2007. The collective success of these events – taking place from Paris to North Carolina to Wales to Arizona – paved the way for him to found the George Herbert Society, with UNCG as its home base. Their next conference is planned for June of this year at Cambridge University.

Hodgkins' research and work to convene other scholars with similar interests has earned him a reputation as one of the leading Herbert experts in the world. Now, with a \$300,000 grant from the National Endowment for the Humanities, he and co-editor Dr. Robert Whalen of Northern Michigan University are editing "George Herbert: Complete Works" for Oxford University Press.

"The Oxford Texts," notes Hodgkins, "bring major and now rediscovered writers into prominence and put them in a long-lasting physical form. The idea behind those is to have intelligent and durable introductions, brief biographies of the figures involved, running annotations that explain archaic terminology, and some commentary on the critical and reception histories of the works."

The forthcoming series will appear in three volumes instead of one, mainly because it will include a thorough exploration of the history of the texts, as well as the history of criticism on those texts. It will feature newly discovered manuscripts and also commentary interspersed throughout the individual works.

The series will have a digital manifestation based at UNCG. University Libraries will work with Hodgkins and Oxford to mount a free-access resource that will allow online users to view all the multiple early "witnesses" or versions of Herbert's work, both manuscript and print.

"That will be a lasting anchor for Herbert studies, to complement our world-class print collection," says Hodgkins, "right here at UNCG."

Hodgkins says that when, in 1980, he first discovered "The Temple," he couldn't possibly have anticipated the ways Herbert's poetry would shape his own life and career. "I didn't imagine I'd eventually become a Herbert scholar and eventually publish a three-volume complete works – with the same publisher of this little Oxford Classics book that a high school friend had just tossed into my hand. That is beyond my ability to plan. It began simply with a great admiration and enjoyment and love."

*by Richard Moriarty*

*learn more at [go.uncg.edu/hodgkins](http://go.uncg.edu/hodgkins) & [go.uncg.edu/herbertsociety](http://go.uncg.edu/herbertsociety)*











# STARS ON THE RISE

When astrophysicist Alicia Aarnio had leftover time on a session at the Apache Point Observatory, she called undergraduate Kamara Culbreath. "Hey, I have some telescope time with a three-and-a-half meter," she said. "Are there any galaxies you want to look at?"

From Dr. Aarnio's office at UNCG, they examined remote galaxies through the telescope in New Mexico. It was 4 a.m., but such is the life of astronomers.

Aarnio and her student researchers study young star systems – ones that are a mere 1 million to 40 million years old. When a star is born, Aarnio says, material from the surrounding molecular cloud is gravitationally attracted to it and, under rotation, "flattens out like pizza dough spinning on a skilled chef's finger." This flattened disc of "all the leftover dust and gas material from the formation of the star," explains undergrad Mariann Juarez, "is where planets are born."

The team's goal is to better understand what these young stars look like before they hit the main sequence – a middle age, when planets are no longer forming. To gather data on young stars, Culbreath combs existing surveys of the night sky in visible light, infrared, the far infrared, radio, and other wavelengths. "Gathering the data is a long process that requires complex coding," Culbreath says, "but I'm interested in the computational side." The results give him a full picture of a star's spectral energy distribution.

If the data Culbreath gathers does not match an existing database of 200,000 star and disk models, the team must develop new models. That's where Juarez comes in, with information from the star's spectra, which provides hints about a star system's chemical composition, temperature, and rotation speeds.

Stellar research is technique driven, says Aarnio, and her research group stands out by combining several. "Our work is unique in that we're object-focused and bringing simulations into the mix as well. And there are not many universities that have young star research as a focus."

*Clockwise, from top: Juarez, Culbreath, and Aarnio get data on the brightest stars from the Three-College Observatory, with red lights helping to maintain their night vision. Two computers work together here – one controls the telescope, and one the spectrograph, sending light the telescope receives through a prism. From that detailed spectrum, researchers can discern chemical elements in a star's atmosphere and more.*

Aarnio calls her undergraduate research group the UNCG Stars, playing on the University's name and position in the galaxy – our sun, a yellow star with a surface temperature around 5,500 kelvins, is a G star. The moniker also describes what she sees in her young researchers.

