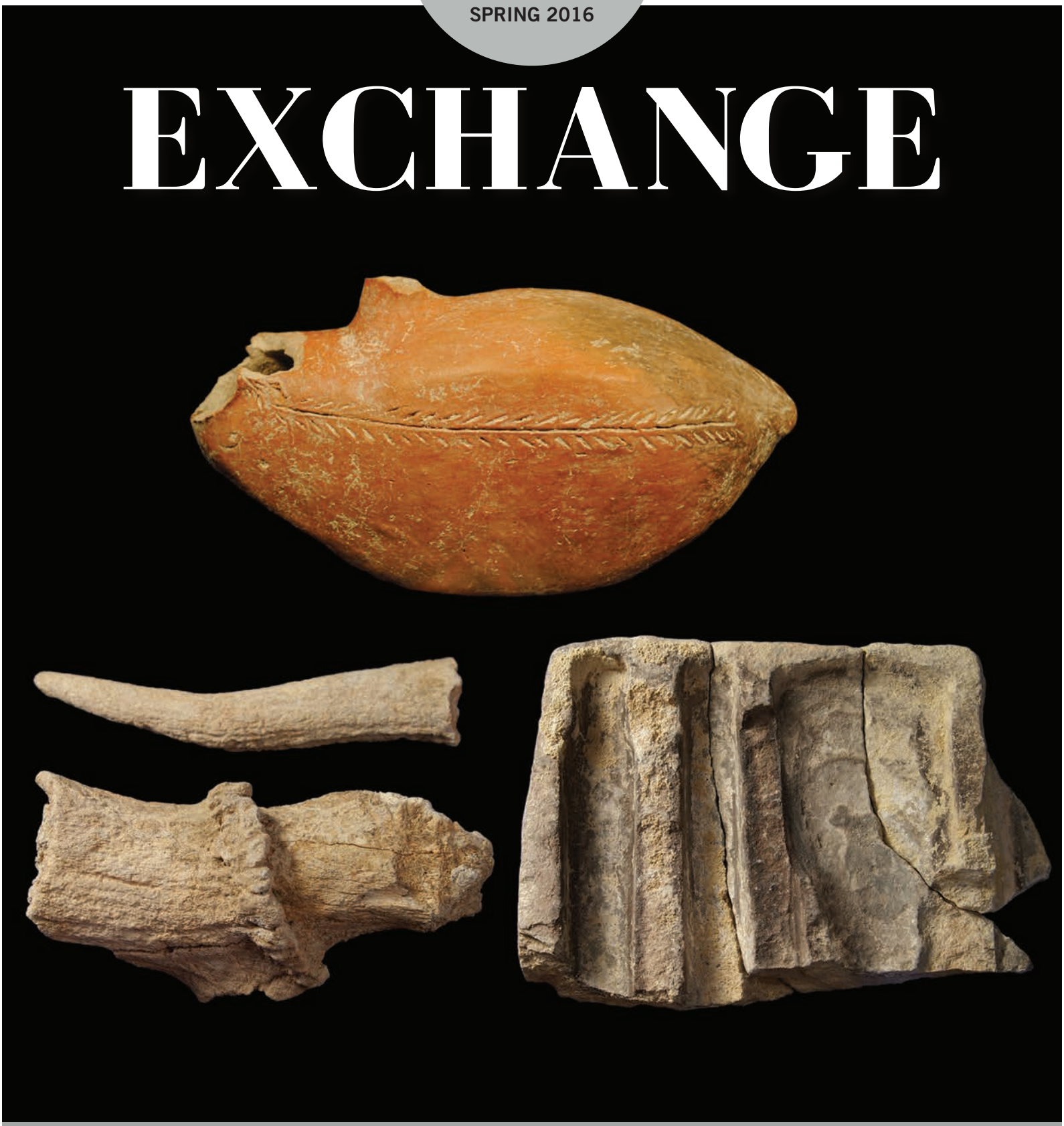
SPRING 2016

EXCHANGE



BRONZE AGE UNCOVERED

Early Civilization Research Highlights Innovation

UNC CHARLOTTE
College of Liberal Arts & Sciences

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The College of Liberal Arts & Sciences
UNC Charlotte
9201 University City Blvd.
Charlotte, N.C. 28223
clas.uncc.edu | exchange.uncc.edu
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Editor Lynn Roberson.

Designer Irina Bakalenko, assisted by Giselle Hernandez and Darian Horner.

Send comments or story ideas to lynnroberson@uncc.edu.

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About the Cover:

Pat Fall and Steven Falconer have made important finds at a buried Bronze Age village on Cyprus. Images courtesy of Fall, Falconer and Sidney Rempel.

Dear Alumni & Friends,

It is not often that an organization can celebrate a historical milestone. The Department of Africana Studies had the opportunity to do so just this last month. In my note to you in this early part of 2016, I would like to celebrate this milestone and offer a bit of self-reflection.

On Thursday evening, March 17, 2016, at Charlotte's Harvey B. Gantt Center for African-American Arts + Culture, the National Council of Black Studies celebrated its 40th anniversary as the leading organization promoting the academic development of Black/Africana Studies. UNC Charlotte, and the College of Liberal Arts & Sciences in particular, is proud of its role in the founding of this important professional organization, as one of the academic pioneers of Black Studies, and a founder and inaugural president of NCBS, is our own professor emerita, Dr. Bertha Maxwell-Roddey.

In addition to acknowledging the longevity of this association and celebrating the college's role in its founding, the 2016 conference itself provides a microcosm of CLAS "in the world." Under the leadership of Chair Akin Ogundiran, the Department of Africana Studies (also founded by Dr. Maxwell-Roddey, by the way!) served as the local arrangements host. Faculty members from many departments across the college presented their research and chaired panels. Both graduate and undergraduate students also participated in the panels, discussing their own research and experiencing, for many of them, their first professional meeting. Under the Leadership of the Charlotte Teachers Institute, several K-12 teachers from the Charlotte-Mecklenburg Schools had the opportunity to disseminate pedagogical strategies they developed in their Institute seminars about African American topics. In sum, the conference demonstrates all aspects of the college mission: undergraduate and graduate education, research and the creation of knowledge, and engagement with the community at all levels—local, national, and international.

As I participated in the joyous celebration on that Thursday evening, I was moved by the historical moment and by the college's past and current role in the organization's success. But beyond the anniversary cake and the festive music, I was deeply aware, of course, of the ongoing and indispensable raison d'etre of the organization: the creation of the discipline of Black Studies as a credible area of study. The intellectual examination of African peoples, both in Africa and across the world, is a late twentieth-century phenomenon and is important, not only because it contributes to human knowledge, but also because it is a vital engine of social justice. Our current political and social environment tells us how important such work continues to be.

This issue of *Exchange*, as always, makes visible the scholarly accomplishments of CLAS students and faculty. The NCBS Conference reminds us that this work is not an end in itself, but the pathway to creating a better future for us and for our children. You can see from the subjects of these articles that the college is well engaged in research that broadly benefits our world: Sebastian Cobarrubias on the complex nature of national borders; Anthony Fernandes on the teaching of math to English language learners; Cherie Maestas on emotional response to political decision-making; Jennifer Munroe on the political, social, and economic insights revealed in women's recipes from the early modern period; Jay Troutman on the sugars coating bacteria as these may point to the development of vaccines. These and other stories document the vibrant environment of teaching and learning that exists in the college. Like the 2016 National Council of Black Studies conference, they provide a microcosm of CLAS "in the world." &

Nancy A. Gutierrez

DEAN NANCY A. GUTIERREZ
COLLEGE OF LIBERAL ARTS & SCIENCES

News Briefs

UNC Charlotte Botanical Gardens staff have pollinated a Titan Arum, and new plants are growing. This is the first pollination in North America using fresh, or unfrozen, pollen and is an opportunity to contribute globally to the propagation of this rare plant.

"I now see that classrooms are a space for learning how to take chances, for testing out new knowledge, and for playing with ideas."

– Joanne Maguire Robinson, national teaching award recipient

1 UNC Charlotte Alumnus Named North Carolina Teacher of the Year

UNC Charlotte alumnus Bobbie Cavnar of Gaston County is the North Carolina Teacher of the Year for 2016-2017.

Cavnar, an English teacher, completed his master's degree in English at UNC Charlotte in 2011. This is his 17th year in the teaching profession; he has taught since 2003 at South Point High School in Belmont.

Cavnar nurtured his knowledge and enthusiasm for literature in his classes at UNC Charlotte. As a student, he honed the ability to make complex connections, rather than just surface observations. This translates to his classroom today, as he helps students analyze difficult texts and construct meaning from what they are reading and researching.

"He seems to be able to make a classic work of literature, especially British works, relevant to today's students," English Department Chair Mark West says. "Students see what they are studying as interesting and relatable to their own lives and experiences. I think that's one of the reasons he's being honored. This is a high and well-deserved honor."

2 Smith Receives 2016 First Citizens Bank Scholars Medal

John David Smith, the Charles H. Stone Distinguished Professor of American History at UNC Charlotte, is the 2016 recipient of the First Citizens Bank Scholars Medal. The prestigious award, presented by First Citizens Bank and UNC Charlotte, honors faculty scholarship and intellectual inquiry.

In addition to lecturing in 11 foreign countries, Smith has published more than 150 scholarly articles and book chapters as well as 29 books. His numerous honors include the Mayflower Society Award for Nonfiction, the Gustavus Myers Center Award for the Study of Human Rights in North America, the Richard H. Collins Award, Kentucky Historical Society, and the Thornton W. Mitchell Service Award, Society of North Carolina Archivists. He also has been a presenter in the College of Liberal Arts & Sciences' signature authors series, Personally Speaking.

Smith has taught at several universities including North Carolina State University as Graduate Alumni Distinguished Professor of History, and at Ludwig-Maximilians-Universität, München, as Fulbright Senior Professor of American Studies.

