

uncg research

2015

Research, Scholarship and Creative Activity

A BUG'S (((SECOND))) LIFE

Scientists at the Joint School of Nanoscience and Nanoengineering are finding powerful potential in something as simple as a cicada's wing.

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The diversity of our research and creative activity is one of UNCG's greatest strengths. In these pages, you will find studies of thieving animals, memory, curiosity, and native grasses – and that's just the work of our 2013 and 2014 Research Excellence Award winners.

As you read on, you will find that UNCG scholarship ranges from the basic and impactful research of medicinal chemistry to the innovative and educational art of the children's dance company iDance. Our researchers investigate the role glucose plays in fighting the flu. They analyze the antimicrobial properties of nanostructures on cicada wings. They harness the synergy of complex interdisciplinary endeavors like the Atlantic World Foodways Conference.

But within this wonderful diversity, there are threads that unify. UNCG faculty, staff, and students are one in their commitment to maximizing their impact. Research impact, which has been described as “the demonstrable contribution that excellent research makes to society and the economy” (Economic and Social Research Council), encompasses academic impact as well as economic and societal impact. Our scholars are not only creating and advancing knowledge but also enhancing quality of life, providing demonstrable contributions to organizations, and increasing the effectiveness of programs, policies, and technology.

Inclusivity underlies and informs the far-reaching impact of our scholarship. It evolves out of mentoring relationships between faculty and students, the collaborative work of our centers, institutes, and research networks, and a campus-wide culture of engagement. International partnerships, like the comprehensive study of gratitude among American and Brazilian children and adolescents, draw together researchers at all stages, including graduate students and undergraduates. Community alliances lead to strong, jointly designed and implemented initiatives, like our public efforts to reduce interpersonal violence by focusing on both offenders and victims.

The diverse stories you will find in this year's research magazine exemplify UNCG's commitment to academic, economic, and societal impacts. Find out how our researchers enhance educational outcomes for kindergarten through third grade students. Follow our journey to address the current void in culturally competent, comprehensive care for older adults. Learn how UNCG came to host the signature event of the 2015 National Opera Association Convention. Discover how we are building healthy lives and vibrant communities in North Carolina and beyond.

TERRI SHELTON, PHD

Vice Chancellor for Research and Economic Development

For more information about research at UNCG and the Office of Research and Economic Development, go to research.uncg.edu.

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The Gift of Gratitude



If children can be encouraged to feel and express this more sophisticated sort of gratitude, they're likely to become less hedonistic." Dr. Jonathan Tudge



WE ALL WANT OUR CHILDREN TO BE POLITE. So when they receive gifts, parents often respond in the same way.

"What do you say?" we ask the kids.

Or even more directly: "Say thank you."

"That's probably where gratitude starts, but that's not where it should end," says Dr. Jonathan Tudge, a professor in UNCG's Department of Human Development and Family Studies.

Tudge and two co-investigators recently received a three-year, \$800,000 grant from the John Templeton Foundation to study how gratitude develops in children from a variety of cultures – and how it can impact their levels of materialism.

"You can't tell children not to want things," Tudge says. "They're bombarded with messages that say 'Buy, buy, buy.' Our ultimate idea is to encourage parents and teachers to help children think about the giver as much as the gift. By focusing on connections with people rather than the items received, we can combat materialism."

The DOGMAS Study (Development of Gratitude, Materialistic Values and Sustainability) will ask children to identify their greatest wish and share what they would do for the person who granted that wish. It will also ask children what they would do if they suddenly received \$100. Would they spend it on themselves, spend it on others, save it or donate it to charity or the poor? The children and their parents also will be interviewed about when and how they

express gratitude and about their level of materialism.

"It's quite likely that different cultures think about gratitude in different ways," Tudge says.

Tudge and his co-principal investigators – Dr. Lia Freitas, an associate professor of psychology at the Federal University of Rio Grande do Sul in Porto Alegre, Brazil; and Dr. Lisa Kiang, an associate professor of psychology at Wake Forest University – will survey children from a wide variety of cultural, ethnic and socioeconomic backgrounds. Data will be collected in

locations that include Greensboro, New York and Porto Alegre in southern Brazil.

In many children, gratitude begins with verbal acknowledgments such as "Thank you." From there, children may express a desire to do something nice for the person who helped them or gave them a gift. But they often choose something that they themselves might appreciate rather than thinking about the benefactor (e.g., giving an adult a teddy bear).

A higher level of gratitude establishes a true connection with the giver, in which the children think about what the benefactor might need or appreciate in return.

"If children can be encouraged to feel and express this more sophisticated sort of gratitude, they're likely to become less hedonistic," Tudge says.

Dr. Lia O'Brien of UNCG will serve as project coordinator, and graduate assistants include Elisa Merçon-Vargas from Brazil, Sara Mendonca from the United States, and Yue Liang from China.

"I think this notion of gratitude as creating connections among people is really helpful in so many ways," Tudge says. "It can be powerful when we think less of me, me, me, but of ourselves as part of a group."



READ MORE ABOUT DR. JONATHAN TUDGE

uncg.edu/hdf/facultystaff/Tudge/Tudge.html



Easy as 1-2-3

MATCH A SET OF THREE PENCILS TO THE NUMERAL THREE. Have the ability to form positive relationships with new teachers over time. These are just two of the expectations teachers have for students before they strap on their backpacks for their first day of kindergarten. All states have official standards like these for preschool-age children, and more than 40 even have these guidelines for toddlers and infants.

Known as Early Learning and Development Standards (ELDS), these guidelines are important because they set goals for teachers and parents preparing their children for kindergarten, according to Dr. Catherine Scott-Little, associate professor in the Department of Human Development and Family Studies. "These guidelines serve as the basis for teachers to make curriculum and child assessment decisions," she says.

Scott-Little, with colleagues from Teachers College, Columbia University and Teresa Sumrall, a UNCG graduate student, is currently analyzing the standards from a consortium of 10 states: Arizona; Delaware; Washington, D.C.; Iowa; Maine; North Carolina; North Dakota; Rhode Island; South Carolina and Oregon. With funding from the Heising-Simons Foundation, the team is looking at what's similar and what's different across those states and identifying potential gaps that haven't been addressed in the standards.

These states also have received federal funding to develop a state-of-the-art assessment system. With the North Carolina Department of Instruction leading the effort, these states will use results from Scott-Little's research to decide which aspects of children's learning and development to assess.

On a classroom level, the assessment results will help teachers get to know their students and make decisions about where to start and what to cover. Data from the new assessment should also inform state policy decisions, Scott-Little explains. "Assessments tell us about kindergarten students' strengths and weaknesses, so the state knows how to strengthen services for kids before they come to kindergarten."

Scott-Little brings more than a decade of experience analyzing states' standards to the team's efforts. "Sometimes it's surprising what states have emphasized in their standards and what they've left out," she says. "In some states, particularly in the early days, we saw a huge emphasis on children's early literacy skills to the exclusion of other skills that are equally or, arguably, more important."

The past decade has witnessed a shift in focus to more holistic standards that emphasize multiple domains of children's development. "Now it's more likely teachers will be holistic in how they teach, which is very important for young children," she says. "Their development in all areas — physical, social-emotional, language and cognitive development — is important for later school success."

FINAL REPORT CAN BE READ AT

buildinitiative.org/TheIssues/EarlyLearning/StandardsAssessment.aspx

Positive assessment

IT'S A LITTLE BIT like *match.com* for the evaluation world.

OAERS — the Office of Assessment, Evaluation and Research Services — pairs graduate students in Educational Research Methodology with clients who need to evaluate a program, conduct a survey or do some other kind of assessment.

Students gain hands-on experience and clients receive exceptional service, says Dr. Randy Penfield, chair of the Department of Educational Research Methodology.

While some students participate in OAERS to gain experience, others are hired as part of an assistantship. "We basically give them their first job," Penfield says. "We are able to tell students, 'If you come to our program, you will have experience when you graduate.'"

Typically, they work in teams with a senior student, a junior student and a faculty member who oversees the students' work.

Clients have included U.S. Lacrosse, Physicians for Peace, the Center for Creative Leadership, and a number of local school districts, among others.

OAERS also has done quite a bit with the SERVE Center at UNCG. SERVE is a research, development, dissemination, evaluation and technical assistance center, which works with educators and policy-makers to improve education.

"Sometimes SERVE picks up a big contract and needs worker bees," Penfield says. "This past spring, they needed junior analysts and they asked, 'Can OAERS take this on?'"

That pairing has led to a new joint initiative — the Nonprofit Evaluation Support Program, or NESP. Over the last few years, OAERS has received several requests from nonprofits to evaluate their programs. Such evaluations help with donor stewardship or applications for additional funding. However, nonprofits have fewer financial resources to pay for that kind of consultation.

To meet those needs, OAERS and SERVE came together to create NESP. The joint effort will allow them to offer everything from survey creation to data analysis at a discounted rate. Another benefit — even more students will have opportunities to gain professional experience.

FOR MORE INFORMATION ABOUT OAERS

<http://erm.uncg.edu/oaers/>



PUTTING CARE INTO THEIR HANDS Using stress balls is one non-medical technique that helps ease some of the behaviors associated with dementia. As seen in this instructional video filmed at Well•Spring, the person is asked to concentrate on rolling the balls up and down each finger to divert attention to a soothing, repetitive task.

Methods aside from medication

OLDER AMERICANS, particularly those with dementia symptoms, have many needs. And they may be labeled as “difficult.”

If a resident has a tantrum, or declines to eat a meal, or becomes disruptive, often medication is the first – and only – intervention that is used.

About 40 percent of nursing home residents in the US are given antipsychotic drugs although they’ve never been diagnosed with psychosis, says a study cited by UNCG researchers. Their paper “Nonpharmacological Interventions in Long-Term Care: Feasibility and Recent Trends” in the May 2014 Journal of Gerontological Nursing lays out the problem.

Recently, the federal government’s Centers for Medicare and Medicaid Services launched an initiative to improve dementia care. UNCG research associate Suzanne Fitzsimmons, Dr. Beth Barba and doctoral student Maria Stump wrote the paper with Northeastern’s Dr. Alice Bonner, a former official with the Centers for Medicare and Medicaid Services. It’s the first of their four-part series shining a spotlight on the problem.

Those showing signs of dementia may be anxious, confused, physically violent or verbally aggressive, Barba explains. These UNCG researchers are exploring alternative and complementary nonpharmacological methods to use with

residents showing these signs. And they are teaching professionals best-practice methods that are alternatives to medicating older people with signs of dementia.

They’ve been teaching these methods for more than a decade, with funding from the Health Resources and Services Administration, Comprehensive Geriatric Education Program.

UNCG’s Geriatric Workforce Enhancement Project provides geriatric education to nurses and interdisciplinary health professionals. The UNCG team members have reached underserved areas of the state with many workshops and have partnered with a variety of healthcare systems such as Moses Cone and Catawba Valley – all to enrich the staff’s geriatric know-how.

“Over 13,000 professionals have been reached since 2003, that we know of,” says Barba. “Plus our media have gone to 11 countries and all over the United States.”

Those media vehicles, with training modules and videos, amplify their impact in our state and well beyond.

The research group has recently filmed 20 more sample vignettes at Greensboro’s Well•Spring Retirement Community, showing ideal ways to be proactive with non-pharmacological interventions. The staff and some residents agreed to serve as actors. The scenes are being edited now.

What if some residents are withdrawn and don't want to go eat? "If they don't want to eat, maybe use a conga line into the dining room," Barba says. Make it fun and engaging, and draw the person into the activity. "Well•Spring has been using that technique successfully."

What if a resident appears angry? "One nursing assistant lets her beat a drum till she works off her anger outside."

Drugs are expensive and they can create other health problems – in addition to sometimes leaving the older resident in a stupor. It's about quality of life and human dignity. Simple things a caregiver can do can make a huge difference. "They take five minutes or less to do."

Use music to draw interest and change mood. "If they are a veteran, maybe choose some patriotic music." Their demeanor may change instantly.

Memory lessons, in a circle of residents. Warm, colorful muffs for their hands. Scented lotions. "Massaging someone's hand is soothing."

You're appealing to many senses, helping them have interaction. "That's a big part of being human – interacting with other people," Barba explains.

Petting an animal a few minutes can change their outlook for hours. Simple kits for easy no-needles knitting can prove an enjoyable task.

Read with an older resident a while, Barba says, or better yet, ask the resident to read to you. Make sure large-print books are on hand.

"A person goes into a nursing home, and sometimes they're never asked to read again."

The UNCG team is collecting data. "We're measuring staff self-efficacy, their confidence before and after we teach them."

She can see they're making an impact.

"It helps the residents – and the assistants who work with the older adults." They're learning real-world strategies that work.

Five people form the grant team. Barba is project director. Fitzsimmons is a dementia and brain fitness expert. Administrative assistant Wayne Johnson, expert consultant Delzora Able and doctoral student Maria Stump complete the team.

Beside Barba's computer is the sign "To teach is to touch a life forever." She was a critical care nurse for two decades. Her last 25 years, she has taught and conducted research at UNCG. She leads the PhD program in Nursing, and leads the Geriatric Enhancement Research Project.

"I've always liked older people," she says. "They are national treasures."

They fought for us, she explains. They raised us and educated us.

The number of older Americans is growing, which makes UNCG's applied research and outreach critical.

"People are living longer – and longer in retirement. And being old doesn't stop growth – aging can be very creative too. We need to nurture that."

Child care and Hispanic families

CHILD CARE IS AN IMPORTANT ISSUE FOR ANY FAMILY. But for those from a Hispanic background, little research about the impact of child care has existed. Until now.

A team of national experts on Hispanic issues, including several UNCG researchers, is part of the newly created National Research Center on Hispanic Children and Families. Funded through a five-year \$5.2 million federal grant, the center will focus on three priority areas: poverty reduction and self-sufficiency, healthy marriage and responsible fatherhood, and early care and education.

At UNCG, Dr. Julia Mendez of the Department of Psychology and Dr. Danielle Crosby of the Department of Human Development and Family Studies will direct all research related to early care and education. Mendez also is a member of the steering committee for the overall center activities.