Culbreath, for example, has conducted research not just at UNCG but at the Maria Mitchell Observatory in Massachusetts, and he has earned several awards for his academic achievements and research. "I'm most proud of going to conferences and talking about the research I've done," he says. This year, he presents a poster at the American Astronomical Society Meeting, which many in the field call the "Super Bowl" of astronomy.

"But it's one step at a time," Culbreath says. "I needed to be able to do research first and know what the meaning of research is. A lot of accomplishments came from asking for guidance early in my college years."

Part of that guidance came from UNCG's NSF STAMPS and NIH MARC U-STAR programs, which offer opportunities to talented students from groups traditionally underrepresented in the sciences. Similarly, Juarez is in UNCG's McNair Scholar Program that prepares promising students for graduate education.

"There's really a strong focus at UNCG on getting undergrads prepared," Aarnio says.

Culbreath and Juarez came to UNCG with a strong interest in the stars, but the team also emphasizes the impact of their work here on earth. "Astronomy is on the frontier of big data," Aarnio says. "Telescopes are getting petabytes of data every night, so astronomers have to build machine learning algorithms to process data quickly." Culbreath recently developed one to try to automatically identify galaxies – his particular passion.

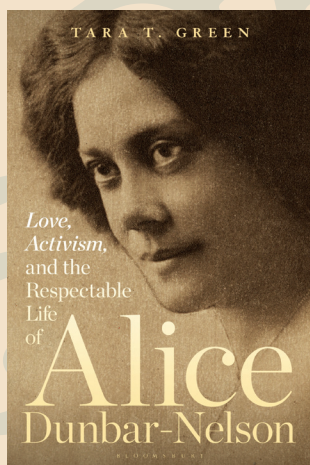
Juarez's interest differs: "I like the astrochemical aspect of stars." Her first project with Aarnio modeled chemical reactions in a star disk. "We created 18 separate simulations on a supercomputer to analyze the disk and the emission of carbon monoxide and hydroxide." Modeling these reactions, particularly those involving organic molecules, offers researchers clues on how and if carbon-based life can develop.

What both students agree on are the opportunities UNCG afforded them, including funding for undergraduate research and interactions with professors. "We have great professors, and we can be one-on-one and have small classes because of the size of the school," Culbreath says. "It helps you learn and actually retain."

Juarez echoes the sentiment. "I'm a shy person, but it was easier to create relationships with my professors here. That helped push me and made me aware of what I have to do, to do well."

by Susan Kirby-Smith • learn more [physics.uncg.edu](https://physics.uncg.edu)





Green's new book, published by Bloomsbury Academic, has received glowing reviews from Booklist, Pulitzer Prize winner Jericho Brown, Publishers Weekly, Ms. Magazine, and more. Her research and writing were supported in part by a four-year term as UNCG's Linda Arnold Carlisle Distinguished Excellence Professor.

## A RESPECTABLE LIFE

"I am of the latter class ... White enough to pass for white, but with a darker family background, a real love for the mother race, and no desire to be numbered among the white race."

These sentences from Alice Dunbar-Nelson's essay "Brass Ankles Speaks" are also the opening lines of a groundbreaking new book by Dr. Tara T. Green that examines the life of Dunbar-Nelson.

"Love, Activism, and the Respectable Life of Alice Dunbar-Nelson" is an in-depth look at a woman known as a poet, short-story writer, essayist, and activist – and perhaps even better known for her short marriage to Paul Laurence Dunbar, one of America's first influential Black poets.

Dunbar-Nelson was part of the Harlem Renaissance and movements against lynching and for racial equity and a woman's right to vote. And she did all of this, Green says, while attempting to toe the line of respectability demanded by the growing Black middle-class society of 19th-century America.

"Her gender, race, and sexuality never fit neatly into societal roles," says Green. "She was a woman who tested the boundaries in a variety of ways."

Green discovered the writer as an undergraduate – both she and her subject of interest attended the same college and grew up in the New Orleans area. But reading Dunbar-Nelson's works as a student offered Green a new view: "She transported me to another place, another time, that I didn't know. She challenged my imagination."

Fast forward to 2010, and Green, a professor in UNCG's programs for African American and African Diaspora Studies and Women's, Gender, and Sexuality Studies,

began examining Dunbar-Nelson's papers and diaries housed at the University of Delaware.