3 Film Featuring "CLAS Eyewitness in Residence" Premieres at Major International Film Festival

A documentary that recounts the Cold War struggles of Mario Röllig (center in photo), UNC Charlotte "CLAS Eyewitness in Residence" premiered in February, 2016 during the 66th Berlin International Film Festival. The film includes scenes filmed during a visit Röllig made to UNC Charlotte in 2014. Also known as Berlinale, the festival is one of the world's most prestigious, along with Venice and Cannes.

Der Ost-Komplex (The GDR Complex) tells the story of Röllig, who was arrested in Hungary in 1987 for attempting to flee the Republic. Röllig now gives talks about his experiences of incarceration, interrogation and torture in Hohenschönhausen Prison. Röllig and the film's director Jochen Hick, with UNC Charlotte faculty member Anabel Aliaga-Buchenau, shared insights and excerpts from the film with audiences at UNC Charlotte this spring.

Röllig was at UNC Charlotte in partnership with the Department of Languages and Culture Studies and with financial support from a donor. Röllig's visit included presentations in classes at UNC Charlotte and area high schools. He took part in a spring break trip to former East Berlin, titled "The Ghosts of Berlin: in the Footsteps of a Former Stasi Prisoner.

4 Master of Public Administration Program Ranks Among Best Across the Nation

UNC Charlotte's Gerald G. Fox Master of Public Administration program was ranked in the top 25 percent of public affairs programs in the nation by *U.S. News and World Report*. The MPA program continued its strong ranking in the 2017 "Best Graduate Schools" rankings released in March 2016, landing at No. 63.

The mission of the MPA program in the College of Liberal Arts & Sciences at UNC Charlotte is to provide education and training for the public and nonprofit sectors, to conduct scholarly and applied research to advance the field of public administration, and to serve the community.

The MPA Program is also working to endow its longest-awarded scholarship, the Burkhalter-Rassel Scholarship, awarded to an incoming or first-year student each fall semester.

5 Religious Studies Chair Earns Award for Innovative Teaching

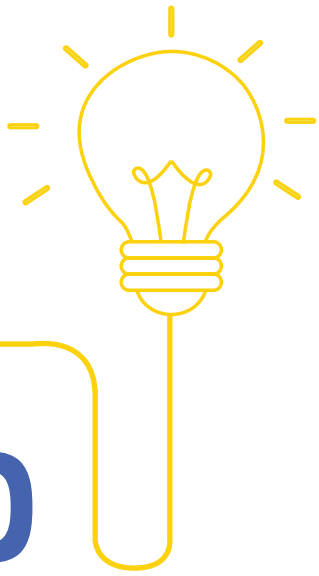
For innovative teaching methods that extend well beyond a traditional classroom setting, Joanne Maguire Robinson, UNC Charlotte Religious Studies chair and professor, has received the 2016 American Academy of Religion Excellence in Teaching Award.

Robinson sees the job of a teacher as creating an environment that helps students leave as more informed, more reflective, and more capable and resourceful thinkers. "I now see that classrooms are a space for learning how to take chances, for testing out new knowledge, and for playing with ideas," Robinson says.

In 2011, the National Endowment for the Humanities awarded her funding to develop a new course called "Ordering the World." The course, while focused on the foundational concept of order and how it affects human systems, also provided her with a chance to apply and refine her new teaching dynamic.

Robinson wanted students to gain not only religious literacy, but also a passion for intellectual exploration, resulting in skills and knowledge they could use in their future lives. Class projects included creating collaborative websites, conducting fieldwork, and staging debates on controversial topics.

In 2012, Robinson received the Bank of America Award of Teaching Excellence, the highest teaching honor given by UNC Charlotte, and also received a 2013 UNC Board of Governors Award for Teaching Excellence.



PALM Research Lab

Researchers Look at Workplace Issues, Opportunities

Recruiting employees for the jobs that fit them best. Building an effective team. Understanding what motivates different people. The research lab run by Eric Heggestad and Linda Shanock sits in an academic setting at UNC Charlotte, but what they and their students study are the challenges and opportunities of the world of work.

Shanock and Heggestad have crafted a new way to engage in research, share ideas, interact with employers and tackle the knotty problems faced by companies today. Together they run the Personality | Assessment | Leadership | Motivation Research Lab. The PALM Lab is a place where faculty and graduate and undergraduate students can collaborate on research, which helps students hone the skills they need to understand and – one day – influence organizational life.

"You spend a third of your life working, if not more," says Shanock, associate professor of psychology and associate director of the Organizational Science Ph.D. program. "Everybody works, so if we are able to help companies do a really good job with their processes, that contributes to the greater good."

Students and faculty in the PALM Lab are researching ways to improve that third of life, by unraveling how companies can hire more effectively, reduce bias in the workplace and encourage the talent in employees.

When the lab formed in the fall of 2011, its research focused on personality, assessment, leadership, and motivation. As a foundation, these four areas led to unique topics such as boredom at work and career success. The research draws upon the fields of social, industrial, and organizational psychology. The faculty and students conduct survey research and experimental research, and employ quantitative and qualitative methods in their work.

Toward that end, the PALM Lab brings together a mix of faculty with undergraduate and graduate students for the kind of mentoring and teamwork they would never find in isolation from each other. This is a model for the atmosphere of collaboration sought by the companies with which Shanock and Heggestad consult.

"Our connecting through the lab allows us to provide better experiences for our graduate students," says Heggestad, coordinator of the Industrial/Organizational Psychology Master's Program and associate professor in psychology and organizational science. "They're working collaboratively and working with faculty closely."

Alex Dunn, an organizational science doctoral student, is the lab coordinator and has worked in the lab for years.

"PALM Lab has a safe and energizing culture, allowing for a very collaborative, free-flowing, fast-paced environment that isn't always available in the classroom," Dunn says. "You are challenged by not only the professors, but the other students as well. Being in the lab has helped me improve my ideas, advance as a critical thinker, and progress as both a scholar and a mentor."

For undergraduate students, many of whom wind up writing honors theses and presenting at conferences, the lab offers an opportunity to grow comfortable with the process of research. They learn from their graduate student colleagues and faculty how to brainstorm new research, manage data collection and present analyses. They also engage in research themselves.

"I'm really excited that as an undergraduate, I've already developed some specific research interests," says Leanne Barry, lab research assistant. "Most of my work builds on Dr. Shanock's research regarding perceived organizational support, and I also like looking at personality traits and social skills. Being able to run experiments is also a fun and rewarding experience."

Heggestad and Shanock often take undergraduate students with them to national conferences. "Getting them involved in real research is an important step for their learning process," Heggestad says. "One of the papers we're trying to get published right now has an undergraduate as a co-author."

In their earlier academic careers, Heggestad and Shanock each came from a lab-based training model. "We talked about it and said, 'Let's start a lab. Let's see if we can be more efficient in training our graduates,'" he says. "Instead of individual meetings with each student, we have group meetings, where we bat around ideas and expand those ideas."

Companies are hungry for the kind of ideas and analysis that lab-trained scholars can

Front row (left to right) Leanne Barry, Amber Davidson, Lea Williams. Back row: Haley Woznyj, Hannah Booth, Christian Eatman, Linda Shanock, Alex Dunn, Ben Uhrich, Eric Heggestad.

provide. The PALM team has partnered with firms to research issues such as employee development. In one instance, Shanock and Heggestad worked with a large, multinational corporation headquartered in Charlotte to study how that employer could help its human resources staff create a more supportive environment for employees.

"We collected data on their 300-plus human resources professionals around the world and are now working to publish that data," Heggestad says. The ultimate goal, he says, was to help the company improve its hiring processes. Along the way, graduate students learned how to partner with a company and make presentations of complex data and observations. Another study looked at microaggressions, or subtle forms of discrimination against minority people, with the aim of reducing such actions.

These real-world experiences help students understand how the concepts they are learning are used.

"Our research is very practical," Dunn says. "Our findings can inform management on how to improve on various workplace practices. We also work towards improving our science by providing researchers with practical recommendations about how to design studies and how to screen their data to make sure we are making accurate conclusions."

In mentoring students and producing research that can improve the workplace, Shanock and Heggestad bring their distinct specialties to the mix. Heggestad's industrial psychology emphasis looks at how to recruit employees, assess them, and improve their potential. Shanock's organizational psychology expertise focuses on team building, employee engagement and developing an organization's culture and leaders. Their work is deepened and enriched by the discovery of sometimes unexpected and exciting connections between their different areas of expertise, they say.

As the professors and the students work as a team to study everything from workplace turnover to leadership development, they do so knowing their studies hold the potential for broad impact.

"Since work has become such an integral part of life, research that helps us understand how people operate at work, both individually and as a whole organization, can help us to improve that important aspect of people's lives," Barry says. &

Words: **Amber Veverka, with Tyler Harris**
Image: **Lynn Roberson**

"Our research is very practical. Our findings can inform management on how to improve on various workplace practices. We also work towards improving our science by providing researchers with practical recommendations."

— Alex Dunn

Recipe for Reflection

Transcriptions Offer Intimate View of Earlier Times

In the fragile pages of recipe books from the early modern period, UNC Charlotte researcher Jennifer Munroe and her students find traces of life and death.

They decipher the words and absorb the daily struggles and joys of the women who created these chronicles of life between 1550 and 1800. These books are much more than repositories for recipes.

"Imagine a handwritten recipe book from, say, 1615," says English graduate student Robin Kello. "It contains various recipes for food, remedies for varied maladies, maybe notes from a sermon, doodles, or astrological advice about unlucky days. Plum wine, pudding, gall stones, insomnia, frenzy or madness, we have found all of this between the pages of a bound, handwritten volume."