"Our initial projects will examine the factors that impact parental decision-making related to usage of child care," Mendez said. "But the overall project is taking a broad perspective. By assembling a network of experts, this center will be able to advance science in multiple areas impacting the lives of Hispanic families with young children."

Mendez cited previous research on Hispanic families which has shown that parents must balance work responsibilities with the challenge of finding high quality child care for their children. Also, whether the child care is with family members or in other home- or center-based care settings, less information about its impact on the development of children from Hispanic backgrounds is available.

In the first year, Dr. Heather Helms, also of the Department of Human Development and Family Studies, will join the team in a research study of Mexican-American couples residing in North Carolina and their decision-making, preferences and beliefs about early care and education.

Future research will address other important topics related to Hispanic families including family engagement in education, use of services to address poverty-related stressors, and school readiness of Latino children.

"This research ties nicely into UNCG's commitment to conducting community-engaged research and scholarship," Mendez said.

The national center also will offer a Summer Fellowship Program to allow graduate students to work on center-sponsored research projects. At UNCG, several graduate students are working in partnership with Mendez, Crosby and Helms to develop a variety of research briefs and materials for Hispanic families.

"This strong mentorship model is designed to attract the next generation of community-engaged scholars to the field of Hispanic family research," Mendez said.

FOLLOW UPDATES FROM THE CENTER, OR LEARN MORE ABOUT HOW TO GET INVOLVED AT

psy.uncg.edu/research/national-research-center-on-hispanic-children-families/

READ MORE ABOUT DR. BETH BARBA AT

nursing.uncg.edu/FacultyStaff/Faculty/barba.php

Does Living Together Increase Chance of Divorce?



It's kind of a commonly held, socially conservative idea that you shouldn't live together because it'll be worse for your marriage." Dr. Arielle Kuperberg

CONTRARY TO WHAT YOU MIGHT HAVE HEARD, living together first doesn't mean your marriage will be doomed.

Those are the findings of a study by Dr. Arielle Kuperberg, assistant professor of sociology at UNCG.

In fact, the biggest predictor of divorce seems to be people's age when they move in together – whether they are married or not. Once age is factored in, divorce rates are the same among couples who live together and those who move in together after marriage, Kuperberg concluded.

"I expected people's ages to explain part of the divorce risk, but I was surprised it explained as much as it did," Kuperberg said.

The study struck a chord nationally, grabbing headlines across media outlets such as Fox News, Time magazine, the TODAY Show, NPR, Slate, the Atlantic and others. Although she didn't expect quite so much coverage, the interest in the subject didn't surprise Kuperberg.

"It's kind of a commonly held, socially conservative idea that you shouldn't live together because it'll be worse for your marriage," she says. "With nearly 70 percent of first marriages now starting with cohabitation, I think this is a

concern in the back of people's heads. A lot of people are kind of worried about that."

While there have been many studies on the connection between cohabitation and divorce, no one had considered the age when couples took the plunge. When Kuperberg did that, she found that the longer young couples waited, the better their chances for successful marriages.

So what is the best age to commit?

It's 23.

Kuperberg theorizes that, by this point in their lives, people are likely to be more settled in their careers, out of college and more financially secure. They may have even identified where to live.

In contrast, there's not a huge advantage to waiting much longer than 23 to move in together or marry, Kuperberg says. In fact, when committing after age 35, your risk of divorce goes up again.

Kuperberg reached this conclusion after analyzing more than 7,000 survey responses from the 1995, 2005 and 2006 versions of the National Survey of Family Growth, a US government survey. The analysis was published in a briefing paper prepared for the Council on Contemporary Families.

Double loop with a twist

IT STARTED WITH A PROBLEM. In summer 2011, over 50 students enrolled in the writing-heavy online Business Strategy course in the Bryan School of Business and Economics. Could Dr. Eric Ford take on such a large group of students – and ensure they learned and honed their critical thinking, communication and collaboration skills?

He turned to doctoral student Dmytro Babik for help.

The solution called for something that would engage students in peer reviews of their work and motivate them to do their best in providing helpful reviews to each other. Most existing peer assessment systems require constant monitoring and intervention by an instructor or assistant. What they needed didn't exist.

Within days, Babik put together an application using spreadsheets, Google forms and email scripts. It became a prototype social learning system called the Mobius Social Learning Information

Platform – Mobius SLIP for short.

Over three years of development, Mobius SLIP has become a powerful online social learning and peer assessment system. Its unique double-loop mutual assessment method lies at the heart of Ford's and Babik's innovation. Students evaluate not only each other's submissions but also each other's critiques. It gives students feedback on their work from many real people, not just a professor.

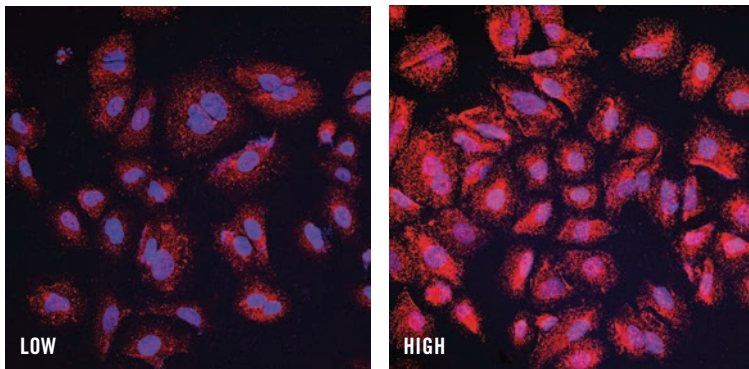
How does it work? A student composes an essay, an analysis or a design model in response to an assignment. Online, an anonymous group of fellow students assess and critique the work. But then, the students assess others' critiques as well. It's a double loop.

Instructors as well as students can quickly see who is performing well and who needs help. Students have to critically think as they

Hold that spoonful of sugar

MARY POPPINS' ADVICE may help the medicine go down, but, according to Associate Professor of Biology Dr. Amy Adamson, a spoonful of sugar may also increase your odds of getting the flu.

Adamson studies the relationship between the flu virus and glucose, the basic sugar that helps power our cells.



"I'm observing the interaction between viral proteins and host cell proteins to figure out how the virus manipulates intracellular activities during infection and replication," she said.

What started as an investigation in fruit fly viral proteins has led to the discovery of a curious partnership between the influenza virus and a part of the cell called the vacuolar ATPase proton pump. This pump, nestled in the cell's membranes, acts like a selective gateway, actively pushing protons in and out of the cell's compartments to regulate cellular pH.

Adamson's work zeroed in on this pH process.

"We found that when cells were given higher levels of glucose, they were more likely to become infected with the influenza virus," she said.

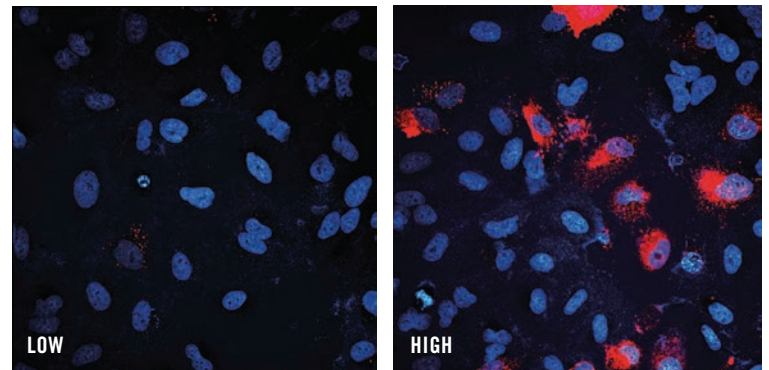
When cells get a shot of sugar, the pump goes into overdrive, resulting in more acidic cellular conditions. Acidic cellular conditions, in turn, give the flu virus a big leg up in the infection process, helping it to replicate more rapidly within the cell and eventually spread throughout the body. That's bad news for sugar-loving U.S. citizens, where, according to the Centers for

Disease Control and Prevention, the flu kills between 3,000 and nearly 50,000 people each year, depending on outbreak severity. It can be even worse news for diabetics battling elevated glucose levels.

Adamson's research lays the foundation for successfully combating these obstacles. "If my work is extrapolated from cells to humans, it could possibly implicate that reducing glucose intake may help reduce viral infection," she said.

As for diabetics? "Other research has shown people with diabetes do have more severe symptoms of the flu," she said. "Perhaps having better control of glucose levels could alleviate influenza viral infection and disease." Right now, Adamson is examining how excess glucose (diabetic-like conditions) could stress cells, making them more vulnerable to infection.

Adamson doesn't restrict her work to influenza. She's currently working on the Epstein-Barr virus, which is the cause of mononucleosis and is implicated in causing various cancers. She's still amazed that what started as a peek inside fruit fly genes has paid off in big discoveries about how humans function.



CATCHING THE FLU These slides depict lung-derived cells grown in low or high glucose, then infected with influenza virus. After infecting the cells, researchers probed them with antibodies that detect the V-ATPase (red stain, top panels) or the virus (red stain, bottom panels). Cells grown in high glucose show more V-ATPase assembled on intracellular membranes and are more prone to infection with the virus.

not only work on their own assignment but also help others to make theirs better. No one falls through the cracks – if a student doesn't "get it" that's identified in both rounds. And if a student excels with his peers' knowledge and helpful coaching, that's measurably evident.

Ford, Babik and two other founders started a company, Social Learning Solutions, to provide their product commercially to other schools. Their invention is now patent-pending. The UNCG Office of Innovation Commercialization helped them get their business off the ground.

Mobius SLIP has lots of applications. It works equally well in small and large classes, face-to-face and online. Its application also goes well beyond college classes. For example, everyone from the military to businesses do table-top exercises. This allows assessment of how well everyone performs – and how accurately they assess each other.

Back in the summer of 2011, Babik had just finished his master's in IT

management. Since joining the PhD program, he has made this applied work part of his research of technology-enabled social learning. Mobius SLIP is already being used by a number of departments at UNCG and by other schools – such as the University of Georgia, Ohio State, Cleveland State, California State, Rochester Institute of Technology and University of Calgary.

They received national recognition from the National Collegiate Inventors and Innovators Alliance, which invited them to a prestigious strategy-mapping workshop to develop a sustainable business strategy.

The company's next roll-out will be Mobius SLIM, a Social Learning Idea Market. Through this online environment, instructors will be able to create, share, borrow and evaluate learning materials such as syllabi, cases, assignments and entire courses.

Their work is just getting started.



The green grass grows all around

For Dr. Stan Faeth, grass is more than a manicured front lawn or a backyard sea of green waiting to be trampled. UNCG's ecology professor and biology department head sees each blade as a welcoming habitat — one that harbors tiny guests who can change the lives of every animal they meet. For six years at UNCG, Faeth and his students have examined the relationships between these grasses, the fungal guests they harbor, and the animals feeding upon the blades. Here, Faeth explains why watching grass grow really can be exciting.

CONSTANT CONTACT All species, including humans, constantly interact with other species through competition, parasitism or mutualism. My lab is interested in understanding how these interactions can change through time and space. We study grasses that harbor internal fungi called endophytes. These partners are invisible to the eye and don't cause disease like fungal pathogens, but nonetheless can have large effects on their grass hosts and the entire ecological community. Grasses and endophytes have a long history of co-evolution and are generally thought to be mutualists (meaning the partners provide benefits to each other), but we're testing whether or not they really are mutualists under different environmental conditions.

WHY ECOLOGISTS WATCH THE GRASS GROW For ecologists, grass offers a much simpler system to observe and experiment with than, say, an entire forest. My team studies insect herbivores like aphids that feed upon grasses and can be impacted by the grass' endophyte partners. Then, we take a look at the herbivore's natural enemies like ladybird beetles (you may know them as ladybugs) and see what happens to them after they eat endophyte-fed herbivores.

All plants have endophytic fungi that grow throughout the plant, and some of these endophytic fungi act as defensive partners. The plant gives the fungus a safe place to live and carbon to grow on, and in return, the fungus protects the plant from insect herbivores by producing very potent chemicals called alkaloids.

DE-FENSE We're all familiar with caffeine and nicotine, two types of alkaloids that can have harmful effects when humans consume them in large amounts. Endophytes also produce alkaloids, and when insect herbivores try to eat the plants, these alkaloids can either repel the insects or harm them by reducing their growth and survival.

NOT ALWAYS BUDDY-BUDDY Before we started observing this system, the relationship between grasses and their endophytes was always considered to be a strong mutualism. But with our research, we've challenged a lot of conventional wisdom and found that seemingly mutualistic relationships are not always so. The mutually beneficial relationship is contingent on grass and endophyte genetics and environmental factors. Alkaloids are high in nitrogen, a key element for healthy plant growth. But if you're a plant growing in poor soils with low soil nitrogen, you're trying to use what little nitrogen you have for growth, while your endophytes are using it to produce alkaloids. So in poor conditions, plants' growth can be compromised by their endophytes as they compete for precious nitrogen.

... AND NOT ALWAYS BENEFICIAL We also study these beetles that we call ladybirds, which plants like to have around because they eat the insect herbivores living on the plant. Unfortunately, when the insect herbivores eat alkaloids, they transmit those nasty chemicals to the ladybirds, where the alkaloids do the same damage to the good guys that they do to the herbivore pests.

A FUNGUS AMONG US We work with native grasses. One is sleepy grass, found in the Southwest. Another is grove blue grass, found in the North Carolina mountains. But we have other grasses in our yards and pastures, like tall fescue and perennial rye, that were imported from Europe. These imported grasses came to the U.S. equipped with endophytes, which have caused billions of dollars of economic loss because the alkaloids from their endophytes sicken the grass-eating cattle, sheep and horses.

Today, there's a big move to manipulate and move the endophytes from native grasses into agronomic cultivar so you retain the beneficial aspects without being harmful to the livestock.

SIMPLE ECONOMICS Grass, like pasture and turf grass, is the biggest agriculture crop in the United States. Most people don't realize that. That's just one reason why understanding endophytes and their interactions with grasses can be of great economic importance.