"I was sent. All this material, and nobody had written her biography. How was this possible? I felt an obligation to right a wrong. Knowing her background and my background, if I wasn't going to write this, then who would?"

The result – which also reflects materials Green found in early newspaper databases, Howard University's library, the Library of Congress, the Atlanta Center, and the Amistad Research Center – affords readers a look at a very different private life behind the public facade.

With a likely-White father she didn't know, Alice Ruth Moore did not fit easily into prescribed roles in Black or White society.

In a world where divorce was rare, same-sex relationships were illegal, and motherhood was expected, the author married three times, conducted relationships with women, had no children of her own, and worked as a teacher and administrator. During her famed marriage to Paul Laurence Dunbar, she was physically abused.

"Like so many of us today, she lived with secrets," Green says. "She was a Black woman who persevered, and she earned a certain measure of acceptability." At the same time, in many ways she lived her life on her own terms.

"I hope that others will find her life an inspiration. She survived lots of trauma, but she also had moments of happiness. She was a Black woman doing what Black women do – surviving and wanting to be accepted."

by Robin Adams Cheeley  
learn more at [drtaratgreen.com](http://drtaratgreen.com)



# ♥ INTIMATE IMPACT

Dr. Jennifer Toller Erasquin and fellow researchers were putting the final touches on a public health survey they would pilot for the World Health Organization when a stunning event took precedence: the onset of the global COVID-19 pandemic.

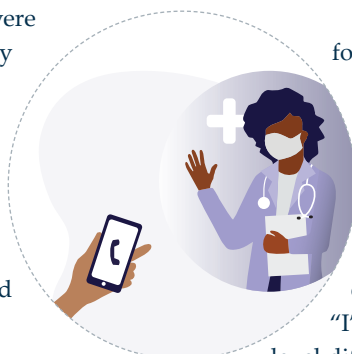
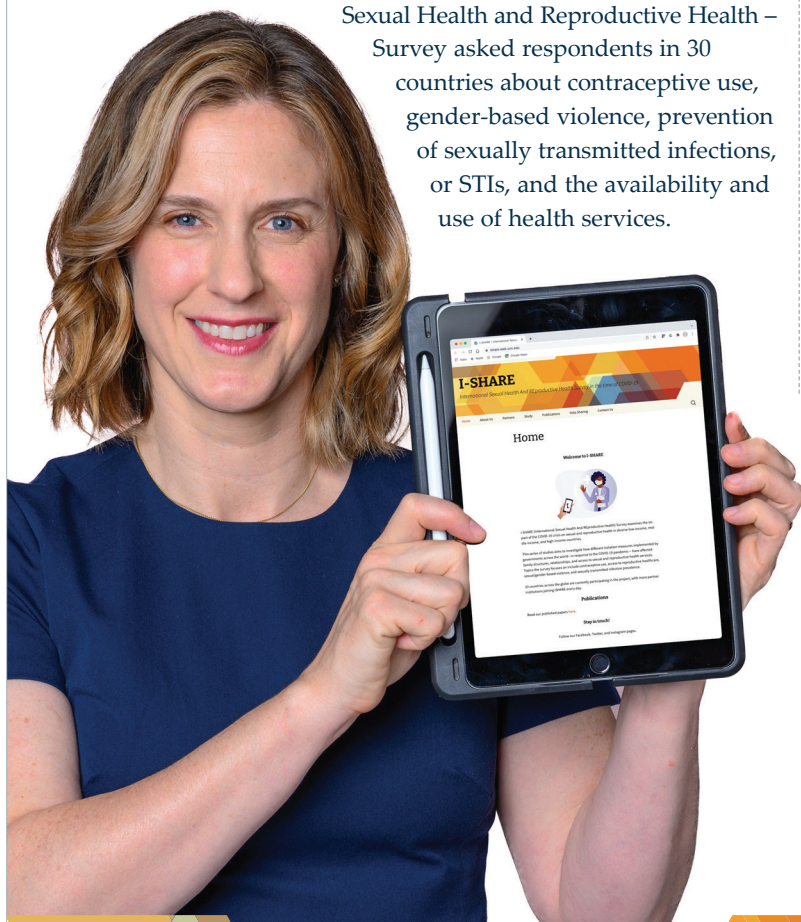
She was on her way home from Kenya – from an international meeting related to that project – when the world changed in what seemed like an instant. “Three days before my return, major U.S. airports started screening passengers for symptoms,” she recalls.