The books were seldom if ever published. They were private documents, used in women's households and by groups of women. Until recently, these voices have been silenced in the quiet, dusty stacks of far-flung libraries or tucked away in the basements of farmhouses in the English countryside.

With advances in technology, scholars can find new audiences for these women's thoughts and their ways of life. Through the process of transcription, scholars worldwide are digitizing images of each page of old books, transcribing the vocabulary and script and publishing the content in online databases for the world to study and share.

"It's important to give these early modern women a voice," says English graduate student Breanne Weber. "Western culture is really beginning to return to nature, as we realize now how much has been lost as we've become more industrialized. The women – and men, but mostly women – who kept these recipe books exemplify that connection to the earth that we as a society have been missing. It's almost like validation that our 'back to nature' movement is legitimate. We're just longing for something fulfilling that we've had in the past."

As an associate professor in the Department of English, Munroe's research focuses on the intersection of ecological and feminist theory in literature. She has written or co-edited five books and teaches courses in early modern English poetry and prose, Shakespeare, ecocriticism, gender studies, literary theory and film.

"Including manuscript documents in our collective research and teaching gives us a way to uncover experiences and perspectives that previously were marginalized," Munroe says. "We find new ways to think about questions of feminism and ecofeminism, related to the women's relationship in particular with the nonhuman world."

When using recipes as texts in her classes, Munroe and her students consider what the documents reveal about early modern women's domestic work, the differences between amateur and professional labor, and the historical context of early modern science and practices related to what we call "sustainability" today. They also explore the way in which the women's views were unfiltered opinions.

"Transcribing helps us understand sustainability as it relates to these women, thinking about their environment and how they used the plants and animals around them," Munroe says. "They were connected in ways we are disconnected, because they knew where their medicine and food came from."

Munroe uses recipes as one tool to help students learn new ways to approach texts. The handwritten documents, with their unfamiliar words, spellings and construction, require the reader to read differently. Because they were texts to be used in the kitchen, they do not follow a conventional, linear narrative. To grasp the meaning completely, the reader must move back and forth through the text more than once and adapt to what was not said, to know what constitutes a "soft fire" or "take when ready." This non-linear approach can be applied to other texts, yielding new skills and knowledge.

One of Munroe's goals is to facilitate greater sensitivity to relational thinking. This includes neglecting a fundamental connection to the nonhuman things that surround us can lead to problems, such as environmental destruction and climate change.

To learn more and to build connections within the field of paleography, or transcription, Munroe and four graduate students traveled to the Folger Shakespeare Library in Washington, D.C. in fall 2015 for a transcribathon. Over 90 students and scholars who were gathered at the library and connected digitally around the globe spent 12 hours transcribing all 200 pages of a recipe manuscript in the Folger's collection.

"The transcribathon at the Folger Shakespeare Library was incredible," Weber says. "We were there with some of the most prominent scholars in their respective fields and were warmly welcomed as equal partners in the communal project of transcribing the late 17th century recipe book of Rebeckah Winche."

Inspired by their digital humanities research, the students have formed the Early Modern Paleography Society, an official UNC Charlotte student organization open to all students, faculty, staff, alumni and community members, to work as a group to transcribe recipe books.

"Our intention is to share the amazing experience of transcription, everything from frustrations to triumphs, with others, and build our own transcription community on the campus of UNC Charlotte," Weber says. "At our meetings, we project pages from early modern recipe books onto a screen and work as a group to transcribe into the Folger Shakespeare Library's database, where our transcriptions will be accessible to the public at some point."

"The women who kept these recipe books exemplify that connection to the earth that we as a society have been missing."

– Breanne Weber

The society hosted its first transcribathon at UNC Charlotte in early April. Over 70 students, faculty and alumni from UNC Charlotte and other campuses across the country transcribed an anonymous c. 1720 English cookbook. Members of a roundtable talked about growing herbs, cooking, transcription, digital humanities work and other research, and the connection to sustainability. Attendees sampled Angelica candied using a 17th century recipe, found in a manuscript and made by EMPS members from plants grown by the UNC Charlotte Botanical Gardens staff.

As UNC Charlotte continues to grow its research and teaching in this digital humanities area, those involved are focusing on the breadth of what these books say.

"This cutting-edge research is wide-ranging and interdisciplinary," Kello says. "A student of history, literature, anthropology, political science, environmental science, or any interested party can look into these books and see how larger cultural ideas about food and medicine were changing, how increased transnational trade provided different commodities to middle class English families of the 17th century, how folk knowledge was passed on and interpreted before the standardization of medicine, how the English language has changed, or – not to be too much of a nerd – find a recipe for cheesecake that goes back four centuries." &

Words: **Brittany Algiere and Lynn Roberson**

FIGHT AGAINST BACTERIA

Researcher Hopes to Put Pathogens on the Ropes

Bacteria are well-suited to withstand bouts with our bodies' immune systems and man-made antibiotics and vaccines. They are cloaked with a capsular polysaccharide layer – unique sugars they produce as a sort of slime that serves as a protective coating.

"These sugars don't typically exist in humans," says Jerry (Jay) Troutman, a UNC Charlotte biochemist. "Their chemical structures are completely different, and their physical properties are likely very different from sugars that we are more familiar with, such as cellulose. We don't really understand how they behave very well at all."

Bacteria's antibiotic resistance is one of the world's most critical public health issues, which creates an urgent need to better understand pathogens and their defenses.

"What we're seeing now is this increasing resistance to the options we do have," Troutman says. "In general, what my lab likes to think about is, how can we find new ways to target bacteria that have not been done before? Are there ways to disrupt their ability to infect humans? Are there ways to train our immune systems to recognize certain types of bacteria that normally can't be recognized?"

In one important aspect of the work, Troutman, colleagues and students are exploring the pathways that are responsible for building these sugars in bacteria.

"My lab has developed chemical probes that allow us to study and understand these pathways in a way that nobody else has ever been able to do," Troutman says. "The probes could give us insights into ways to even block those stages of the production of these sugars."

Other research in the lab considers how these biological systems work and how these organisms manufacture the sugars.

"We are trying to understand how these organisms make these sugars to determine whether we can block the individual steps that are associated with that," he says. "Also can we train our immune system to recognize a certain bacteria just because of the sugars on its surface?"

While scientists know that the pathogens make the sugars and export them to their surfaces to protect them, they are working to learn more about how the process works.

"How it protects is not all that well understood," Troutman says. "There are certain organisms where it's known that it has to be present for that organism to infect a human. But, even though it's required to infect a human, it's not required for the organism to survive."

The research considers the different variations in the structure of the protective layers, which is important to determining how to combat the bacteria.

"We are trying to take advantage of that difference, in research that could lead to the development of ways to specifically target just certain types of organisms," he says. "Is there any way we can focus in on killing just that one organism or just cutting off its ability to infect people based on the fact that these sugars are on the surface of these organisms?"

The research has been published in academic journals including *Biochemistry, Carbohydrate Research,* and *Bioorganic & Medicinal Chemistry*. Troutman works closely with graduate and undergraduate students in his lab, and students are co-authors on some of the papers.

The lab turns to a diverse set of tactics to do its work, using techniques in molecular biology, biochemistry, enzymology and organic synthesis to develop bioactive materials and understand the natural pathways responsible for them. The research has received funding from agencies including the National Institutes of Health and the National Science Foundation.

One problem with drugs today is that they kill good bacteria as well as the bad bacteria. That can wipe out immune systems and cause other significant health issues.

"We are looking for ways to target specific molecules only to organisms that have certain sugar coatings," Troutman says. "If you have one particular chemical structure, can you target a drug straight to only that bacteria, so the drug just collects only on that bacteria and then kills it when it gets there? This research into targeted delivery systems is borrowing from nanoscience."

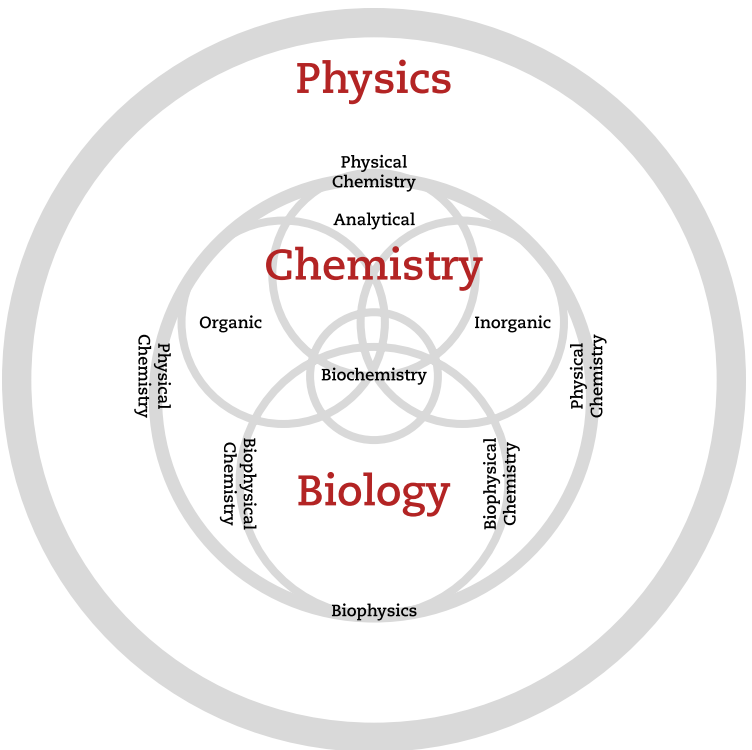
He is pursuing this aspect of the research with UNC Charlotte chemist Kirill Afonin by developing DNA aptimers, molecules that can bind to certain types of material and interact with those materials. He also is collaborating with physicist Don Jacobs on computational work exploring the differences in the enzyme found in bacteria.

Much of the power of the research lies within its interdisciplinary nature, Troutman says.