For more information about Dr. Stan Faeth visit biology.uncg.edu/faculty/Stan_Faeth/

Thieving animals

Thievery and complicated mathematics: It's a dangerous world out there, but somebody's got to quantify it. Fortunately for us, UNCG professor Dr. Jan Rychtář is using mathematics to examine interactions between animals. In particular, Rychtář studies the frequency and outcomes of stealing, also known as kleptoparasitism, in dung beetles and other pilfering beasts. Here, he explains how math can help us understand the natural world, and when it's best to keep a keen eye on your dung pile (or when it's best to sneak off with someone else's).

BEETLE MANIA Dung beetles are very important to nutrient recycling. Without dung beetles, excrement would stay on the ground for a long time and possibly not be buried at all. All that waste could really add up without these insects.

These beetles are relatives to the scarab beetles that were sacred in Egypt. We know most dung beetles for their ball-rolling behavior, but the species typically found in North Carolina don't really roll their dung. Instead, they dig a maze of underground tunnels and carry the dung to various tunnel ends. Then, the female lays her egg in the dung ball. After the egg hatches on the ball, her young will eat that dung until the larva pupates and use the dung's nutrients to grow. Meanwhile, the female guards the egg and ball by carefully putting the dirt back to mask any traces of the tunnel. This is a lot of work for the female.

Sometimes her masking technique doesn't work, and another beetle can discover a fresh tunnel and ball. This interloper can save some time and energy by stealing the ball for her own egg. Interactions like these are quite common in nature, but there are still not enough mathematical models of this behavior. I help create those models so we can better understand their behavior.

OTHER THIEVES Many animals, including people, choose to save time and energy by stealing from others. While cuckoo birds are probably the most famous animal thieves, they're also the most subtle. By sneaking their eggs into other birds' nests, they're stealing parental care rather than actual food. Seagulls are also quite famous thieves. They steal food from each other, as well as from other species.

There are even coral reef fish that take care of their own "gardens," almost literally growing their own food. Then, when the gardeners aren't looking, other fish come in and harvest the crop. Even ants can be robbers. Some ant species can steal workers from another colony and enslave them.

Right now, I'm developing models of stealing interactions for Antarctic albatrosses. These birds can fly incredible distances to catch fish for their young and the significant cost of those fishing trips is an invitation for all sorts of thieves. I also work on modeling cockroach and honey bees social behavior. For me, as a mathematician, it's fascinating to see the incredible variety of different biological phenomena in our natural world.

PEOPLE POWER A bit disturbing trend I've noticed in studying thieves is that by far the most common outcome of the mathematical models of stealing behavior is one that predicts one should steal as much as possible. It does not mean that every animal steals; it just means that animals should steal whenever the benefits outweigh the costs.

Fortunately, I do not observe too much stealing in humans. While I hope this is the consequence of people's highly-developed morals, from a strictly mathematical point of view, the relative lack of stealing in human society can be explained by the fact that the cost of being caught is often too high compared with the gains. So many individuals (whether moral or amoral) may not steal for that reason.

DOING THE MATH While I examine the mathematical aspects of these interactions, collaboration is extremely important to this work, and my research involves a lot of collaboration across disciplines. Each discovery would be impossible without a team of researchers across UNCG's campus, including former director of the Office of Undergraduate Research Mary Crowe, the biology department's Olav Rueppell and David Remington, and the Department of Mathematics and Statistics' own Sat Gupta and Maya Chhetri.

I'm grateful that UNCG creates this fertile environment for interdisciplinary collaborations.

For more information about Dr. Jan Rychtar visit uncg.edu/mat/faculty/rychtar/





Putting memory to work

Dr. Michael Kane, a cognitive psychologist, has spent years studying the most complex of territory imaginable — the brain. The interplay of memory and attention differs from person to person. Knowing how those work together has implications for everything from how students learn to early warning signs of schizophrenia.

MENTAL JUGGLING The kind of memory I'm really interested in is called working memory. We think about it as a set of mental processes that help you keep things in mind while you're working on them. It's kind of like a mental juggler. Individual differences in working memory seem to be good predictors of a lot of other intellectual things that we care about, like understanding what you read or comprehending spoken language or solving new problems.

DAYDREAMERS In the lab, we're interested in the extent to which people report being off-task a lot versus a little, and it's probably not surprising that people who are off-task a lot don't perform the task very well. We also find that the individual differences in working memory are also predictors of who's going to find themselves mind wandering. The people lower in working memory are also the ones who, when they have one thing to do, struggle to maintain that focus.

WONDERING ABOUT MIND WANDERING The way we've studied mind wandering in daily life is to hand students digital devices that they carry around with them for a week. As soon as they hear a beep their job is to report, "What was I just thinking about?" Consistently across our studies, 30 percent is the average amount of time that participants report not thinking about what they're doing.

WHERE'VE YOU BEEN? A funny thing about mind wandering is that people don't often realize they're doing it. Everyone has had that experience of reading and you get to some point in the page and you suddenly wake up and think, "Where've I been?" You don't stop your eyes moving across the page, so part of your brain is completely unaware that you're mind wandering because it keeps you going along this path.

MEMORY, ATTENTION AND SCHIZOPHRENIA One line of the mind wandering work that I'm excited about has been in collaboration with my UNCG colleagues Paul Silvia, who's a social psychologist, and Tom Kwapil, who's a clinical psychologist. Tom and Paul have been doing work on a facet of personality called schizotypy. Essentially it's a complex collection of personality characteristics that indicate some increased risk for developing schizophrenia and related kinds of psychotic disorders. We know that in full-blown schizophrenia, working memory seems to take a hit. ... So now we're asking, way before anyone has schizophrenia or milder, related experiences, is there an association between schizotypy and working memory that we can pick up?

MIND WANDERING AND LEARNING We're just starting up a new project with collaborators at the University of Colorado at Boulder examining how individual differences in working memory, attention and mind wandering affect people's ability to learn new material. We're presenting them with a video that they're going to try to learn statistics from. We're going to periodically interrupt that video with mind wandering assessments. We'll also manipulate various aspects of the learning context, such as whether students take notes because we think it might be helpful for higher working memory students to take notes to keep them on task. We're wondering also if it might actually harm students who are lower in working memory because now they're really going to struggle to keep up.

TEXTING In other studies we're going to ask students to periodically compose texts to their friends while learning. We know this happens a lot in classrooms, as engaging as we are. We hope to get a sense for, on average, what these kinds of momentary disruptions do to comprehension. We predict when you momentarily disengage, you've not only lost those few seconds of what's happened but now you've also cued yourself to think about your "outside world" concerns. We know that most mind wandering is not about happy-place fantasies, but just thoughts about our mundane, everyday concerns and things to do. By triggering and cuing those personal concerns in the classroom via electronic communication, off-task thinking may snowball.

For more information about Dr. Michael Kane visit uncg.edu/~mjkanel

Curiosity seeker

Dr. Paul Silvia admits he has a lot of irons in a lot of fires. As a social psychologist who studies interest and motivation, he finds himself drawn to all kinds of questions. Why are some people more creative than others? Can you predict who will be funny and who won't? Why do some people experience goosebumps when they listen to music? It seems a simple personality trait holds the key.

OPENNESS TO EXPERIENCE One thread that runs through all of our work is this personality trait, openness to experience. People who are higher in openness to experience – they're a lot of things. They tend to be very curious. They're easily interested, and they're the kind of people who, in some ways, are very impractical. On the other hand, you have the kind of person who's practical, realistic, pragmatic and gets things done.

YOU'RE PLAYING MY SONG We're very interested in heavy emotional responses to music. Chills or goosebumps is one response. Those high in openness to experience will report goosebumps a lot. Whereas people very low in it will sometimes say they've never had this experience in their life. It just sounds weird to them.

EVERYDAY CREATIVITY We did a study here with the students, many of whom are music students, and signaled them 10 times a day for a week asking, "What are you doing?" We were interested in whether anyone was working on anything creative at the moment. A lot of people are knitting. They're sort of working on their music. They're drawing, writing a poem in a notebook. These are things people just do because they enjoy them. We found that people high in openness to experience — almost 40 percent of the time — said they were doing something creative.

FINDING THE HUMOR In a lot of our ongoing work, we ask people to try to be funny. It's sort of cruel — be funny, now! But we create these situations where we basically set them up for jokes. You can also give people weird words to define and have them come up with a funny definition. You can also give them New Yorker cartoons and remove the captions so they have to write one. What you see in this is some people are just so on fire. They just unleash so much funny stuff. Whereas, other people say things which are sort of what everyone says. Not that funny. Openness to experience so strongly predicts this. People who are open to experience, they're much funnier. Partly it comes from this mindset of always wanting to be different, seeing the world as being different.

ABOUT THOSE RED BRICKS A good way to measure creative thinking is to give students a really common object that has one or two obvious uses and ask them to do something really different with it. It's good context for studying creative thought because with creative ideas they have to move past obvious ideas. All the creative ideas tend to be singular and hard to predict. It's natural for the first things people come up with to be more obvious. The question is: Do people move toward something later that's kind of unique?

MIND MUSIC One thing we're interested in with music is what's called inner music, when people hear music in their heads but nothing's playing — stuck song syndrome. The stereotype is that the stuck song is something really annoying that they wish would go away. We were actually very curious about this. First off, how often do people really get songs stuck in their head? So we did some experience sampling. ... It's almost always a song they know and like. It seems people can clearly get "Piano Man" stuck in their head and be unhappy about this. But for the most part, it's perfectly fine with people. I don't think people notice it a lot unless you ask them about it. Musicians, for them it's really common. Most people, about 30 percent of the time, they report hearing music when there isn't any.

For more information about Dr. Paul Silvia visit uncg.edu/~p_silvia/





A BUG'S (((SECOND))) LIFE

BY JERI ROWE

PHOTOGRAPHY BY CHRIS ENGLISH, PHOTOGRAPHY EDITOR

**CICADAS' WINGS KILL MICROBES ON CONTACT,
AND THE EXOSKELETON COULD BE THE KEY TO MAKING A
BIODEGRADABLE PLASTIC. SCIENTISTS HOPE THEIR RESEARCH ON THIS
FAMILIAR INSECT COULD SAVE LIVES AND MAKE LIFE BETTER.**

First, Kyle Nowlin, a graduate from JSNN with a PhD in Nanoscience, has to catch them.

He hops on his bike and hits the Downtown Greenway and the other bike paths crisscrossing Greensboro. He and Adam Boseman, another grad student, look for that underbelly of white, no bigger than a quarter, for the tell-tale sign of this:

A dead insect flat on its back.

That insect? A cicada, as distinguishable as a cigarette butt on the ground.

But it's tough.

For every mile they bike, they find two cicadas. And some days, Nowlin and Boseman bike 14 miles because they know they need these insects for their lab experiments to explore UNCG's newest intellectual frontier: nanoscience, the study of extremely small things.

Those small things include the cells in the wings and exoskeleton of a cicada.

And from those small things could evolve big discoveries that could lead to so much – saving landfills, saving lives, killing viruses, killing the stink in shoes and building a better fishing pole.

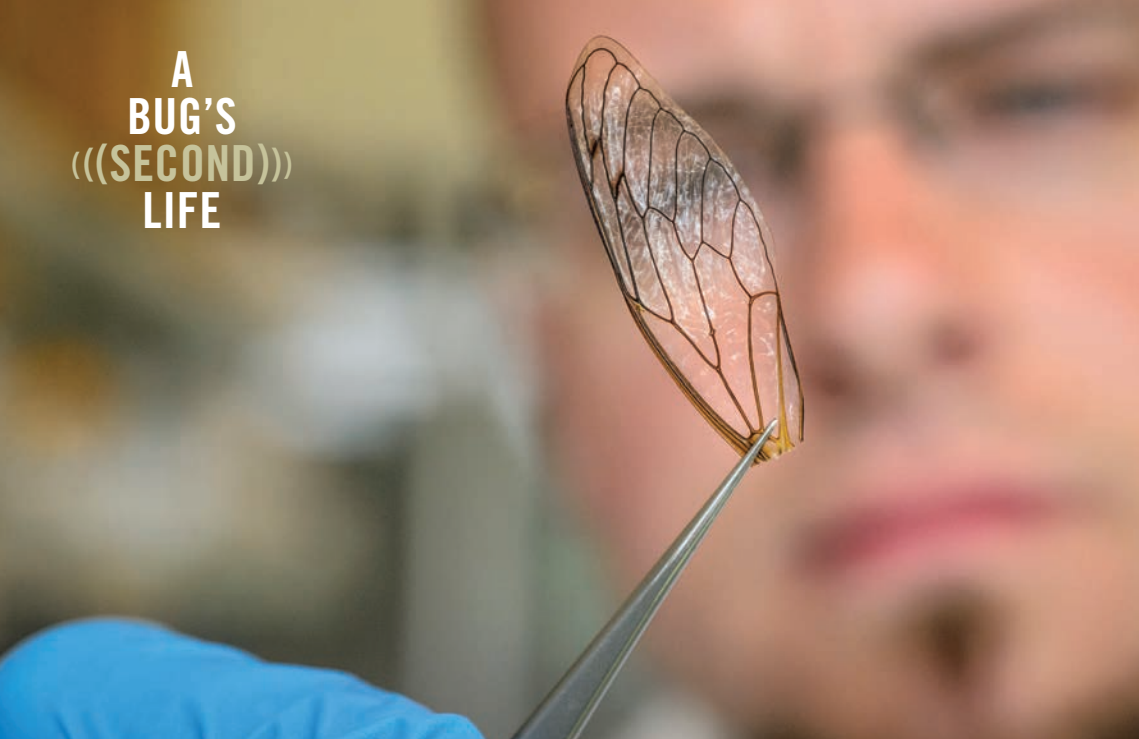
That's what can happen – and is happening – inside the Joint School of Nanoscience and Nanoengineering, the academic collaboration of UNCG and NC A&T.

So, Nowlin and Boseman bike. They hunt. And they bike some more. They see the white underbelly, stick the cicada in a brown paper bag, slip it into their backpack and keep going.

They also find cicadas at Nowlin's parents' house near Greensboro's Bur-Mil Park. But really, the best place is on campus.