The associate professor in public health education couldn’t imagine then just how broadly the pandemic would affect all our lives, including her main area of research: sexual and reproductive health.

Her team was able to pivot, translating their multi-country survey into an online format and adding questions related to COVID-19 – particularly how the pandemic affected people’s sexual relationships and access to related health services.

“My expertise is ‘how do you get people to talk about a very intimate part of their lives,’” she says.

The resulting I-SHARE – International Sexual Health and Reproductive Health – Survey asked respondents in 30 countries about contraceptive use, gender-based violence, prevention of sexually transmitted infections, or STIs, and the availability and use of health services.



One-third of respondents who needed testing for STIs or HIV reported limited or no access to testing during pandemic-related lockdowns. Also, about 6% of people with casual sexual partners reported decreased condom use.

These outcomes and others were recently published in the journal *Clinical Infectious Diseases*, and Erasquin says there’s more to come as researchers continue to analyze results.

“I’m currently examining the impacts of country-level differences in wealth, gender equality, and COVID-19 mitigation measures.”

“Dr. Erasquin has been a remarkable leader within the I-SHARE consortium,” says Dr. Joe Tucker, principal investigator for the project and an associate professor at both UNC School of Medicine and the London School of Hygiene and Tropical Medicine. “She has helped mentor trainees, lead analyses, and write scientific manuscripts that represented a terrific output from this rich collaboration.”

Erasquin especially enjoyed the work, she says, because accommodations due to the pandemic unexpectedly increased inclusivity in research, “sort of leveling the playing field.” For example, more scientists, including junior-level researchers, could join international collaborations when meetings went virtual.

The survey results underscore the importance of offering sexual health care services, even during a global crisis.

“In some ways, we were caught off guard by COVID-19,” Erasquin says. “Public health responses focused primarily on protection from respiratory disease, and plans to address potential ripple effects weren’t necessarily well-articulated in most locations. The sudden reduction in access to health care dramatically affected people’s lives.”

The crisis did birth some positive innovations, she says, such as an increase in telemedicine visits related to reproductive health and a rise in at-home self-testing for STIs.

“Ultimately, it’s about countries and localities calibrating responses to balance multiple public health goals,” Erasquin says. “When overly stringent lockdown measures also restrict people’s access to condoms, ability to see a health care provider, or STI testing, we’re doing a different kind of harm. It’s a very difficult balancing process, but we need to figure it out. This will not be the only pandemic that our world sees.”

by Dawn Martin • learn more at [go.uncg.edu/erasquin](https://go.uncg.edu/erasquin)



# Instrumental *to the Story*

"What does a White college professor, born in Canada and living in North Carolina, have to say about Southeast Asia?" asks Dr. Gavin Douglas with a wry laugh.

Quite a bit, it turns out. The ethnomusicology professor in the School of Music is the author of Oxford University Press' "Music in Mainland Southeast Asia: Experiencing Music, Expressing Culture." He also has over 20 peer-reviewed publications in the field, with a particular focus on Myanmar, also known as Burma, and Buddhist music.

In 2019, Douglas' resumé and research caught the attention of a big name in Hollywood.

"Out of the blue, I got this email from Disney, asking if I would act as a music consultant for their next film, 'Raya and the Last Dragon.' I imagine I got tapped because I'd done work over a span of several years and many countries in the region – Myanmar, Thailand, Cambodia, and Vietnam. The film takes place in this mythical Southeast Asian-inspired place. It's a corner of the world that Disney hadn't yet explored."

Douglas first visited Myanmar as an ethnomusicology doctoral student. "Ethnomusicology is anthropology and music combined – trying to understand music within a cultural context. As a guitarist I both taught lessons there and took them with senior masters. Those lessons helped me develop relationships. I was invited into homes, had meals, met families, and listened to stories."

He returns every few years for more field work.

"I'm interested in how sound and music are tools that people use to navigate their identities," he says. "For example, chants and bells can cultivate certain mental practices in Buddhism, but those sounds also articulate different ways of belonging to a Buddhist community. My work explores power relations between different ethnic and religious groups and how sound is used to establish or push against different identities."