"The focus should be whatever question you're interested in," he says. "Find whatever techniques you can to address those particular questions. We're interested in antibiotics, we're interested in sugar biology, we're interested in how can we potentially stop bacteria from hurting people. What approaches can we find to deal with that?" &

Words and Image: **Lynn Roberson**

THE WORLD OF BIOCHEMISTRY, WHICH ATTEMPTS TO UNDERSTAND THE RULES THAT GOVERN LIFE.



OPEN MINDS

MATH MEETS LANGUAGE AND COGNITION

English language learners in Mariella Duarte's eighth-grade class at Whitewater Middle School in Charlotte face the steep task of learning middle school math in a language they have yet to master.

For these students, the cognitive load can prove overwhelming.

Anthony Fernandes, a mathematics professor at UNC Charlotte, is seeking solutions to that struggle. "There is a bias that teaching math to English language learners should be fairly easy," he says. "It's numbers and shapes. But how are you going to *explain* these numbers and shapes?"

Fernandes prepares future math educators and has turned his research focus to the unique challenges that English language learners face in math class. He has tapped into Cognitive Load Theory for possible answers to the dilemma. He works directly with students and educators in public schools, as well as his UNC Charlotte students.

"Our working memory has a limited capacity, but it plays a key role in problem-solving," he says. "The job of working memory is to work with new pieces of information and draw upon the larger long-term memory, as well."

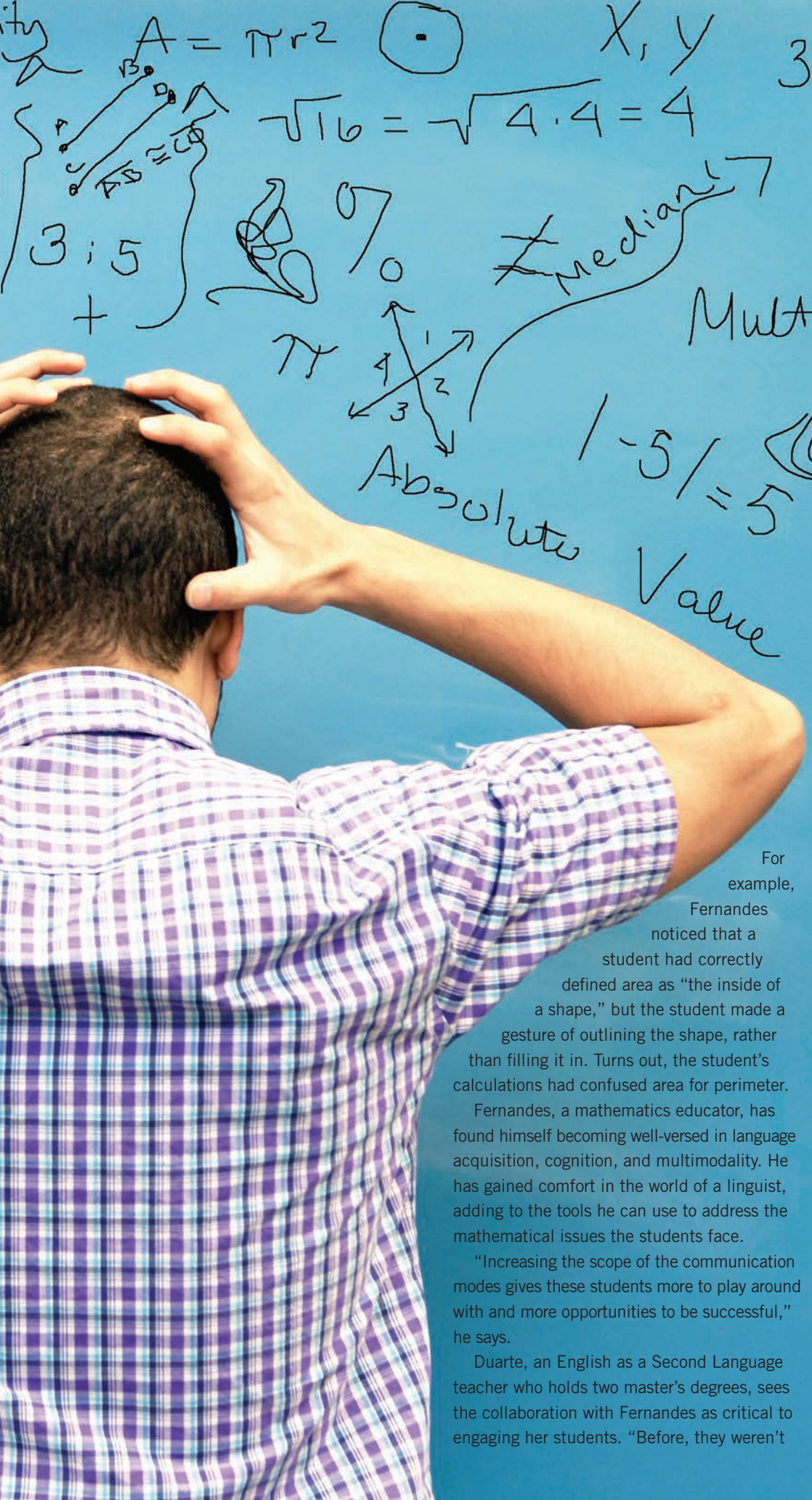
Fernandes uses the game of chess to explain this theory. A fundamental difference between a novice and a Grandmaster is the cognitive load required to make a strong, strategic move. For the novice, each turn presents a brand new set of problems, obstacles, and potential solutions—and each is treated by the mind as a separate chunk of information.

On the other hand, the Grandmaster knows patterns. The brain of the Grandmaster treats whole situations as single chunks of information, well-known and easy to recall. Thus the cognitive load for the Grandmaster is significantly less taxing, providing a substantial upper hand in solving the problem: What's my best move?

In the case of students learning math while still learning English, one solution is when students offload information from their working memories through good record keeping, which Fernandes says is as simple as "what students might scribble or draw."

With the support of a $300,000 grant from the National Science Foundation, Fernandes and his research partners hope to redesign mathematics tasks to encourage record keeping and make other changes. "We have to figure out what internal resources these students bring with them and how we can set up problems in a way these kids can make sense of them," Fernandes says.

While analyzing interviews he conducted with English learner students from various schools, Fernandes noticed that students' gestures did not always match the words they used to describe a mathematical concept. Perhaps most fascinating, the gestures were more reliable indicators of what the students knew.



For example, Fernandes noticed that a student had correctly defined area as "the inside of a shape," but the student made a gesture of outlining the shape, rather than filling it in. Turns out, the student's calculations had confused area for perimeter.

Fernandes, a mathematics educator, has found himself becoming well-versed in language acquisition, cognition, and multimodality. He has gained comfort in the world of a linguist, adding to the tools he can use to address the mathematical issues the students face.

"Increasing the scope of the communication modes gives these students more to play around with and more opportunities to be successful," he says.

Duarte, an English as a Second Language teacher who holds two master's degrees, sees the collaboration with Fernandes as critical to engaging her students. "Before, they weren't participating, but now they want to do it," she says. "They want to raise their hands, and they want to be the ones who go to the board and work the problems out. He opened their minds to like math."

Within the first two months of working with him, students' math scores went up – way up, she says.

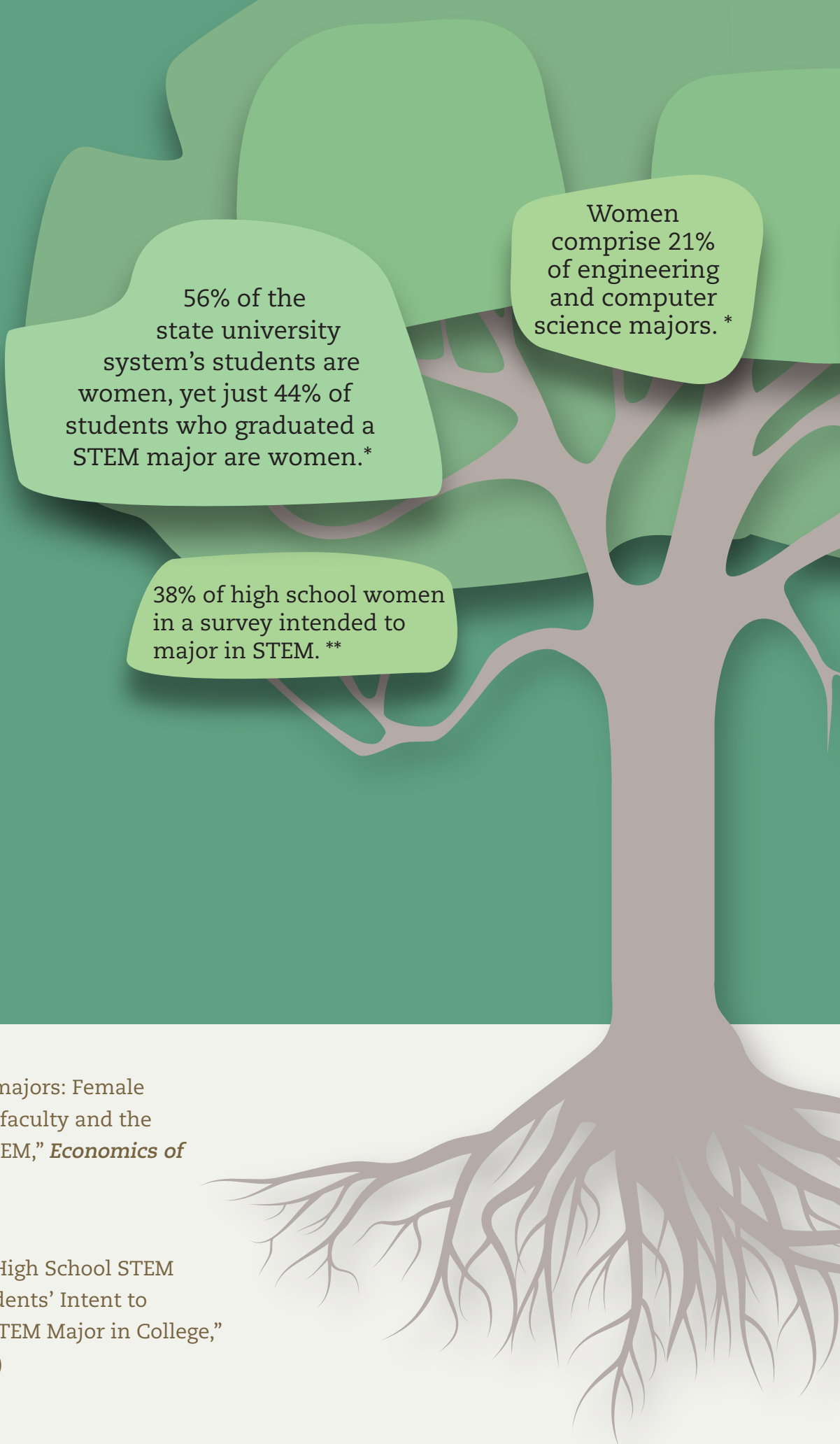
Different methods and an increase in student engagement are certainly linked to the increase in student performance, but there may be another factor - hope.