It's the parking deck off McIver Street behind UNCG's School of Music, Theatre and Dance. And there, in the stairwells, they find a slew of cicadas – disoriented, flying around, looking for a place to escape and finding only walls and steel.

Or Nowlin and Boseman find them dead.



UNDER ITS WING UNCG doctoral student Kyle Nowlin holds up a cicada's wing in the NANO lab at the Joint School of Nanoscience and Nanoengineering. Nowlin hopes to explain why cicada wings have antimicrobial properties and find implications for humans. Top, Dr. Dennis LaJeunesse, associate professor of nanoscience, right, smiles during a chat about cicada wing research. Bottom, cicadas are stored in a refrigerator, jokingly referred to as the "Freezer of Death."

No matter, Nowlin and Boseman snag at least a dozen. Then, they take them back to their second-floor lab to be euthanized, or really to be put in a refrigerator. It's what their fellow grad student Lee Williams likes to call the "Freezer of Death."

Like Nowlin and Boseman, he studies cicadas, too.

They're all budding scientists in white cotton coats, and they see nature as the doorway of discovery. And they see the cicada – this winged, stout-bodied insect known for its overwhelming hum and its "whee-oh, whee-oh" mating call – as their guide that can open that door.

Nowlin and Williams study the cicada's wings and exoskeletons, and they can pull up on their laptop micrographs of the insect that look like the dappled terrain from an old sci-fi film. The micrographs unveil 256 shades of gray and have this symmetric display of angles and ridges, bumps and circles that can remind you of a geometry textbook.

The fun is when you ask about it.

Nowlin uses words like "microbial colonies" and Williams talks about "goo" and "chitin" in the same sentence. Dr. Dennis LaJeunesse, UNCG's associate professor of nanoscience who guides Nowlin and Williams through their intellectual journey, has a name for this language of what's new and undeveloped: Labspeak.

But really it boils down to a red-eyed bug. Williams gets poetic about that.

"When they come out in the evening, and they get kind of loud, it sounds like singing," says Williams, who grew up near Chapel Hill in the countryside of Chatham County. "I like the singing. I'll be out on my back deck, having a beer, and it reminds me of summer, of growing up in the summer."

It does. But from that poetic image blooms this idea of scientific possibilities.

Nowlin is a Greensboro native, an engineer's son, who graduated from UNCG with a degree in physics. Like many undergrads, he didn't know what he wanted to do after college. Maybe be a medical

physicist or something.

Then, he heard Dr. James Ryan talk. Ryan is the founding dean of the Joint School for Nanoscience and Nanoengineering, or JSNN. Nowlin knew. He applied. And now he is studying the wings of cicadas to figure out how it kills microbes on contact.

And from that, Nowlin believes, can come scientific breakthroughs that can improve everything from space travel to the sanitation of medical implants.

"I find it fascinating that you can take a cell that is potentially hazardous and perhaps kill it by having it adhere to the surface and rupture," says Nowlin. "You read about bacterial infections and imagine the huge impact. You can find these microbial colonies, these dangerous microbes, that adhere to a surface and before spreading some infection, they'll be killed."

"Imagine how meaningful that could be – from saving lives to something as simple as making door knobs sanitary. I feel like this is a new generation of how we can combat dangerous pathogens. It's awesome, but intimidating. Who knows where it can go?"

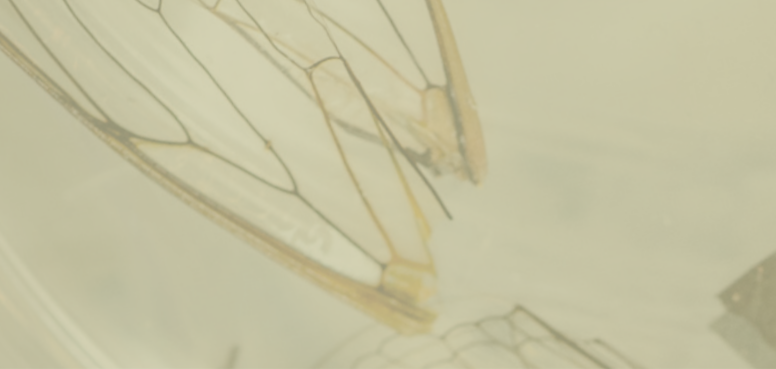
Williams has an idea. And it starts with chitin. That's the cicada's exoskeleton.

Williams knows cicadas build their exoskeleton in layers. We all see it when we find their molted shells on the ground like fallen leaves. The ancient Chinese saw cicadas as a powerful symbol of rebirth. Williams, though, sees cicadas through the pragmatic lens of ecology.

Williams, a JSNN graduate with a PhD in Nanoscience, is currently head of research and development of thermoplastics at Triad Polymers in Greensboro. Like Nowlin, he heard Dean Ryan speak and he was fascinated with what could happen and what could be.

So, he came. Williams studies chitin and sees it as a way to create biodegradable plastic that could prolong the life of landfills.

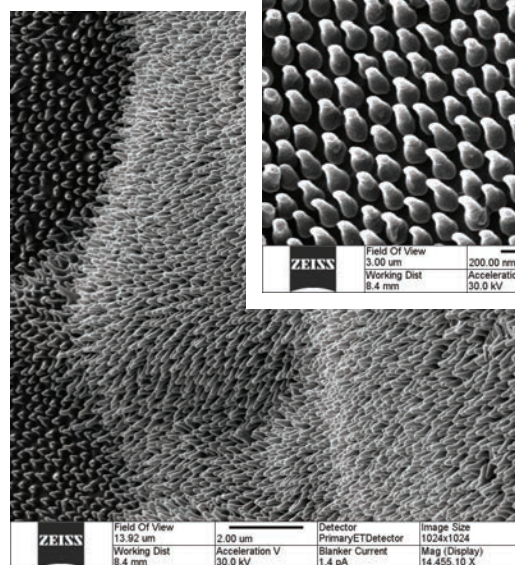
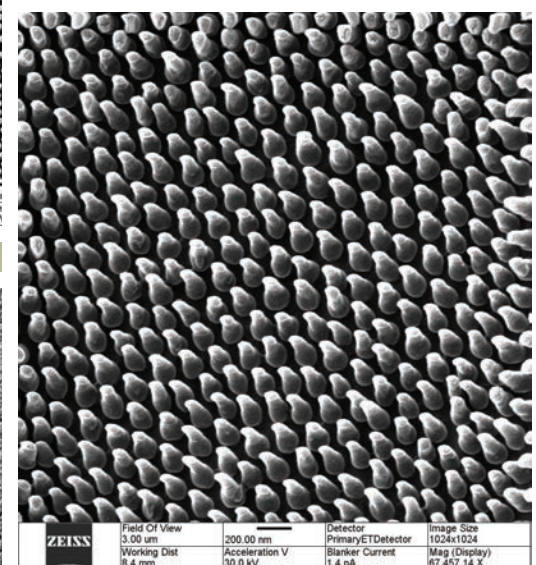
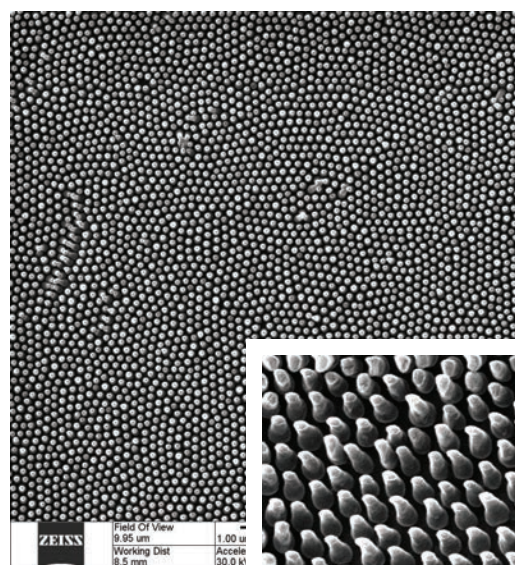
"Our world is touched everywhere by plastic," says Williams. "We are a plastic society, and that's what I like about (this project). There are a lot of things you can do with it. Now, what I'm doing is not



LAB WORK Top, doctoral student Kyle Nowlin works with cicada wings in the lab. Bottom, Nowlin and LaJeunesse look at cicada wings ready for the microscope.



UNDER THE MICROSCOPE Magnified images of a cicada's wing reveal the bumps and ridges that kill microbes on contact.



going to cure cancer or win the Nobel Prize. But the way I look at it, I've got the prize pig at the county fair."

As Nowlin and Williams work, LaJeunesse watches. He loves what he sees.

LaJeunesse (pronounced la-JO-ness) meanders from student to student in the second-floor lab. Like the 10 grad students he teaches, he gets excited.

He'll be with a student, hear about their findings and absorb it for a minute and think. Then, something will pop into his mind, and he'll begin to talk fast, his words rising and falling like the turning of a volume knob on a stereo.

Past the huge photos of a butterfly wing and the eye of a fly in the hall, conversations spark everywhere. Grad students discover and dig into much – so much so LaJeunesse will look through a microscope and ask, "What the hell did you do?"

Conversations begin. Experiments continue. Again and again and again.

They continue on the second floor or in the basement where grad students work with telescopes as big as dining room tables. One costs \$2.5 million, a helium ion microscope, and JSNN has one of only 20 in the world.

LaJeunesse helps steer the discoveries in this spaceship of a building off East Lee. He's 47, a married father of two whose intellectual curiosity started decades ago when he fished for gar off a dock and built forts in the woods outside his childhood home in Texas.

He graduated from Lehigh University – with a degree in classics of all things – and met his wife, Dr. Amy Adamson, while earning his doctorate in biology at Johns Hopkins University. Adamson (featured on page 7) is an associate professor of biology at UNCG, and they've done a project together.

On bugs.

Fruit flies, specifically.

Figures.

So, it's no surprise that LaJeunesse keeps fruit flies on or near his office desk. They're in tiny cylinders, looking like tiny dots flying around. They're part of experiments carried out by his graduate students, and every day, when he slips on his white coat with his JSNN lanyard around his neck, he finds something different.

"Here, you can push the boundaries," he says. "It's this idea that research is alive. Oh, you hear people say, 'You're not going to win the Nobel Prize.' But you shouldn't go into it because of that. Science and art, how do you give awards to that? Doing it is in itself a prize.

"Science is like a crazy puzzle where you don't know the pieces, you don't know what the picture looks like. You're always moving into the unknown like Descartes or Magellan exploring new lands. You're like an artist, a writer, you're making sense of stuff, like shadows on a cave wall."

And in the lab at JSNN, near the "Freezer of Death," today's cave-wall shadows include cicadas.

Those humming, buzzing, stout-bodied bugs with the "whee-ho, whee-ho" mating call.

"Four hundred million years of life on Earth," LaJeunesse says. "That is a huge test market of adapting. Adapt and survive. Right outside our window within one block of where we are. We can take it to a different plane and manipulate DNA that can make life better, that can save lives, that can make better products like fishing poles."

He pauses for a minute. Then, he continues.

"A chitin fishing pole," LaJeunesse says. "Now, that would be awesome." 🐟

READ MORE ABOUT DR. DENNIS LAJEUNESSE'S RESEARCH AT

jsnn.ncat.uncg.edu/faculty/dennis-r-lajeunesse-ph-d



A
BUG'S
(((SECOND)))
LIFE



ON THE HUNT Doctoral students Adam Boseman, left, and Kyle Nowlin, right, ride down Greensboro's Atlantic & Yadkin Greenway as they search for cicadas to be used in their research.

PERSONAL CHEMISTRY

UNDERGRADUATE RESEARCHERS FIND THE RIGHT MIX OF CHALLENGE AND SUPPORT WHEN WORKING AS PART OF DR. MITCHELL CROATT'S RESEARCH GROUP

Students frequently enter Dr. Mitchell Croatt's chemistry lab with certain career plans in mind. But by the time they've finished his organic chemistry course in their sophomore year, students find his love and passion for organic chemistry is so infectious, he's inspired them to take another path.

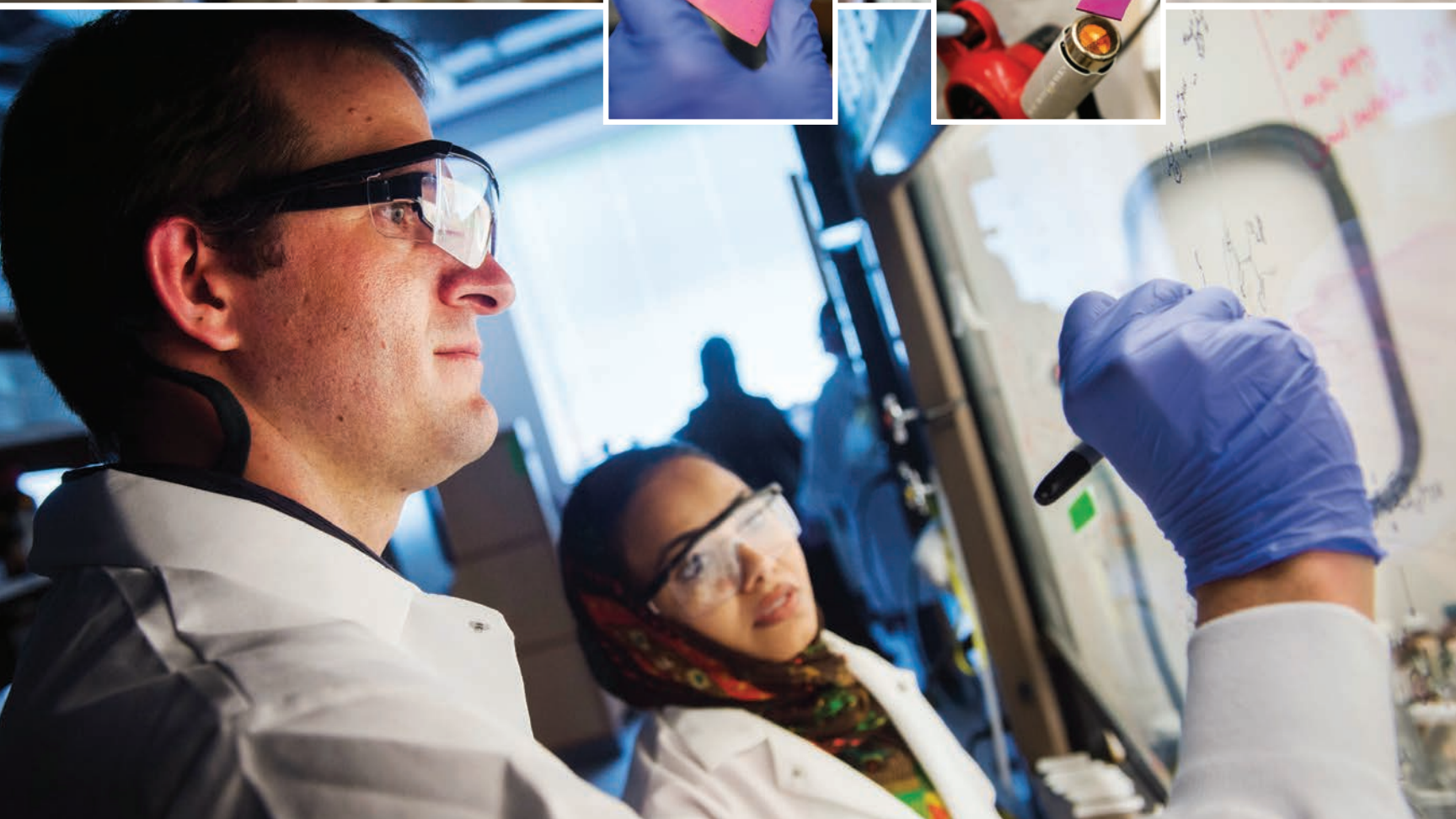
Students appreciate Croatt's combination of knowledge and genuine concern for them. Daniel Nasrallah, who graduated last spring, says Croatt is an exceptional mentor.