When movie production was beginning, Disney put together what they called the "Southeast Asian Story Trust," a group of consultants on everything: food, textiles, architecture, language, martial arts, dance, and other cultural representations.

Douglas helped composers bring regional sounds to what was largely a big orchestral, Western-style score. He started out by submitting lists of instruments and audio files. Because the story takes place in a mythical place, it was important the sound be broadly representative.

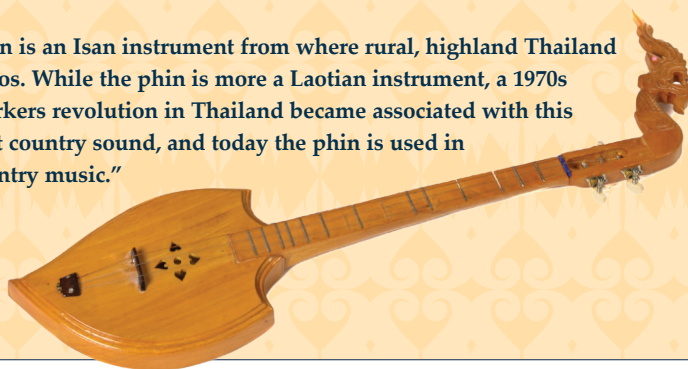
"I told them about things that might be hot buttons and helped make sure the sound wasn't too localized or connected to a specific religious tradition. Disney sent me early drafts of the film, and I went through them second by second, listening for what might sound too outside of the region, like too Chinese or too Japanese. I listened to make sure the sounds matched up with the locations like a city, a tea shop, the palace, an open market. It was a study of sounds in the environment, of sounds that cue a certain place. That was fun to do."

Douglas finally got to meet the other consultants, most from Southeast Asia, in a virtual gathering after a screening of the final product.

"Consultants were dialing in from places like Thailand, Malaysia, and Indonesia. It was so great to be together and hear them sharing their reactions to the film, saying things like 'I recognize that soup in the café scene,' or 'The shape of that textile on the costume was perfect,' or 'The martial arts scenes were exactly like what I remember my grandfather doing.' People were delighted to see elements of their cultures represented."

Douglas is using the experience as a springboard in his music and anthropology classrooms. "Discussing the movie opens up a conversation about sound as representation, about

"The phin is an Isan instrument from where rural, highland Thailand meets Laos. While the phin is more a Laotian instrument, a 1970s rural workers revolution in Thailand became associated with this northeast country sound, and today the phin is used in Thai country music."



"One of my critiques of 'Raya' is it should have more mallet xylophone-like sounds, like those made by this pattala. Variants of the pattala are found throughout Southeast Asia. I spent time learning from U Tun Kyi, a pattala maker in Burma, and he created this one. It has a teak frame with bamboo slats that are carved underneath, in the middle to create higher tones and on the sides for lower tones. You can actually whittle between songs to adjust tuning. Other xylophones in the region use melted metal filings or beeswax to weight the keys for tuning."





mediated representations of different cultures, and about the power dynamics involved. Disney certainly didn't take all my advice. For example, some singing styles found in Southeast Asia, while more representative, are arguably not as palatable to Western ticket buyers."

The experience was stimulating, he says. "The project was full of difficult issues concerning cultural representation, but it's one of the best films Disney has done along these lines. We can rightly critique corporate entertainment, but when you have a chance to participate, then that should be an opportunity to facilitate change."

by Terri Relos • learn more at  
[go.uncg.edu/douglas](http://go.uncg.edu/douglas)

"Gongs like these made it into the movie, of course. The oldest gongs in the world come from Southeast Asia. There's about 3,000 years of gong-making technology in that part of the world. They're everywhere – in the background of mainland music and as main orchestral instruments in Indonesia."







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**25 YEARS** The Center for Youth, Family, and Community Partnerships is celebrating 25 years of turning research into policy and practices that advance the well-being of families in our state. Above, Early Childhood Specialist Courtney Barrett (left) meets with teacher Jyothsna Ramesh at KinderNest Preschool, as part of the center's Bringing out the Best program, which helps Guilford children under five with social-emotional challenges. Here's to the next 25 years of putting our children, families, and state on the path to success.