"The students feel like they are learning, and they see that what we're doing is really helping them," Duarte says. "They see, 'Hey, she's a Latina, and he's from India, and they've achieved things that we can achieve, too.' They believe in themselves."

North Carolina's student population has seen an increase of about 400% in English language learners just in the past decade, and "the increase isn't stopping," Fernandes says. "We have to do something different."

What is best for these English language learners may prove best for math education more generally. "What we're doing is figuring out better ways to teach math, which ultimately benefits everyone," Fernandes says.

Words: **Brittany Stone** | Image: **Lynn Roberson**



* "Growing the roots of STEM majors: Female math and science high school faculty and the participation of students in STEM," ***Economics of Education Review*** (2015)

** "The Relationships Among High School STEM Learning Experiences and Students' Intent to Declare and Declaration of a STEM Major in College," ***Teachers College Record*** (2015)

34% of African Americans planned to major in STEM, compared to 40% of white students. **

U.S. universities will produce 50% of computer science graduates needed to fill 1.2 million jobs expected in the field by 2020. *

"Students hear messages such as 'Girls can't do math, so they can't be math majors.' These instances are unusual, but it's horrifying that they still happen."

– Elizabeth Stearns

ROOTS of STEM

Sociologist Sees Segregation Impact on STEM

As a child, Elizabeth Stearns attended a private school in an affluent neighborhood but lived in a less privileged rural community. Throughout her youth, she was struck by differences she saw.

"In high school, I remember being an unofficial source of information for other students in my neighborhood about the college application process, because they were not receiving any information from their teachers or advisors at their schools that I received at my school," Stearns says.

Those early experiences, combined with her awareness of the stark under-representation of women and minorities in the science, technology, engineering, and mathematics fields, have shaped Stearns' stratification research. In her work at UNC Charlotte in the Department of Sociology, she investigates structural influences on the processes of college-going and students' choices of college majors. She also studies gender, racial and socioeconomic inequalities in student outcomes.

"My research efforts primarily revolve around issues of social inequality," Stearns says. "Two main areas of this are educational processes, both academic and non-academic, as well as interracial relations in changing demographic contexts."

Stearns collaborates closely with UNC Charlotte colleagues with the same drive to understand the factors

Continued page 14.

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that affect students' academic choices and success in STEM.

Roslyn Mickelson, Stephanie Moller, and Martha Bottia, all researchers in the Department of Sociology, join her in a project called ROOTS of STEM in exploring the individual, family, and institutional factors that influence women's and underrepresented minorities' decisions to pursue college STEM majors among students in the University of North Carolina System.

The National Science Foundation has supported this work with two grants totaling just over $2.8 million.

The ROOTS of STEM studies have generated important insights with potential policy implications regarding the pathways that students take toward majoring in STEM fields.

Among their early findings, the researchers have found that racial segregation in high school at both the school and classroom level affects students' college grade point averages, and has a negative relationship with disadvantaged minority students' achievement.

Latino students were also found to be more likely to major in STEM during college if they were educated in high schools where teachers worked in collaborative professional communities and also had high levels of job satisfaction.

Furthermore, taking physics and attending a school with math-focused and science-focused programs, as well as stating an intention to major in STEM while in high school, were all positively associated with students' choice of STEM fields for their college majors.

25% of female students planned to major in STEM, compared to 58% of male students. **

For young women specifically, taking physics is especially important for their likelihood of declaring a STEM major, as is the proportion of female math and science teachers at their particular high school.

Over time, the ROOTS of STEM work has evolved, as the researchers have uncovered significant factors that needed further exploration.

"The first phase began in 2010 with the creation of a large longitudinal dataset of North Carolina's entire 2004 public high school graduating class who enrolled at any UNC system campus that fall," Stearns says. With this longitudinal data, the researchers can follow students' progress from middle to high school, then into their public university years.

The team created the dataset in cooperation with the UNC General Administration, North Carolina Department of Public Instruction, the College Board, and Duke University's N.C. Educational Research Data Center.

"The first phase focused on how high schools and universities, as well as students' experiences with the two, really contribute to the inequalities of STEM majoring," Stearns says. "We began the second phase in 2013, when we interviewed 317 seniors across the 16 campuses of the UNC system to better understand students' experiences with math and science from middle school through college."

Through these interviews, Stearns and her colleagues discovered that many of the students had attended community college at some point in their careers. "We found that women and underrepresented minorities are disproportionately likely to enroll in a community college initially with the intent of transferring to a four-year institution," Stearns says.

With this, the team broadened the work to investigate how pathways through community college to four-year institutions contribute to the roots of gender and racial inequalities in those who earn STEM degrees.

"We interviewed community college students last spring, and our intent is to follow up with them two years from now to see if they made the transition to a four-year college, and analyze those results," Stearns says.

Findings related to the influences on young women's decisions on whether to pursue STEM studies hit close to home for Stearns.

"I want my daughters to live in a world where they can pursue STEM majors if that's what they want to do," she says. "I especially don't want them to face some of the things students say they are told by guidance counselors. Students hear messages such as 'Girls can't do math, so they can't be math majors.' These instances are unusual, but it's horrifying that they still happen. I would really like to see a change."

Even as they continue to mine the data, the team is working to disseminate their findings. The broader hope is that their findings will be used by public school systems for consideration in future planning. The team continues to work with state education leaders to encourage the distribution of their research to school leaders and teachers.

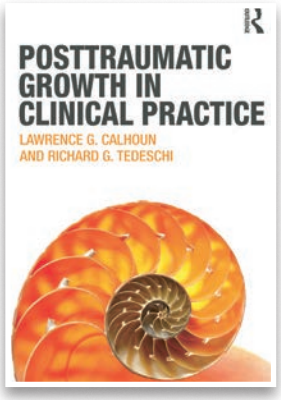
Back at UNC Charlotte, Stearns finds that her classroom and research experiences cross-pollinate.

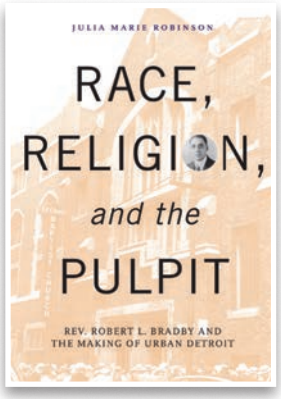
"Especially in the upper level courses that I teach, students often are talking about their own educational experiences in ways that I think help me in my research as I develop hypotheses or think about mechanisms behind why certain findings are showing up," she says. "I also talk about my research in the classes that I teach, especially in social inequality."

The research is a true cross-discipline effort, Stearns says. "We have worked with people from sociology, physics, chemistry, public policy and education, among others," she says. "Along the way, we have also had a string of fantastic research assistants. This interdisciplinary approach is a real strength of our work." &

Words: **Tyler Harris**

PERSONALLY SPEAKING





AUTHORS SERIES REVEALS STORIES BEHIND THE BOOKS

Can we grow in a positive way after suffering a major trauma? What do we really know about the adorable dolphin Flipper? What difference can one man and one church make when floods of immigrants arrive? Do massive recycling efforts bring a community, or nation, closer together?

Answers to these questions and more will be considered during the 2016-17 Personally Speaking series, presented by UNC Charlotte's College of Liberal Arts & Sciences and J.Murrey Atkins Library, with support from UNC Charlotte Center City. Each event will begin at 6:30 p.m.

Personally Speaking engages the community in conversations about relevant topics addressed in books researched and written by college faculty members. The series is designed to share the authors' knowledge and to spark discussion about the stories behind the books.

Co-authors Calhoun and Tedeschi identified a concept they call Posttraumatic Growth, used to characterize "positive change experienced as a result of the struggle with a major life crisis or a traumatic event." Tedeschi is a professor of psychology and a licensed psychologist; Calhoun is a professor emeritus of psychology and a licensed psychologist. Their book tells us what research has shown about the phenomenon of growth that arises from a struggle with tragedy.

Rauch, a professor in the English Department and adjunct professor of history, draws on zoological research he conducted earlier in his career as well as on recent work in animal studies. He explores dolphins' long relationship with people from the time of ancient Greeks through modern day. *Dolphin* is part of the "Animal Series" published by Reaktion Books and distributed in the U.S. by University of Chicago Press.

Robinson is an associate professor of African-American Religions and Religions of the African Diaspora in the Department of Religious Studies and an ordained Presbyterian minister. During the Great Migration of African-Americans from the South to the North and West, the local black church was essential in making and reshaping urban areas. This book focuses on a church and its minister as a lens for understanding this phenomenon.