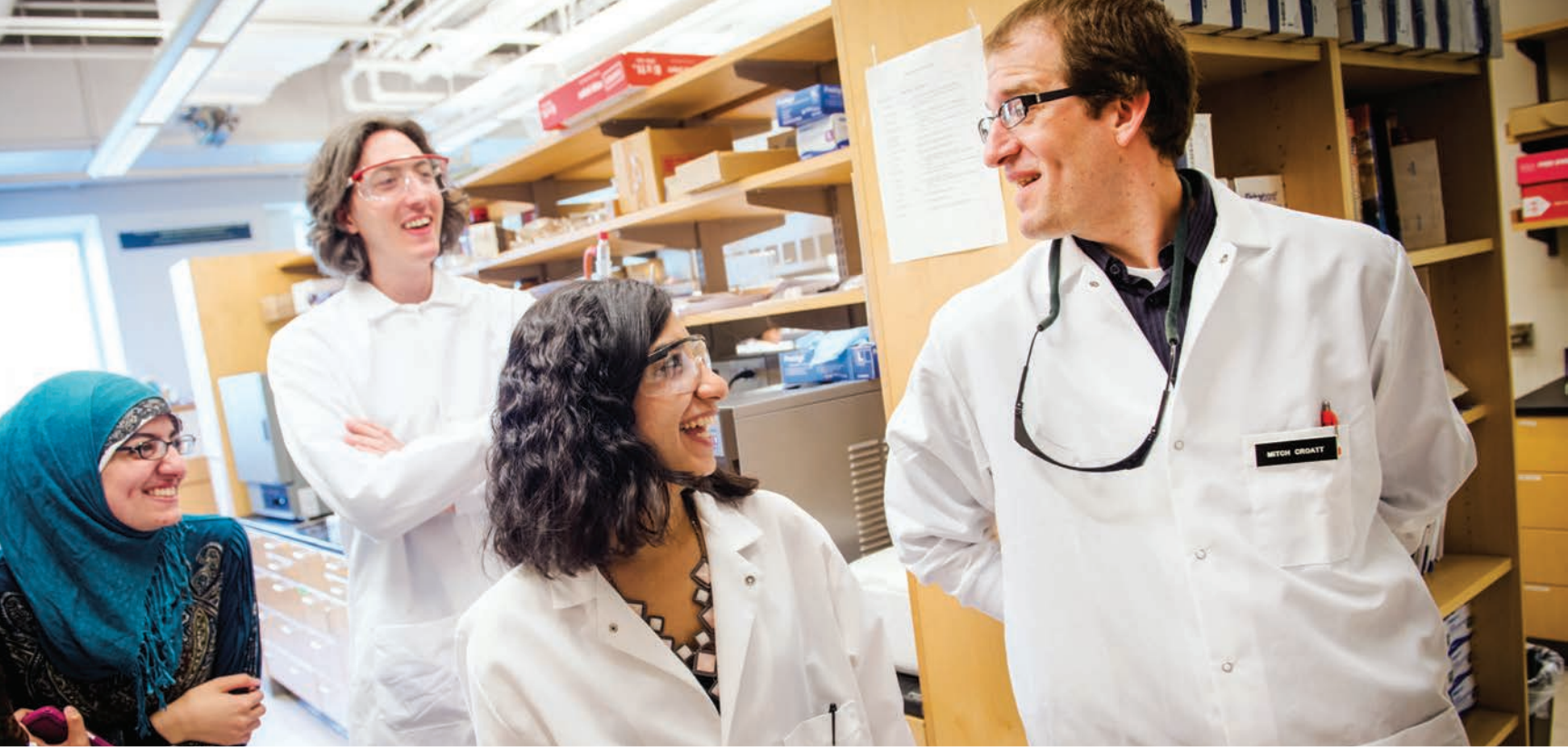
"He does an excellent job mentoring students, whether you're in a really good spot and doing well, or if you messed something up," Nasrallah says.

Nasrallah will continue his focus on organic chemistry research in the graduate program at the University of Michigan.

"I ultimately want to be a chemistry professor like Dr. Croatt. A lot of that is because of Dr. Croatt," Nasrallah says.

Croatt denies trying to sway any of his students toward organic chemistry, but he can just tell when a student enjoys lab research. Not everyone is cut out for it. There's more failure than success in research, Croatt says. "But what's great about it, is that your success is that much greater."





CHEMICAL BOND Dr. Mitchell Croatt, far right, talks with members of his research group: Sommayah Sayed, far left, Dempsey Hyatt and Buthainah Al Rifaie.

GETTING THEM EARLY

In the lab, they call him “Boss.” Or sometimes Dr. Croatt.

Students within his research group speak of him with a combination of respect and fondness. While his knowledge is extensive, they say he doesn’t make them feel inferior or intimidated by it. He’s never condescending, they say.

“He definitely knows his stuff. He can answer a question or look at a problem and solve it instantaneously,” says Michael Maxwell, a senior who is headed to graduate school to continue studying organic chemistry. “But he’s approachable and inviting. He enjoys chemistry, but he also really enjoys watching students grow, and I appreciate that.”

Croatt believes even his youngest students have a lot to offer. And he strongly believes in recruiting future researchers from the very start of their college careers. Doing so better prepares them for graduate studies, he says. By the time some students graduate, they have spent a significant amount of time in the lab, and many have even published papers.

Croatt experienced the benefits of good mentorship, himself. While a junior at the University of Minnesota, he switched majors from biochemistry to chemistry. In doing so, an advisor recommended he get research experience as soon as possible.

She looked through a list of professors in the chemistry department, and picked a name at random. She immediately called the chemistry professor to arrange it. That professor – George O’Doherty – remains a mentor to Croatt.

“That undergraduate research (with his group) solidified that I wanted to do that,” Croatt says. “I felt like my undergraduate research experience was instrumental. I had to give back.”

As a graduate student at Stanford University, Croatt was exposed to a broad range of what organic chemists could do. He

decided to study molecules. From Stanford, Croatt completed a post-doctoral fellowship in Switzerland, then joined the chemistry department at UNCG in 2010.

The assistant professor shares his own mentor’s philosophy about accepting freshman research assistants.

“Undergrads can be very productive,” Croatt says. “I think it’s a missed opportunity not to involve undergrads in higher ed research.”

As a freshman, Nasrallah hadn’t a clue about the kinds of jobs chemistry majors could get. He just knew he loved chemistry. When he learned about the opportunity to sign up for a research assistantship, Nasrallah followed up on it. Typically, students don’t do so until their junior or senior years. Nasrallah was surprised when Croatt responded to his interest.

“I needed a lot more coaching than upperclassmen. ... I was very fresh and didn’t have a clue about what I was doing,” he recalls.

But Croatt was patient, and within a couple of months, Nasrallah was comfortable running his own experiments. When it came time to take organic chemistry in his sophomore year, Nasrallah aced it because of his lab experience.

“For me, it was inverted. I had begun doing research before taking the course,” Nasrallah says. “Not only have I seen that reaction before, but I’ve run that reaction. It changed the course for me.”

And from there, Nasrallah remained ahead of the curve. Croatt’s guidance and encouragement inspired Nasrallah to apply for a prestigious international scholarship for people in the sciences. He applied for it a year earlier than most students because he had the research experience required. The application process also forced him to think about his career goals.

“It was clear I wanted to do what Dr. Croatt does. I want to run a research lab, and I want to mentor students, and I want to teach,” Nasrallah says. “I want to give other undergrads the opportunities to get into a research lab and show them what chemistry is.”

ENCOURAGING WOMEN AND MINORITIES IN SCIENCE

Of the two dozen or so researchers Croatt mentors, two-thirds are women. And many – from the undergraduate to the postdoctoral levels – are minorities.

“Overall, women are increasing their percentage in science, but it is happening too slowly,” Croatt says.

He works to increase the presence of women and minorities in chemistry by encouraging their interest in his classroom and hosting departmental panel discussions to help educate them about science careers after UNCG. Those discussions have focused on job opportunities, advice from women and minorities in science and the job application and interview process. One panelist spoke about salary negotiation.

“Underrepresented minorities in science (including women) often don’t have strong mentorship to help them succeed, so I hope my discussion panels either educate them on opportunities or sometimes get them some possible mentors,” Croatt says.

Diversity in science is important because it brings different opinions and perspectives, Croatt says.

“I feel that we are losing some fantastic chemists because they get the impression that they wouldn’t be good at it,” he says. “By providing the same opportunity to everyone, I hope to recruit the best scientists.”

In recent years, efforts have been underway to draw more girls and women to science and math. Croatt speaks to middle and high school students to help dispel myths about science and how to succeed in it. He also taught a group of young Girl Scouts why ice melts by having them pretend to be molecules of water.

Buthainah Al Rifaie, a Southwest Guilford High School graduate, had strong foundations in math and science from her schooling in the Middle East. Her family lived in Iraq and Jordan, where science is emphasized, she says. Both her parents are engineers.

She had initially planned to study pre-med, but learned she

enjoyed lab research. She says chemistry requires her to think about how to solve problems, not just memorize information.

Al Rifaie says Croatt was hugely instrumental in changing her mind. His interactive style of teaching challenges students, she says.

“He’s been great helping me figure out who I am, and who I want to be in the future, and what I want to do,” Al Rifaie says.

THE MENTOR PROFESSOR

The relationship between a mentor and a student is a lasting one, Croatt says. He’s still very close to his mentor and former professor, O’Doherty.

Croatt’s students have advanced to pharmacy, dental and medical schools. Some are in graduate programs at Duke, Harvard and Purdue. They share papers related to what they learned from him. “It’s fun to see them grow as researchers,” he says.

Nasrallah says he feels comfortable asking Croatt’s advice in all aspects of his professional development. He was instrumental in helping Nasrallah compile his list of grad schools to consider.

Nasrallah is deferring graduate school until this fall while his girlfriend finishes her undergraduate degree. A grant secured by Croatt will ensure Nasrallah can be paid to continue his molecular research with him. The grant is a National Science Foundation CAREER grant of \$450,000 over five years. The balance will be used to pay a postdoctoral student to help on the project in later years.

Rupa Vummalaneni, a junior, will never forget Croatt’s patience with her as a new researcher. She says the basic principles of what she learned in the lab carried over into other classes.

“In a way, because of him, I’ve become a better person,” she says. “He’s very much about the student.”

READ MORE ABOUT DR. MITCHELL CROATT'S RESEARCH AT

www.uncg.edu/chel/faculty/croatt

RESEARCHERS AT WORK

Here’s a sample of what some of Croatt’s research assistants are doing:

NEW REACTION DESIGN AND DEVELOPMENT – Daniel Nasrallah, Rupa Vummalaneni and Michael Maxwell are part of a team conducting molecular research. Croatt says that the cost of pharmaceutical drugs, materials (such as plastics and electronics in smart phones) and fuels are related to how easy or hard it is to make them. By designing and developing new ways to make these molecules, they are able to help decrease the cost of these important compounds.

Croatt says they also frequently create molecules that have new, unexplored properties. This enables them to learn more about systems such as biomarkers, new electronics and potential medicinal compounds.

“This research could either provide insight into how molecules work or react. Or it could be used to make other syntheses easier,” Maxwell says.

MEDICINAL CHEMISTRY – These projects in Croatt’s group take on different forms, but most target some sort of neurological disorder or neurodegenerative disease, such as Alzheimer’s, stroke, neuropathic pain or seizures.

Some projects are to make compounds that are either isolated from nature or derivatives of natural products. Other projects make compounds completely designed by chemists. Regardless of their origin, any molecule can be modified based on the researcher’s desired outcome.

So, if a molecule has right, left and middle parts, Croatt’s researchers design their method so that any of the three parts of the molecule could be modified.

Buthainah Al Rifaie, a biochemistry major, works among this group. She says the research is always challenging.

“It’s a never-ending process,” she says. “You never stop thinking about the problem, and you always want to make it better.”

Croatt recently was also awarded a grant from the N.C. Biotechnology Center, which pays \$100,000 over 1.5 years to fund his research on the neuroprotective compounds for stroke treatment.

BIOFUEL RESEARCH – Ethanol is currently the most prominent biofuel used. But for a variety of reasons, it’s not ideal, and researchers are exploring alternative types of biofuels.