Thorsheim, a professor in the Department of History, focuses his research on technology, the environment and culture in 20th Century Great Britain. While necessary, Britain's wartime recycling campaign consumed items that would never have been destroyed under normal circumstances, including items of cultural heritage. He examines the relationship between armaments production, civil liberties, cultural preservation, and diplomacy. &

Words: **Susan Jetton** | Images: **Courtesy of the authors and publishers**

THE LINE-UP FOR 2016-2017

- **Tuesday, Sept. 27, 2016:** *Posttraumatic Growth in Clinical Practice* (Routledge) by Lawrence G. Calhoun and Richard G. Tedeschi.
- **Tuesday, Nov. 1, 2016:** *Dolphin* (Reaktion Books) by Alan Rauch.
- **Tuesday, Jan. 24, 2017:** *Race, Religion, and the Pulpit: Rev. Robert L. Bradby and the Making of Urban Detroit* (Wayne State University Press) by Julia Marie Robinson.
- **Tuesday, Mar. 21, 2017:** *Waste Into Weapons: Recycling in Britain during the Second World War* (Cambridge University Press) by Peter J. Thorsheim.

For more information: clas.uncc.edu/ps

BRONZE AGE UNCOVERED

EARLY CIVILIZATION RESEARCH HIGHLIGHTS INNOVATION

Falconer and Fall dig through sediment to uncover Bronze Age artifacts.

Fall and Falconer draw upon their diverse knowledge in a cross-disciplinary fashion.

The soil in the ancient Cyprus field is the color of parchment paper and packed hard. On an early summer day with temperatures that creep toward 100 degrees, UNC Charlotte researchers Steven Falconer and Pat Fall carefully dig through centuries of archaeological sediments, inch by painstaking inch. At a little more than six feet down, they examine what they have uncovered.

What they have unearthed, there in the dust of millennia, are the remains of a sizable Bronze Age celebration.

In addition to an unusual cache of deer bones, they find fragments of tools used for weaving and spinning. Nearby, nestled in the dirt, rest mysterious, human figurines crafted from red-glazed pottery. This is a collection, the researchers say, which reveals details about how ancient people lived on this island.

The artifacts and food remains from circa 2000 B.C. are just some of the discoveries made at the buried Bronze Age village of Politiko-Troullia, Cyprus by Fall, who is a professor in the Department of Geography & Earth Sciences, and Falconer, who is chair of the Department of Anthropology. The findings not only upend some traditional views of how early civilizations developed, they also may carry implications for the sustainability of development in the world today.

"The people of Politiko-Troullia lived during the centuries just before the first cities on Cyprus," Fall says. "That's one reason we work in Cyprus. The Bronze Age is really when civilization started and cities developed."

Cyprus lies in the eastern Mediterranean, just south of Turkey. Since 2007, Fall, Falconer and teams of colleagues and students have been visiting to excavate the ground beneath farm fields to investigate what life in its Bronze Age villages was like. They directed a summer 2015 Education Abroad program with UNC Charlotte students excavating on Cyprus and conducting a geographic survey of the countryside.

Fall and Falconer came to UNC Charlotte in January 2015, bringing extensive research resumes to the university and to the exploration of early civilization, including their work previously in Jordan and currently in Cyprus.

Fall's expertise is in paleoecology, while Falconer is an archaeologist. Fall researches sediments, ancient pollen, plant macrofossils and charcoal. Seeds and plant remains can persist for thousands of years if they are burned, and they provide vital clues to ancient plants, trees, human diet, fuel usage and even climate. As part of Falconer's archaeological field research, soil resistivity survey, in which a portable apparatus measures electrical resistance below the modern ground surface, can reveal buried ancient stone walls. This process helped to create a subsurface map of Politiko-Troullia's houses, courtyards and alleyways. Excavations directed by Fall and Falconer have revealed broken pottery, animal bones, seeds, charcoal, chipped stone tools and metallurgical refuse, all of which reveal ancient lives lived before the development of writing.

The researchers' work overlaps, as both are interested in the development of early cities and social landscapes, how people settled on the landscape and how social relationships and society changed through time. They have received funding from the National Science Foundation,

Continued page 18.

Mesopotamian fallow deer antler, mold for casting metal axe, bird effigy pot associated with feasting in the Southern Courtyard.

Continued from page 13.

the National Geographic Society, the National Endowment for the Humanities and the Wenner-Gren Foundation for Anthropological Research.

Their previous excavations in Jordan revealed a landscape that, by the middle Bronze Age, had been completely transformed by human habitation and agriculture. Native forests had been felled as cities expanded. This pattern is evident throughout the ancient eastern Mediterranean mainland.

"In the Neolithic period, we still see wild resources being used," Fall says. "But very quickly the population grows so rapidly that humans and agriculture became completely interdependent. By the time we get to the Bronze Age, the Middle East had a completely managed landscape. Modern Iraq, Syria, Lebanon, Israel, Jordan -- people were almost exclusively dependent on agricultural products. Our excavations in Jordan produced relatively few bones from fish, birds or wild game, suggesting very little exploitation of wild resources."

On Cyprus, something different happened.

When people colonized the island at the beginning of the Neolithic Period, they brought with them plants and animals, including wild game. Unlike their mainland contemporaries, these settlers did not clear all of the oak and pine forests for agriculture. Fall's analysis of charcoal and burned seeds from Politiko-Troullia shows that woodlands grew in the mountains and foothills of Cyprus, while Bronze Age farmers also used terraced hillsides to grow crops. In contrast to Middle Eastern evidence of deforestation, dense populations and large cities, these researchers find lingering signs of habitation in dispersed villages across a landscape with persistent wild plant and animal resources.

"Their way of life was fundamentally different from that of mainland populations," Falconer says.

When the first Cypriot settlers arrived on boats, along with their domestic livestock, they brought unusual passengers – wild deer.

"They brought Mesopotamian fallow deer with them," Fall says. "Then they released them and hunted them."

The celebration whose remnants Fall and Falconer uncovered in their excavations at Politiko-Troullia suggests that the imported deer were not part of a Bronze Age return to hunter-gatherer roots. Rather, these animals were hunted for ritual reasons, as well as for regular table fare.

Courtyards give a sense of Bronze Age community.

The deer bones have shown up in large numbers in outdoor, communal spaces, along with other objects – spindle whorls, loom weights, stylized human figurines – that Fall and Falconer suspect may have been related to communal celebration of personal events, or the turn of a calendar.

"They were feasting on these deer," Falconer says. "And probably carrying on other kinds of social interactions and economic transactions."

One of their papers, "Bronze age fuel use and its implications for agrarian landscapes in the eastern Mediterranean," published in December 2015 in the *Journal of Archaeological Science* with JoAnna Klinge of Arizona State University, compared the carbonized seeds and charcoal excavated from four Bronze Age settlements in the eastern Mediterranean to determine how people obtained and used fuel.

In overview, the people of Bronze Age Cyprus appear to have lived more lightly on the land than contemporaneous mainland populations, more in keeping with the island's carrying capacity. These insights from ancient Cyprus hold implications for people today.

Workshop excavation.

"The landscapes of the Mediterranean basin are quintessentially anthropogenic, or human-made, because they have been cultivated and grazed for millennia, arguably for 10,000 years or more," Falconer says. "It's interesting and important to understand how we got there, also with an eye to what the human role is going to be in the future."

One story the settlement of Cyprus can tell us, the researchers say, is that the future is not a foregone conclusion. "We talk about first cities, first writing, first government, but there are different routes to these innovations," Falconer says. "Cyprus is different from other places; it's not about population growth and pressure."

Often, both laypeople and scientists see how society or landscapes developed to their modern configuration and think this was the inevitable outcome, Falconer says."Cyprus points out that there are different possible configurations," he says. "Human history and prehistory could have taken different avenues."

Words: **Amber Veverka** | Images: **Pat Fall, Steven Falconer and Sidney Rempel**