Croatt is trying to take advantage of both ethanol and alternative biofuels by combining them chemically. If members of the research group took cellulose from non-food sources, and transformed it chemically into something else, it could be combined with ethanol to make a new biofuel. In essence, they are removing the disadvantages involved in the process of making bio-ethanol.



**IT WAS VERY DIFFICULT TO ADMIT OR EVEN COMPREHEND
THAT I WAS A VICTIM OF DOMESTIC VIOLENCE.
— DOMESTIC VIOLENCE SURVIVOR***

*ALL DOMESTIC VIOLENCE SURVIVOR QUOTES printed here are taken from the See the Triumph campaign (www.seethetriumph.org), which is based on the research of Dr. Christine Murray.

BY BETH ENGLISH, UNCG RESEARCH MAGAZINE EDITOR
PHOTOGRAPHY BY CHRIS ENGLISH, PHOTOGRAPHY EDITOR, AND
DAVID WILSON, ASSISTANT PHOTOGRAPHY EDITOR

A NOT-SO-SILENT PARTNER

UNCG faculty pair up with police, practitioners and one another to address domestic violence

In April 2013, Yan Wu and her pregnant sister were found dead of gunshot wounds in their Guilford County home.

When Wu didn't show up for work for several days, co-workers contacted the police. Police located Wu's husband, Guanghei Lei, in Germantown, Tenn., with their two children, then ages 6 and 3. Lei pled guilty to the shootings. He later committed suicide while serving three life sentences.

It's a tragic story by any measure. For Dr. Christine Murray, associate professor in counseling and educational development, it hit close to home.

"Her kids were in daycare with my kids," she says. "It adds a personal layer for me. Her kids will forever be touched by that."

As a counselor as well as a researcher, Murray has seen the devastating effects of violence in families. When she spent a year doing full-time clinical work, she observed that about 90 percent of her clients had experienced some form of abuse. 90 percent.

"It struck a chord in me," she says. "All of these lives defined or impacted by violence."

If you ask most people, they would say domestic or interpersonal violence is not something that affects them.

"But everybody needs to own this issue," she says. "There is so much work to be done."

So many at UNCG, like Murray, are doing their part.

I am still a strong, passionate advocate that believes we will end violence against women and children. Most importantly, I remember the key is prevention. ... Violence prevention is about culture and norm changes. — See the Triumph guest blogger Monika Johnson Hostler, executive director of the North Carolina Coalition Against Sexual Assault



STOPPING VIOLENCE BEFORE IT STARTS John Weil, center, and Dr. Stacy Sechrist, right, meet with High Point Chief of Police Marty Sumner and his team about the Offender Focused Domestic Violence Initiative in High Point. **FAMILY-FRIENDLY** UNCG's Wanda Dodson-Hoff, (center, black dress) talks with visitors at the April 2, 2014, open house for the High Point Center for Children and Families and Victim's Justice Center. She is program coordinator for UNCG's Bringing Out the Best Program.

ON THE CRIME BEAT

So how do you stop violence before it starts?

The High Point Police Department has been wrestling with just that question.

"They look at data: who's driving the crime and how to combat that," says John Weil, senior program specialist in the NC Network for Safe Communities within the UNCG Office of Research and Economic Development. "This is the cornerstone of how they police."

First, the department rolled out its revolutionary overt drug market strategy in 2004. With the help of UNCG's Center for Youth, Family and Community Partnerships which was then under the leadership of Dr. Terri Shelton, they assembled data on hot spots for drug deals and identified a list of offenders from surveys of police officers, vice officers and community members.

They then tweaked the focused deterrence model to target gang violence, which provided a drastic reduction in violent crime. By 2009, gun-, gang- and drug-related violence had decreased 63 percent; however, a third of the remaining homicides were related to domestic violence.

In 2012, they launched their offender-focused domestic violence initiative (OFDVI) to reduce repeat domestic violence calls, reported assaults, injuries and deaths. This time Weil and Dr. Stacy Sechrist, also with the NC Network for Safe Communities, studied all domestic violence reports over a 10-year span, identifying known offenders and checking to see whether they had records. They found chronic domestic violence offenders tended to have extensive criminal histories that included both domestic and non-domestic offenses.

That information led to the creation of four levels of people to watch. Those with two or more previous charges are brought in for a face-to-face meeting with law enforcement and community members (also called a call-in) and are told violence will not be tolerated any more. Those who receive their first domestic violence-related charge are given a face-to-face deterrent message from a violent crime detective. Those who seem to have the potential for violence but have not been charged after a DV call receive a letter putting them on official notice that their name has been

added to the watch list.

At the same time, the victims receive help. Some are given a letter listing services offered. Others are put in direct contact with a safety planner. Those whose partners are involved in the call-in receive notice before the call-in occurs. The victim reviews the message, and police contact her immediately following the call-in.

The message from law enforcement is clear: It is not just domestic violence; it's VIOLENCE.

Community members have a message to offenders as well: There is no excuse for domestic violence, and they support law enforcement in prosecuting offenders if they do not stop.

The data-driven work is starting to net results. After three call-ins (February 2012, July 2012 and April 2013), only 9 percent of notified offenders were rearrested on domestic violence charges.

"That's pretty powerful," Sechrist says. "It's usually 30-40 percent."

And domestic violence assaults with injuries have decreased significantly since the strategy was implemented. Calls for service have decreased sharply as well.

The City of Lexington is already hoping to replicate the model. "It's finding ways to impact the offender differently without reinventing the wheel," Sechrist says.

In the meantime, High Point has additional help in place for victims – the newly opened Victim's Justice Center.

COURTSIDE

The Victim's Justice Center (VJC) brings together police, legal and counseling services in one place for those who have encountered domestic violence.

That same location also houses the High Point Center for Children and Families (HPCCF). That's where Dr. Chris Payne comes in.

Payne, who is the executive director of the HPCCF and part of the VJC leadership team, works with the High Point Police Department to coordinate services across both programs. At UNCG she is director of the Center for Youth, Family and Community Partnerships and has worked with vulnerable

A NOT-SO-SILENT PARTNER

children and their families for more than 30 years, particularly the youngest ones who cannot speak for themselves.

Putting the two centers together in the same space creates a non-stigmatized setting. A woman isn't necessarily there because of domestic violence; however, if a woman needs help, there's a friendly place to get assistance one door down, Payne says.

In the Center for Children and Families, a large classroom acts as a family room. In custody cases, judges may have ruled one parent could see the children only under supervision. This is a safe place to do so. Or parents can receive coaching on baby cues or preschool children can learn the skills for getting along in school – sharing, waiting for your turn, working with a group – before starting kindergarten.

Many of the families who come in for such programs may have encountered some form of domestic violence. The center is a safe place to recognize that, Payne says.

For the last four years, Payne also has been working with families in court settings, offering interventions for families to give them the best possible chance to succeed.

Called JCITI, which stands for Juvenile Court Infant-Toddler Initiative, the program educates judges, attorneys and guardians ad litem about best practices in child development. Using that knowledge, they can make informed

decisions about protecting children from birth to age 3.

Children who wind up in the court system are typically there because of abuse or neglect. JCITI coordinates parent and child services for possible reunification of parents with a child under the age of 5 who has been removed from their custody.

Court coordinator Kristin Stout does intake with the families. Before a child shows up in court, a staff meeting is held so the judge can see if the families have complied with his or her ruling, whether that be to seek counseling or attend parenting classes.

Instead of drawing out the process for a year or even two, this intervention helps all see if a reunification will be possible or whether foster care will be needed much sooner.

"This focuses on what's best for the child but gives parents the tools to improve," Payne says.

You never know what a difference it will make. One mother told them, "This changed my life."

Only seven or eight programs like this exist across the country. Burlington-Alamance and Wake County are looking at doing similar programs.

They have told the judges: If you make a difference with the family, you won't see them in your courtroom again.

"So far it's worked. It's been very successful," Payne says. "Over four years, no family has shown up again."



I JUST DECIDED TO REGAIN MY POWER.
— **DOMESTIC VIOLENCE SURVIVOR**

A NOT-SO-SILENT PARTNER

ON THE NATIONAL STAGE

Technically, Dr. Jacquelyn White, emerita professor of psychology and senior research scientist, Center for Women's Health & Wellness, is retired, but you'd never know that. For 41 years, she was a professor of psychology and served as the associate dean of research in the UNCG College of Arts and Sciences for three years.

She still has an office on campus – this time in the Center for Women's Health and Wellness. She points to stacks of pages on the floor. She, along with Dr. Holly Sienkiewicz, director of research at UNCG's Center for New North Carolinians, is working with the Office of Violence Against Women within the U.S. Department of Justice to help them develop a long-term research and evaluation plan.

The OVW wants to know if what it's doing is effective. The programs are for those who have been touched by domestic violence, sexual assault, stalking and dating violence. Is it meeting the needs of that population?

Such research is an outgrowth of White's years of work in the field of sexual assault and dating violence.

As a psychology professor, she started with lab-based aggression research. But she quickly realized she needed to be tuned into real world violence.

In her research, she found that childhood experiences are a predictor for what goes on in adolescence. If a young woman is abused in childhood, she is more likely to become the victim of dating violence.

"It sort of shocked me and saddened me," she says. "Students came here with histories of abuse which put them at incredible risk for problems."

Repeat victims sometimes have long-term consequences such as substance abuse, mental health problems, physical injury and relationship difficulties.

Doing the research, while important, wasn't enough for her.

"Basic research is absolutely essential. It allows you to dig deep into problems. But you need others to take the work and translate and apply it to help victims."

To do that, she looked to her peers nationally.

She became co-founder of the National Partnership to End Interpersonal Violence Across the Lifespan. It's a networking organization of an unusual mix of people: grassroots advocates, clinical practitioners, doctors, nurses, attorneys, social workers, psychologists, teachers and others.

"We all learn from each other," White says. "Our primary project is to develop a national plan to end interpersonal violence across the lifespan." NPEIV plans to have a draft of the plan complete by its annual meeting in September.

As White's retirement drew near, she presented at a White House roundtable on teen dating violence and sexual assault, and the next year attended the 17th anniversary celebration of the Violence Against Women Act, hosted by Vice President Joe Biden and his wife, Dr. Jill Biden. She then pursued a Congressional Fellowship, sponsored by the American Psychological Association, and spent a year working in the office

of Congresswoman Diana DeGette.

This move to working on a national stage is no accident.

"I observed that the policy makers and practitioners had not used research findings effectively. It was not communicated well," she says. "That's why I wanted to do the Congressional Fellowship – I was looking for how to connect policy and science."

"I want to be an advocate and bridge these gaps."

She isn't the only one.

BOTH SIDES OF THE AISLE

Finding the sweet spot between research and application is the space where UNCG lives.

"This is a place where UNCG can make a mark. We have real potential," White says. "I'm excited to see other faculty stepping



COLLABORATION Dr. Loreen Olson, left, and Dr. Christine Murray have worked together on a number of programs and initiatives including the Violence Prevention Network for Guilford County and the development of a curriculum for undergraduates on domestic violence.

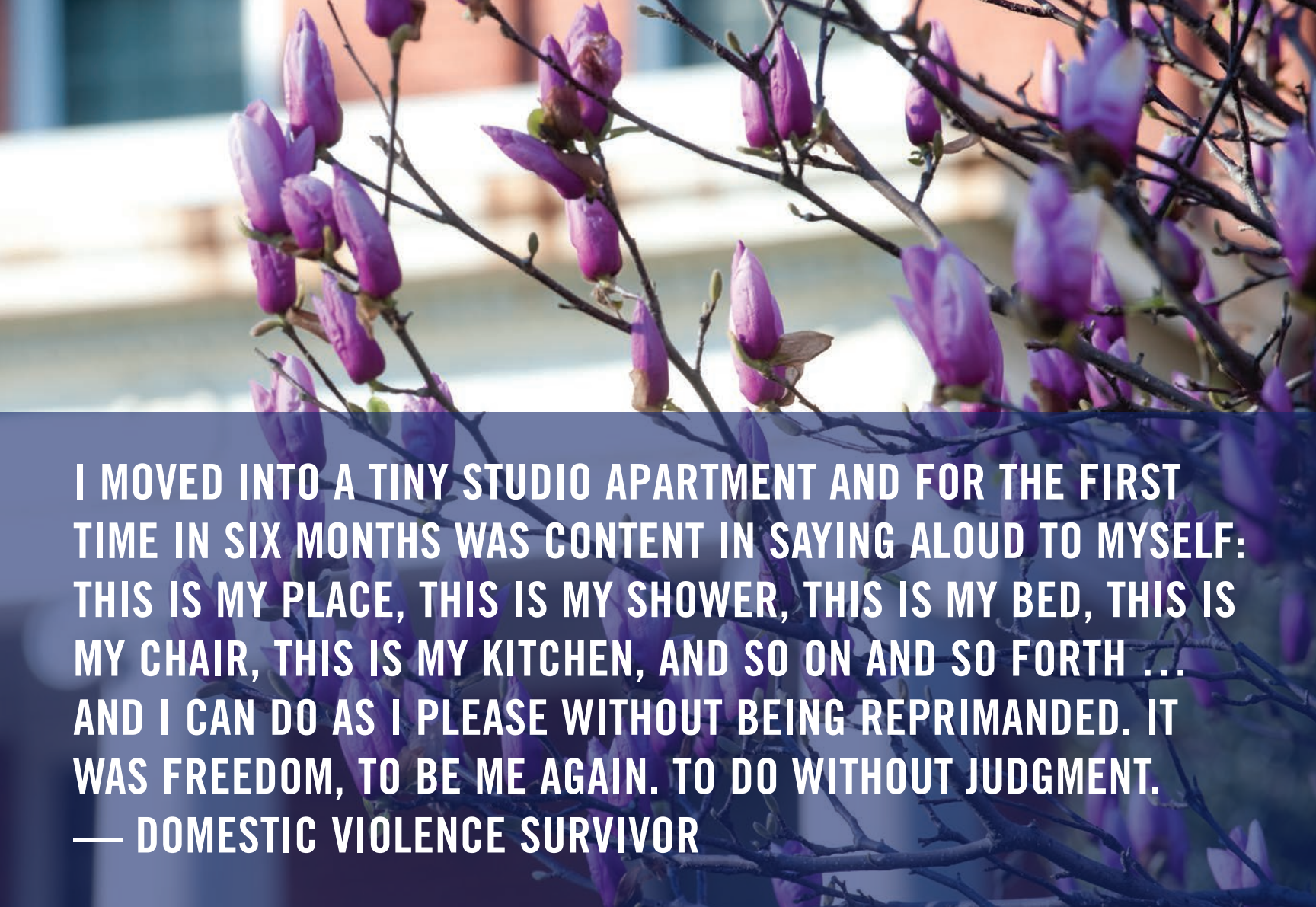
into that space."

The next generation of scholars includes Dr. Christine Murray, the counseling professor, and Dr. Loreen Olson, a communication studies professor. Murray has been director of the UNCG Program to Advance Community Responses to Violence Against Women (PACRVW) and the coordinator of the Violence Prevention Network of Guilford County for the past two years. Olson assumed both of these positions last fall. These programs are part of UNCG's Center for Women's Health and Wellness.

Each year, the PACRVW hosts the Innovations in Domestic and Sexual Violence Research and Practice Conference at UNCG to bring researchers and practitioners together.

"Historically, there has been some tension between researchers and practitioners," says Murray. "Practitioners are constantly working with clients in crisis. To read a 25-page journal article would be a luxury."

"We can be a resource for each other. We want to bridge that gap and build those relationships."



I MOVED INTO A TINY STUDIO APARTMENT AND FOR THE FIRST TIME IN SIX MONTHS WAS CONTENT IN SAYING ALOUD TO MYSELF: THIS IS MY PLACE, THIS IS MY SHOWER, THIS IS MY BED, THIS IS MY CHAIR, THIS IS MY KITCHEN, AND SO ON AND SO FORTH ... AND I CAN DO AS I PLEASE WITHOUT BEING REPRIMANDED. IT WAS FREEDOM, TO BE ME AGAIN. TO DO WITHOUT JUDGMENT.
— DOMESTIC VIOLENCE SURVIVOR

PART OF THE SOLUTION

The work on violence prevention-related research, education and community engagement at UNGC is wide-ranging. Take a look at some of the projects in which UNGC Violence Prevention Research Network members are involved. More information can be found at uncgvprn.weebly.com.

TRAUMATIC BRAIN INJURY AMONG SURVIVORS OF INTIMATE PARTNER VIOLENCE

Dr. Gwen Hunnicutt (sociology), Dr. Kristine Lundgren (communication sciences and disorders), Dr. Christine Murray (counseling and educational development) and Dr. Loreen Olson (communication studies)

HIGH POINT VICTIM'S JUSTICE CENTER

Dr. Chris Payne (Center for Youth, Families and Community Partnerships) and Dr. Terri Shelton (Office of Research and Economic Development)

USING GIS DATA TO UNDERSTAND AND IMPROVE LAW ENFORCEMENT RESPONSES TO DOMESTIC VIOLENCE

Dr. Rick Bunch (Center for Geographic Information Science), Dr. Christine Murray (counseling and educational development), John Weil (NC Network for Safe Communities) and Dr. Stacy Sechrist (NC Network for Safe Communities)

COMPARING TURKISH AND AMERICAN COLLEGE STUDENTS' ATTITUDES TOWARD DATING VIOLENCE

Dr. Paul Silvia (psychology) and Dr. Christine Murray (counseling and educational development)

OFFENDER-FOCUSED DOMESTIC VIOLENCE INITIATIVE IN HIGH POINT

John Weil and Dr. Stacy Sechrist (NC Network for Safe Communities)

EVALUATION OF VIOLENCE AGAINST WOMEN ACT

Dr. Jacquelyn White (psychology)

UNDERSTANDING AND OVERCOMING THE STIGMA SURROUNDING INTIMATE PARTNER VIOLENCE

Dr. Christine Murray (counseling and educational development)

INTERPERSONAL VIOLENCE UNDERGRADUATE CURRICULUM DEVELOPMENT

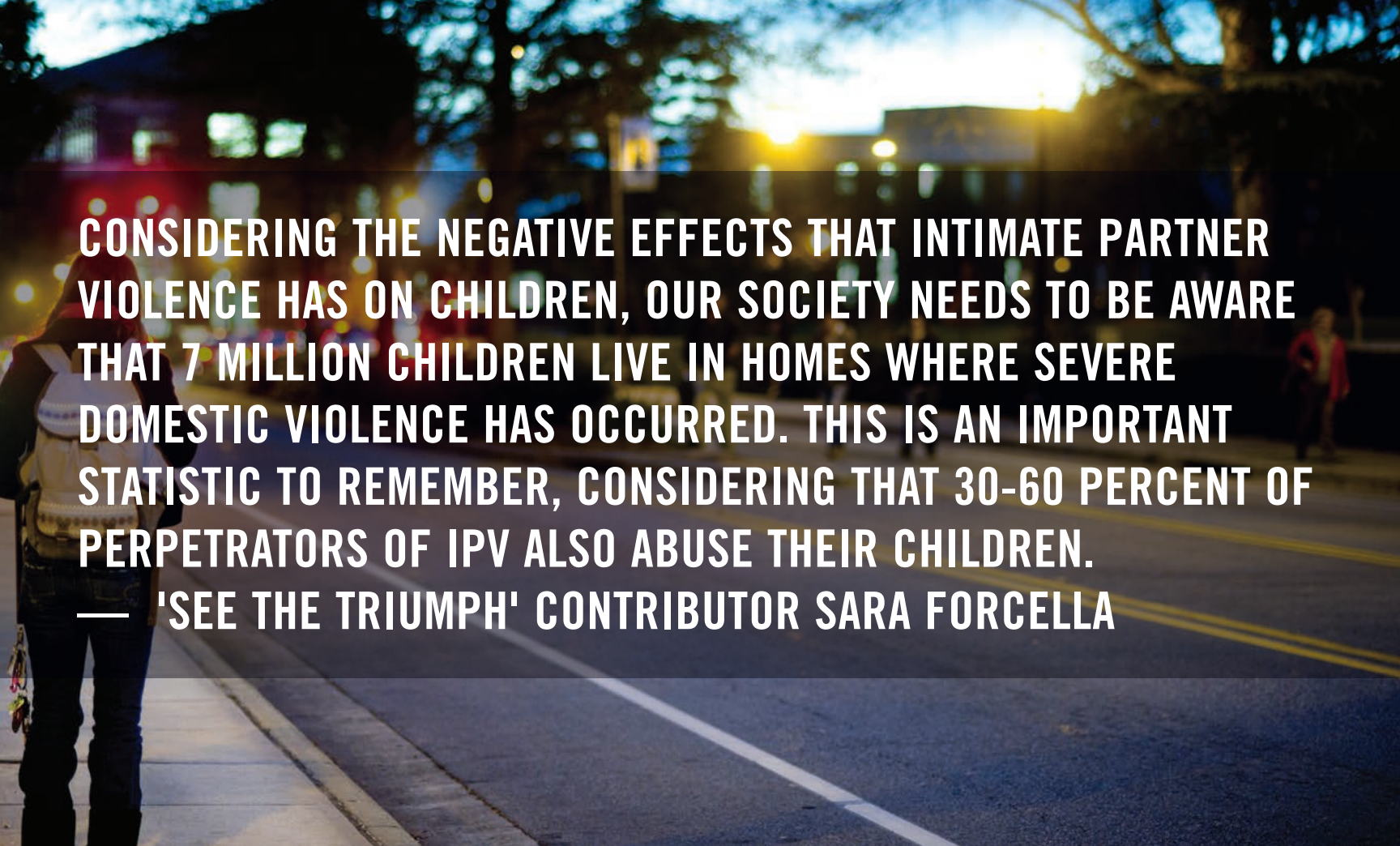
Dr. Jacalyn Claes (social work), Dr. Christine Murray (counseling and educational development) and Dr. Loreen Olson (communication studies)

COACHING COACHES: AN EDUCATIONAL WORKSHOP TO REDUCE AND PREVENT SEXUALLY VIOLENT LANGUAGE IN COACHING

Dr. Donna Duffy (kinesiology)

VIOLENCE PREVENTION NETWORK FOR GUILFORD COUNTY

Dr. Christine Murray (counseling and educational development) and Dr. Loreen Olson (communication studies)



CONSIDERING THE NEGATIVE EFFECTS THAT INTIMATE PARTNER VIOLENCE HAS ON CHILDREN, OUR SOCIETY NEEDS TO BE AWARE THAT 7 MILLION CHILDREN LIVE IN HOMES WHERE SEVERE DOMESTIC VIOLENCE HAS OCCURRED. THIS IS AN IMPORTANT STATISTIC TO REMEMBER, CONSIDERING THAT 30-60 PERCENT OF PERPETRATORS OF IPV ALSO ABUSE THEIR CHILDREN.
— 'SEE THE TRIUMPH' CONTRIBUTOR SARA FORCELLA

Olson, who is already planning the next conference, has spent her academic career studying the dark side of communication. While her current research stretches from polyvictimization to traumatic brain injury as the result of domestic violence, she's also excited about a new curriculum that she, Dr. Jacalyn Claes, a social work professor, and Murray have been developing called Child Advocacy Studies.

She and Claes went to Minnesota to be trained at the National Child Protection Training Center. The point of the training was to learn how to implement child advocacy studies at UNCG.

"If we teach the topic matter to young adults, we educate more people how to advocate for children who are experiencing child abuse and maltreatment," she says. "This increased knowledge develops a larger network of individuals who can respond more competently when confronted with child maltreatment."

Claes taught the first of three courses, child maltreatment, last spring. Murray has developed a course on adult violence and victimization, which she is teaching this semester.

Another fairly new addition is the Violence Prevention Research Group, which Murray coordinates. Previously, many faculty members had been doing research in this area independently. Now this group brings them together and those who would have seemed like unlikely partners have

been taking their work into new and interesting directions. (See sidebar story on page 27.)

White applauds the interdisciplinary approach. "It's all integrated, and they're talking to each other to create a solution. No more silos."

COMING OUT ON THE OTHER SIDE

Violence – especially intimate partner violence – is difficult to research because many people are uncomfortable talking about such a sensitive topic. Several years ago, Murray, in collaboration with UNCG counseling department doctoral alumna Allison Crowe (now an assistant professor at East Carolina University), began studying this stigma directly.

"Although there is a wealth of research on the stigma surrounding other issues – such as mental illness – we found no previous research that looked at the stigma surrounding intimate partner violence," Murray says.

They began their work by conducting in-depth interviews with 12 women who had been out of abusive relationships for at least two years. Then they conducted a second study – this time with 219 participants who filled out an electronic survey that included qualitative and quantitative questions.

Across both studies, they asked participants to describe their prior abuse, how they believed they experienced stigma, the sources of stigma (professionals, friends, family, etc.) and

A NOT-SO-SILENT PARTNER

how they overcame the abuse to build healthy, positive lives and relationships.

"We were so impacted by their stories," Murray says.

Instead of hearing stories of stigma and rejection and an ongoing cycle of abuse, they heard stories of triumph. They heard women, as well as some men, who were eager to share their experiences.

One study participant said some have asked her if she's embarrassed about her abusive past. Her response: "The only thing that bothers me about it is that other people can't see the triumph in it. Because to me this is a treasure to be at this point in my life, in this stage, and it be beginning."

Ordinarily, Murray and Crowe would have published these findings in a journal. But that didn't seem to fit what they wanted to accomplish with this study. They wanted to help survivors share their stories.

So they picked an unconventional way to disseminate their findings – they launched the See the Triumph campaign.

The campaign includes a website (www.seethetriumph.org); blog; and Facebook, Twitter, Pinterest and Causes pages. In addition to sharing empowering stories from survivors, the site also pulls together resources to address the stigma


surrounding intimate partner violence. It provides a forum for others to share their own stories of triumph and connect with others who have been through similar things.

Murray loves the impact of social media.

"We just had a request from Cameroon asking if they could use some of our resources," she says.


Their research is continuing. They are recruiting participants for a new study on how survivors overcome past abuse.

And they have plans to develop and evaluate an advocacy training program for survivors. The questions that continue to drive their research and advocacy are numerous. How do people overcome abuse? How do they move into next relationships? How do survivors keep themselves safe?

"It's what I enjoy about this work," Murray says. "It's a nice alignment of teaching, research and service that can make a real difference in people's lives." 

READ MORE ABOUT THE UNCG VIOLENCE PREVENTION NETWORK AT

uncgvprn.weebly.com



I LEFT MY HUSBAND WITH JUST THE CLOTHES ON MY BACK, CHANGE IN MY POCKET, A BIBLE IN ONE HAND AND MY SON IN THE OTHER. OH, IF YOU COULD SEE ME NOW!! I AM PROSPERING AND LIVING LIFE TO THE FULLEST. I AM HAPPY. I AM FULFILLED. I AM HOPEFUL. I AM FREE.
— DOMESTIC VIOLENCE SURVIVOR

Putting Greensboro on center stage

“ I know it’s not the ACC basketball tournament. But that opera convention was a nice economic opportunity for Greensboro. We brought in people from all over North America.” David Holley

DAVID HOLLEY IS SOMETHING of a Renaissance man, equally comfortable discussing the New York Giants’ Super Bowl teams of the 1980s, his family’s passion for golf and how a leading role in the opera “Amahl and the Night Visitors” helped get him hooked on music back in junior high.

As director of opera at UNCG, he is still brimming with elation about Greensboro’s “big operatic splash” in January. That’s when the National Opera Association (NOA) held its annual four-day convention in the city. During that gathering, the Greensboro Opera, where Holley was appointed artistic director two years ago, performed Donizetti’s “The Daughter of the Regiment” on UNCG’s campus as the headline production.

“I know it’s not the ACC basketball tournament,” says Holley, with a chuckle. “But that opera convention was a nice economic opportunity for Greensboro. We brought in people from all over North America.”