WORDS OF WISDOM

College's 2015 Books Add to Knowledge

- *Indigeneity, Globalization, and African Literature: Personally Speaking*, by **Tanure Ojaide, Africana Studies**. Palgrave Macmillan.
- *Tales of the Ex-Apes: How We Think About Human Evolution*, by **Jonathan Marks, Anthropology**. University of California Press.
- *Suicide by Cop: A Comprehensive Examination of the Phenomenon and its Aftermath*, by **Vivian B. Lord, Criminal Justice & Criminology**. Looseleaf Law Publications, Inc.
- *When Are You Coming Home?: Stories*, by **Bryn Chancellor, English**. University of Nebraska Press.
- *Richard Coer de Lyon*, edited by **Peter Larkin, English**. Medieval Institute Publications, Western Michigan University.
- *Theorizing and Analyzing Agency in Second Language Learning: Interdisciplinary Approaches*, edited by Ping Deters, Xuesong (Andy) Gao, **Elizabeth R. Miller, English**, and Gergana Vitanova. Multilingual Matters.
- *Ecological Approaches to Early Modern English Texts: A Field Guide to Reading and Teaching*, edited by **Jennifer Munroe, English**, Edward J. Geisweidt and Lynne Bruckner. Ashgate.
- *Mimer*, by **Lance Phillips, English**. Ahsahta Press.
- *Walt Disney, from Reader to Storyteller: Essays on the Literary Inspirations*, Edited by Kathy Merlock Jackson and **Mark I. West, English**. McFarland & Company, Inc.
- *Spatial Analysis in Health Geography*, edited by Pavlos Kanaroglou, **Eric Delmelle, Geography & Earth Sciences**, and Antonio Páez. Ashgate.
- *Power and Control in the Imperial Valley: Nature, Agribusiness, and Workers on the California Borderland, 1900-1940*, by **Benny J. Andrés, Jr., History**. Texas A&M University Press.
- *New Delhi: The Last Imperial City*, by **David A. Johnson, History**. Palgrave MacMillan.
- *Tracks of Change: Railways and Everyday Life in Colonial India,* by **Ritika Prasad, History**. Cambridge University Press.
- *Waste Into Weapons: Recycling in Britain during the Second World War*, by **Peter Thorsheim, History**. Cambridge University Press.
- *Mysticism in the Druze Faith (Al-'Irfan fi Maslak at-Tawhid*, by Sami Makarem; translated by Adnan Kaasamany, and **Anahid Abifaker, Languages & Culture Studies**. Druze Heritage Foundation.
- *Séquences*, by **Michèle Bissière, Languages & Culture Studies**, and Nathalie Degroult. Cengage Learning.
- *Español Para Las Profesiones Y Otros Usos Específicos. Spanish for the Professions and Other Specific Uses*, edited by **Michael Scott Doyle, Languages & Culture Studies**, and Candelas Gala. Spanish Professionals in America, Inc.
- *Resilience & Melancholy: Pop Music, Feminism, Neoliberalism*, by **Robin James, Philosophy**. Zero Books.
- *The American Philosopher: Interviews on the Meaning of Life and Truth*, by **Phillip McReynolds, Philosophy**. Lexington Books.
- *At the Foundation of Bioethics and Biopolitics: Critical Essays on the Thought of H. Tristram Engelhardt, Jr.*, edited by **Lisa M. Rasmussen, Philosophy**, and Ana Smith Iltis and Mark J. Cherry. Springer.
- *The Physiology of Sexist and Racist Oppression*, by **Shannon Sullivan, Philosophy**. Oxford University Press.
- *Introduction to Imaging from Scattered Fields*, by **Michael A. Fiddy, Physics & Optical Science**, and R. Shane Ritter. CRC Press.
- *U.S. and Latin American Relations*, by **Gregory B. Weeks, Political Science & Public Administration**. Wiley Blackwell.
- *Understanding Psychology*, by Charles G. Morris, and **Albert A. Maisto, Psychology**. Pearson.
- *The Cambridge Handbook of Meeting Science*, edited by Joseph A. Allen, Nale Lehmann-Willenbrock, and **Steven G. Rogelberg, Psychology**. Cambridge University Press.
- *Negative Ecstasies: Georges Bataille and the Study of Religion,* edited by Jeremy Biles, and **Kent L. Brintnall, Religious Studies**. Fordham University Press.
- *American Possessions: Fighting Demons in the Contemporary United States*, by **Sean McCloud, Religious Studies**. Oxford University Press.
- *Race, Religion, and the Pulpit: Rev. Robert L. Bradby and the Making of Urban Detroit,* by **Julia Marie Robinson, Religious Studies**. Wayne State University Press.
- *Gendered Worlds*, by **Judy Root Aulette of Sociology**, and Judith Wittner. Oxford University Press.
- *Yesterday, Today, and Tomorrow: School Desegregation and Resegregation in Charlotte*, edited by **Roslyn Arlin Mickelson, Sociology**, Stephen Samuel Smith and Amy Hawn Nelson. Harvard Education Press.

Dowd Initiative

Effort Explores Capitalism From Historical Perspective

Hugh McColl nudges the toe of his black dress shoe just over the edge of the auditorium stage.

A podium cannot contain or constrain him – the stage itself hardly can. The tip of his shoe hovers mid-air as he moves closer to the students just below him, drawing out their questions.

The former CEO and chairman of Bank of America covers great swaths of business and banking history in his talk, speaking about the impact of integration on the South – good for growth – and how he and others fueled their businesses and their careers.

"The ones who really succeeded were the driven people who made it happen," he tells the students.

McColl met with students as part of the Dowd Initiative, created by the Department of History. Supported by the Dowd Foundation, the department offers courses on historical themes of business interest; in particular the impact of capitalism on regions and society from diverse historical perspectives. Guest speakers are bringing their points of view, while professors teaching the classes are linking their research and their teaching.

"The Dowd program creates a new focus in the department on economic and business history, to go along with our courses on cultural, social, and political history," says Jürgen Buchenau, department chair.

"It has also funded the creation of history and liberal studies courses that involve quantitative as well as qualitative reasoning," Buchenau says. "Being able to work with numbers and statistics increases the employment opportunities of our graduates."

The effort started as a conversation about the value of history majors' ability to analyze and communicate, and the need to connect American higher education and the practical needs of the American workplace.

This semester's course topics range from African American entrepreneurs through capitalism and slavery to the history of capitalism in the American South. While the courses are individual in their focus, they come together around guest speakers' topics and UNC Charlotte research.

"My 'Slavery & Capitalism' seminar relates directly to my on-going research on the history of slavery, race, and emancipation," says John David Smith, Charles H. Stone Distinguished Professor of American History.

"The class encourages students to think about the costs – both in humans and in financial capital – of the systematic exploitation of persons torn from Africa by the Atlantic slave trade over time and place in the Antebellum South," Smith says. "Historians consider the nexus between slavery and capitalism an especially relevant topic today, one connecting such key topics as racial violence, reparations, and historical memory."

Shep McKinley, senior lecturer, draws upon his 2014 book, *Stinking Stones and Rocks of Gold: Phosphate, Fertilizer, and Industrialization in Postbellum South Carolina*, as a foundation for his course, 'Capitalism in the South.'

"Our class begins our investigation of capitalism in – and behind the founding of – Jamestown in 1607 and ends in the Hugh McColl era, with New South Charlotte's rise to become a major player in banking," McKinley says. "Just as my book investigates the tensions and connections between race and capitalism, so too does our class look at slavery, the Civil War, Jim Crow, and the civil rights struggle as they relate to southern

businesses and the economy."

In associate professor Sonya Ramsey's class, she turns to her research interests and expertise in African American history, women's history, and the history of education.

"When I developed my course, 'The African American Entrepreneurial Spirit,' I drew upon several aspects that related to my research," she says. "In my course, we discuss the experiences of African American entrepreneurs as they created their businesses. We also discuss their impact upon educational development, civil rights, and philanthropy. My course also explores other motivational factors for business development. During segregation, African American business leaders created businesses to help contribute to the social and cultural betterment of African American communities through economic development."

Guest speakers brought to life the academic subjects studied in class. For Ramsey, two particularly relevant speakers with new voices and perspectives were Juliet E. K. Walker, who helped create the field of African American business history, and Tiffany Gill, who has done groundbreaking research into the political and civil rights activism of African American hairstylists.

"Dr. Gill's work, for example, challenged students to rethink their prevailing ideas of who activists were," she says. "These women were not traditional activists who marched in the streets, but they relied upon their independence as autonomous business-owners to fight for social justice."

Another speaker this semester was Seymour Drescher, one of America's foremost authorities on the economics of North American slavery, comparative slavery, and abolition.

"All the speakers touched on the broad nature of capitalism and human progress," Smith says. "In the case of Professor Drescher, who spoke on slavery and capitalism, the students gained a clear sense of the human costs of bonded labor and the power of the nexus of racial hierarchies and labor exploitation. My seminar students found inspiring

Blake Barnes, founder and owner of the Common Market retail stores, talks with students in a previous semester.

Dr. Drescher's passion and commitment to underscoring slavery's deep roots in American capitalism and the deleterious long-term implications of racial slavery on African American life and labor."

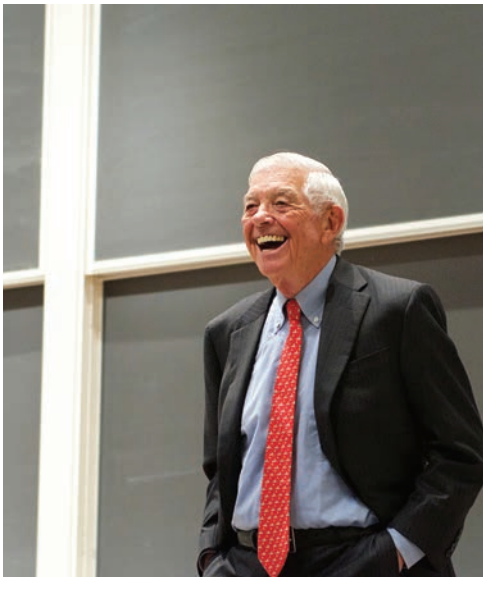
For McKinley's students, the speakers helped make the linkages between the eras and the materials.

"It's one thing to read about the business of slavery, the innovative Madam C.J. Walker, or Bank of America's rise in North Carolina, but it's another thing entirely for the students to hear the experts discuss the topics and answer their questions in depth," he says.

The first courses in the series considered the global history of capitalism, American business history, and the history and impact of capitalism on American food production. Past speakers included entrepreneurs and corporate giants. Special among them was Roddey Dowd Jr., CEO of Charlotte Pipe & Foundry Company and supporter of the initiative.

"We are grateful for the support of Mr. Dowd and the Dowd Foundation," Buchenau says. "The study of capitalism is important for everyone alive today, as our economic system affects virtually every aspect of our lives. Studying capitalism in historical perspective allows students to understand how our current economic and social realities came to be." &

Words and Images: **Lynn Roberson**



Hugh McColl, retired CEO, talks with students.

CATASTROPHIC CATALYST

Lab Makes Linkages At Nexus Of Communication, Political Psychology

As Hurricane Katrina ravaged New Orleans in 2005, people worldwide converged around TVs to witness the devastation of an iconic city and government's response to the storm. This catastrophic, life-altering event served as a pivotal point in UNC Charlotte researcher Cherie Maestas' career.

"I was at a political science conference with my colleague and co-author Lonna Atkeson after Katrina hit," Maestas says. "We, and everyone there, were glued to the TV in shock, watching the striking news coverage, trying to comprehend the human toll and anguish that was so apparent. Being social scientists, we wondered, if the news was affecting all of us this way, how was this news affecting broader public?"