That NOA selected Greensboro for its showcase event isn’t an accident. Holley is a longtime board member who currently serves as the organization’s president. He has led UNCG to seven first-place finishes in NOA’s annual opera production competition.

In his role as artistic director, Holley also has helped revitalize the Greensboro Opera, which faced challenges during the last economic downturn and found support through a partnership that Holley developed with his department.

“The NOA convention was an excellent time to celebrate the re-emergence of the Greensboro Opera, with its renewed focus on creating fully staged productions,” he says.

It was also a career highlight for Holley, a New Jersey native and father of three boys who found his way down South. After attending Furman University as an undergraduate, he earned his MM in opera performance from the University of Texas at Austin and served on the faculty of the Brevard Music Festival. Since arriving at UNCG in 1992 as director of opera, he has expanded



the program, which is currently training several dozen students and does productions throughout the year on and off campus, including shows for public school audiences.

Though not a traditional academic researcher, Holley hones his craft through continual study and active participation. His recent directing and producing credits include “Il Trovatore” for Opera Roanoke and “From Verdi to Broadway” for the Eastern Music Festival. In 2009, he produced, directed and wrote the libretto for the world premiere of “Picnic,” an opera by leading American composer Libby Larsen.

He also has performed with regional opera companies throughout the United States, claiming leading tenor roles in productions of “Madame Butterfly,” “Carmen,” and “The Magic Flute.” Opera News has termed him “that rare find, a tall tenor who can act.”

“Opera is a great passion of mine,” he says, “and UNCG and Greensboro have been wonderful places to explore it.”

LEARN MORE ABOUT DAVID HOLLEY AT

performingarts.uncg.edu/bios/david-holley

Dance movement

WITH UNCG STUDENT VOLUNTEERS assisting with free dance instruction for children, Dancers Connect is not only going strong; it's spinning off in new directions.

Dr. Mila Parrish, a UNCG dance professor, started the Dancers Connect program last year as a way to provide free, quality dance instruction to local kids on Saturdays. Parrish recruited students through the Guilford County Schools and enlisted UNCG dance students to assist with dance instruction. The Dancers Connect program hires professional teachers from the area to lead instruction and at the same time mentor and guide young dance educators in the needed skills for teaching dance.

Dancers Connect — designed as an alternative to private dance instruction that can cost a competitive dancer \$5,000 a year or more — began with 26 dancers, ages 7-11. A year later, the program has grown to include 80 dancers from elementary through high school.

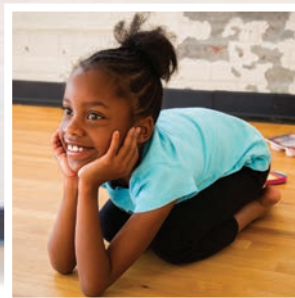
Over the past year, UNCG students invested 1,500 volunteer hours in Dancers Connect. And two dance performance groups have spun off from the program.

Seven UNCG students now perform as iDance Company. Meanwhile, instructors hand-picked 10 younger dancers, elementary and middle schoolers, to perform as iDancers Connect.

The iDance Company visits schools, senior centers and other venues, teaching audiences about creating dance and performing.

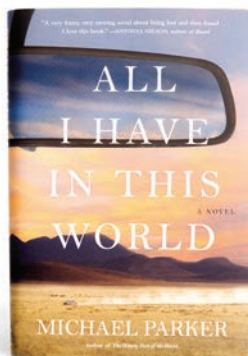
iDancers Connect is still in the preparation stage, working on choreography and other elements. They plan to perform on the UNCG campus, in schools and in senior centers starting this spring.

LEARN MORE ABOUT DR. MILA PARRISH AT
performingarts.uncg.edu/bios/mila-parrish



All I Have in This World

Michael Parker
Algonquin Books (320 pp)



THE LAST TIME MICHAEL PARKER wrote a novel he immersed himself in months of historical research. “The Watery Part of the World,” published three years ago, began in 1813 with a shipwreck off the North Carolina coast and spanned the next 150 years.

For his newest novel, “All I Have in This World,” Parker got out of the library and relied on his own eyes and ears instead. The book tells the story of two troubled souls whose lives intersect at a used car lot in west Texas – where Parker landed during a

research leave and found a jolt of artistic inspiration.

“For ‘The Watery Part of the World,’ I did a lot of research and reading about that time period,” says Parker, who holds the Dr. Nicholas A. Vacc and Dr. Nancy N. Vacc Distinguished Professorship. “For this new book, my research consisted of riding around in a car with a local and pointing to a cactus and saying ‘What kind of cactus is that?’”

Both formulas seem to have worked.

“All I Have in This World,” released last spring by Algonquin Books, is the latest critically acclaimed fiction from Parker, a mainstay in UNCG’s creative writing program. The New York Times called it “a Springsteenian ode to the promise and heartbreak of the highway.” The Austin American-Statesman lauded its “prose clear as the Texas summer sky.”

The novel actually began as a short story set in North Carolina

but never got the traction Parker wanted. He set it aside for a while before reinventing the story and placing it in Texas during his extended stint there.

Then everything started to click. Working out of a rented adobe house, he wrote the first draft of the 320-page novel in just 27 days – the fastest pace of his entire writing career – before spending the next 18 months polishing it.

“It’s the only time lightning has struck me,” Parker says. “Maybe it was the immediacy of the experience, how new and fresh and vibrant the landscape was.”

He enjoyed the opportunity to gather his details the way a reporter would rather than through traditional academic research.

“It comes easier to me to write a novel without having to spend lots of time in the library,” Parker says. “But it’s still research. You’re listening to people all the time, hearing their stories and trying to understand their lives. Some of the conversations I had in Texas went straight into the novel.”

Along the way, he learned more than he ever thought he would about the 1984 Buick Electra, the vehicle that unites the novel’s main characters Marcus and Maria. Parker studied everything he could about the car – from its production to its features to its eventual discontinuation.

“I know more about Buicks than anyone in Greensboro, I’m sure.”

LEARN MORE ABOUT MICHAEL PARKER AT
uncg.edu/eng/people/faculty/parker.html

Dinner and a lecture

IMAGINE SPENDING FOUR DAYS learning about what most interests you, meeting worldwide experts in your field and, all the while, enjoying 5-star dining experiences.

That’s exactly what occurred at UNCG’s Atlantic World Foodways conference, which drew more than 300 chefs, reporters, professors and foodies to Greensboro last year. The program focused on research and practical applications related to food in countries of the Atlantic Rim – including Africa, Europe and the Americas.

“This was a unique combination of scholarly inquiry and culinary delight,” said Dr. Christopher Hodgkins, English professor and the director of UNCG’s Atlantic World Research Network (AWRN).

While those in the food and hospitality industry often attend conferences about the practical and commercial aspects of their business, the opportunity to share information with academic researchers was a new experience for most, Hodgkins said.

“Many of these professionals are deeply interested in the historical, cultural and theoretical aspects of what they do, and it was delightful to put them in touch with leading food researchers,” he said. At the same time, those in academia had a chance to sample the artistry and talent of world-renowned chefs.

“We heard over and over again that what meant the most was the

chance to meet their ‘tribe,’ others who were interested in their personal passion.”

This was the latest in a series of conferences put on by AWRN, which was founded in 2004 to study the connections between peoples, cultures and natural settings of regions that touch the Atlantic Ocean.

The program offered lectures, panels and tastings related to foods from the Carolina Lowcountry, Africa, Italy and Spain/Latin America. Meals were overseen by acclaimed chefs including Sean Brock, Gabriele Grigolon and Maricel Presilla, as well as Tim Bocholis of Kernersville and Jay Pierce and Leigh Hesling of the Quaintance-Weaver restaurants.

Most of the costs were underwritten by sponsors including The Fresh Market, the O.Henry Hotel, the Proximity Hotel and Kotis Properties, all of which held events during the conference.

This was so successful, Hodgkins said, that AWRN is considering pursuing future sessions related to French, Caribbean, Cajun or Jewish cuisine, as well as beverages from around the Atlantic Rim.

LEARN MORE ABOUT THE ATLANTIC WORLD RESEARCH NETWORK AT
uncg.edu/eng/awrn/

Promoting peace, building leaders

IT'S EASY TO SEE THE CHALLENGES IMMIGRANTS FACE when they arrive in Greensboro from around the world – a new language, vast cultural differences, limited social services and challenging economic prospects.

But Dr. Laura Taylor, assistant professor in UNCG's Department of Peace and Conflict Studies, sees something more inspiring: their potential to grow into strong advocates for their families and communities.

Taylor's vision led to a new research and learning initiative called YouthLEAD: Promoting Peacebuilding and Cross-Cultural Communication. Supported by a small grant from the Texas-based Lisle Global Seed Fund, the project will assist 10- to 20-year-old immigrants in Greensboro to develop conflict resolution and leadership skills.

"By working with youth during this key development period, we hope to foster lifelong peace-builders who can tackle local and global issues," Taylor says.

Taylor and a team of undergraduates conducted focus groups with adolescent immigrants to understand the challenges they face upon arriving in Greensboro from regions as far-flung as Africa, Asia and Latin America. They also interviewed adults who had successfully navigated immigration and integration into the community.

Over the summer, Taylor piloted a two-day educational experience for youth in tandem with the UNCG-based Center for New North Carolinians; it will inform a more ambitious educational program that she is developing. In the fall, she explored the daily stressors that young immigrants encounter and how they respond to them – and identified positive, practical steps they can take in those situations.

"This project offers a culturally-informed approach to cooperative, democratic leadership and participation," says Taylor, who serves as its principal investigator. "It enables these young people to practice their communication skills, promote tolerance among peers and deepen community ties within and across ethnic groups in Greensboro."

Taylor has seen first-hand the devastation communities experience when those skills are not learned or practiced. After earning her undergraduate degree in psychology at Haverford College in the early 2000s, she moved to Nicaragua. There, she worked at a center that helped women and children cope with the mental health issues created by a history of violence and chronic poverty in the country. Taylor then moved to Guatemala, serving indigenous communities affected by a decades-long genocide.

The work cemented her passion for helping struggling populations take greater charge of their lives. After earning a master's degree in peace and justice at the University of San Diego, Taylor embarked on more field work around the globe before returning to academia. She earned a PhD in psychology and peace studies in 2013 from the University of Notre Dame and accepted her faculty position at UNCG.

Having already published more than a dozen peer-reviewed journal articles and book chapters, with nearly as many currently in review, Taylor is rapidly building her academic credentials. All the while, she is making a tangible impact on Greensboro's newest arrivals.

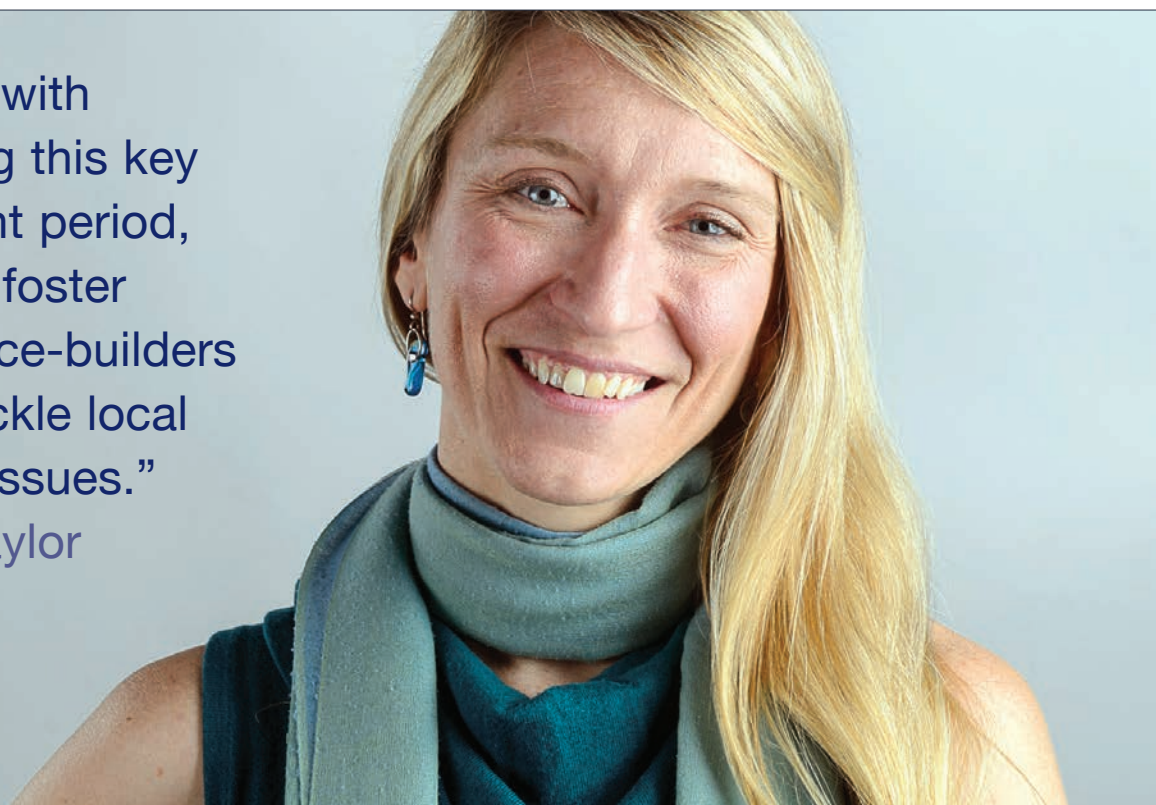
LEARN MORE ABOUT DR. LAURA TAYLOR AT

hhs.uncg.edu/wordpress/cps/about-us/faculty-research-projects/

“

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Dr. Laura Taylor





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GROWING STRONGER North Carolina's 400 commercial grape growers and 125 wineries provide \$1.3 billion in economic impact. To bolster this growing state business, researchers from the UNCG Bryan School of Business and Economics have developed the first comprehensive strategic plan for the North Carolina wine and grape industry. Dr. Bonnie Canziani and Dr. Erick Byrd, both associate professors of sustainable tourism and hospitality, developed the report. Read more at bit.ly/1k3St0g.