Asking this question led to a National Science Foundation grant to conduct a nationwide public opinion survey, and Maestas' new interest in the political psychology of public opinions.

When she came to UNC Charlotte in 2014 as the Marshall A. Rauch Distinguished Professor of Political Science, Maestas founded an experimental lab called POLS-LAB to study the effect of exposure to different kinds of emotion-laden media. She also has opened her lab to other researchers and students, to collaborate on studies each semester and encourage inquiry that crosses disciplines.

> ***"If it's affecting all of us this way, what is this doing to the broader public?"***
>
> ***— Cherie Maestas***

"The first part of my career focused on political elite behavior, with a goal of understanding what makes public officials responsive to citizens, and how the mechanisms of electoral risk and re-election drive that responsiveness," Maestas says. "I'm now interested, more broadly, in understanding how people respond to information that triggers emotions of anxiety, threat and anger stemming from information sources in the environment, such as the news media."

With a heightened awareness of the extraordinary, catastrophic and shocking moments that touch people's lives and influence their opinions, she and Atkeson, a professor at University of New Mexico, consider how people assess and understand the risks and uncertainties associated with democracy. Her research occurs at the nexus of communication and political psychology.

Based on their nationwide survey funded by the National Science Foundation, Maestas and Atkeson published a book on the topic, *Catastrophic Politics: How Extraordinary Events Redefine Perceptions of Government* (Cambridge University Press).

They suggest that such events are politically influential because they engage the public differently than routine political conflicts. This results in a public opinion environment that differs from the day-to-day, which enables political changes that would be less likely during more normal times, they say.

"Catastrophes bring together the public in a moment of high-anxiety and shock, and tell them something about the way the government is functioning in those initial moments right after the crisis," Maestas says. "Strong emotions felt during catastrophes – even emotions experienced only vicariously through media coverage – can be powerful motivators of public opinion and public activism, particularly when emotional reactions coincide with attribution of blame to governmental agencies or officials."

These catastrophes at the initial point show resistance to elite "spin," or reframing as attempts to convince viewers to reappraise the information they are witnessing, so they are unvarnished views of how government responds, the research suggests. The events also engage more people than normally consume news reports.

"There are a lot of people out there who would never tune in to the news ordinarily, but if something blows up, or gets wiped off the map, everyone tunes in," Maestas says. "These factors make catastrophes extra special moments in the way we understand how government works, and whether it's working for all citizens in an equal way."

POLS-LAB consists of a biometric station with galvanic skin response sensors, and 22 Internet-accessible computer stations. In addition to each having screen capture software and headphones, ten of the stations are equipped with video cameras for recording the subjects' face muscles. These cameras take 30 different measurements per second, allowing a real-time analysis and calculations of emotions such as anger, joy and fear.

"We can really see which parts of the message are creating emotions in subjects, and then we can examine how that's related to their political attitudes," Maestas says. "This helps us understand how news events create conditions for punctuated policy change. People traditionally thought of emotion as being the opposite of cognition, and that people were either emotional or rational. But we've recently learned that emotion actually helps us be more efficient processors of information in many ways."

Maestas is exploring how the public responds to information about drone strikes and shadow warfare, working with political scientist James Walsh. They seek to discover how mistakes or negative outcomes reported by news outlets about drone programs shape citizens' subsequent support for related policies, and how the citizens apportion blame.

"The lab that Dr. Maestas is developing is a really ambitious effort to study political psychology in a sophisticated way," Walsh says. "In particular, she is working on ways of unobtrusively measuring people's emotional states, such as when they watch political information in news stories. The issue of drone strikes tends to elicit strong emotions, so that is an important area of overlap between us."

Although POLS-LAB is part of the Department of Political Science and Public Administration, Maestas encourages collaboration. She wants the lab to be seen as a resource and opportunity for all social sciences.

"One of the exciting things about POLS-LAB is that it really does open up opportunities for interdisciplinary cooperation" she says. "My goal is to really foster this, and to encourage students and faculty, not just from Political Science and Public Administration, but from all across the college to become more involved." &

Words: **Tyler Harris** | Hurricane Image: **National Oceanic and Atmospheric Administration/Department of Commerce**

MOVEMENTS + MAPS

Researcher Reveals Globalization As Bordered Process

As liminal spaces, borders influence how countries interact with each other. UNC Charlotte researcher Sebastian Cobarrubias has found they can be spaces of exclusion, yet also can act as spaces for communication and cooperation.

"I started thinking about different kinds of policies that construct spaces which include and exclude people," Cobarrubias says. "I started paying attention to that exclusion, and started arguing that it's problematic, so as to be able to get to practical issues."

As an assistant professor in the Department of Global, International and Area Studies, Cobarrubias has formed an active collaboration with anthropologists and geographers. They draw from their diverse knowledge to research new border realities, border externalization, and migratory patterns. In one collaborative effort, they published a paper titled "New Keywords: Migration and Borders" in the journal *Cultural Studies*.

"Our focus is on how borders, which initially meant the limits of a nation, are now moving out to involve or control what's done in other countries," Cobarrubias says. "We wrote about the use of maps both by border agencies, as well as by people advocating for migrant rights. So in a sense, maps become sites of conflict, and this helps us understand spaces of control versus movement, and to think about what strategies can be adopted."

For instance, the paper details a 'disobedient gaze' as a counter-cartographic practice, initiated by online mapping platforms such as "Watch the Med," an online mapping platform to monitor the deaths and violations of migrants' rights at the maritime borders of the European Union. The effort collects reports sent via phone calls or via the Internet from migrants, relatives, seafarers and other witnesses.

These types of programs track migrant rights' violations at sea and determine which authorities have responsibility for them. Such efforts create new understandings of migrant practices and experiences.

Cobarrubias was drawn to study movements, maps and migration while working with national and international non-governmental organizations.

"It was around the year 2000, when everyone was talking about globalization or borderlessness as this new space where people and ideas and images and money would flow freely," Cobarrubias says.

"At that time, I was working with non-governmental organizations and community groups, organizing advocacy movements and demonstrations, and working on larger platforms with unions and parliamentarians," he says. "A lot of us felt the need to understand the kind of issues that might emerge as a result of this global boom, to try and figure out centers of power, to try and understand how we relate to other people or groups in other places."

"The time we claim we are the most interconnected is actually the time that we are greatly dividing each other."

— Sebastian Cobarrubias

The research by Cobarrubias and colleagues suggests that globalization is a bordered process, with more border walls now than ever before.

"So the time we claim we are the most interconnected is actually the time that we're greatly dividing each other," he says. In the midst of this, migration emerges as a unique kind of collective action that challenges institutional power to reshape the border regime. Cobarrubias thinks that borders have gained significance in contemporary global affairs, in the light of recent events concerning the influx of migrants and refugees in Europe.

+ MIGRATIONS

"We're talking about the need to comprehend the dynamics of international power structures," he says. "It's important to identify that there is a serious power discrepancy going on, and to understand why governments would want to cooperate with that. It's to try and understand why some countries can push their own migration issues onto other countries. What does it mean, for instance, when we say that all states are equal, when we know that they're not? What does it mean when a country restricts the mobility of a group of people who want to, or have to move?"

In 2015, he and colleagues published "Riding Routes and Itinerant Borders: Autonomy of Migration and Border Externalization" in the journal *Antipode*. This research considered how the technological upgrading of European borders is failing to control irregular migration.

In response, European states are restructuring their border regimes by externalizing migration management to non-EU countries beyond the border and creating new programs and policies to do so. The paper explores the shifting relationship between border control and mobility.

"If a distinct and richer understanding of migrant rights and a more open notion of citizenship are to be possible the dynamic and productive powers of ecologies of mobile existence and the effects of multiple itineraries of people constantly on the move will have to drive the creation of new forms of policy and border thinking," the researchers suggested.

Knitting aspects of his research into his teaching, Cobarrubias urges his students to think through different concepts, to encourage sensitivity, prudence, and empathy to global issues.

"I try to get students to understand that the countries that have the most means to host refugees are not hosting refugees," he says. "It's about knowing that migration goals are still being defined by international centers that tend to be biased. It's about learning that externalization is lowering the number of refugee applications, because it's blocking them before they can even get there. My students learn to pay attention to our narratives of these ungoverned spaces where people are fleeing from and to the fact that they need protection. Maps help say a lot about these issues."

Sebastian Cobarrubias urges students to consider global issues with empathy.

Cobarrubias turns to a variety of information sources to expand students' understanding of current issues. He draws upon media, such as news reports, online programs such as "Watch the Med," and videos by border patrol agencies.

"We will talk about what these videos, for example, try to communicate about the work that these agencies do, and how we can draw connections," he says. "I'll also play documentaries, or show them aspects of hip-hop or pop culture. By asking fundamental questions and reflecting on issues such as 'illegality,' 'trafficking,' 'nationality,' or 'identity,' I want the students to absorb content, while also developing their ability to deconstruct different components of these issues. This way, they gain a deeper understanding."

It might be said that the borders of learning in Cobarrubias' classes are boundless. &

Words: **Kamakshi Kamath** | Images: **Lynn Roberson**

College of Liberal Arts & Sciences
UNC CHARLOTTE

9201 University City Blvd
Charlotte, NC 28223-0001

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PINECONE ORCHID

The foot-long, pendant clusters of the Pinecone Orchid, Dendrobium thyrsiflorum, light up the orchid room of the McMillan Greenhouse in late March. A rare sight in North America, this high-elevation species is native to the Himalayas. The UNC Charlotte Botanical Gardens' orchid collection contains over 500 specimens from six continents and is open to the public, 7 days a week, year-round. Learn more: **gardens.uncc.edu.**

Image: **Lynn Roberson**