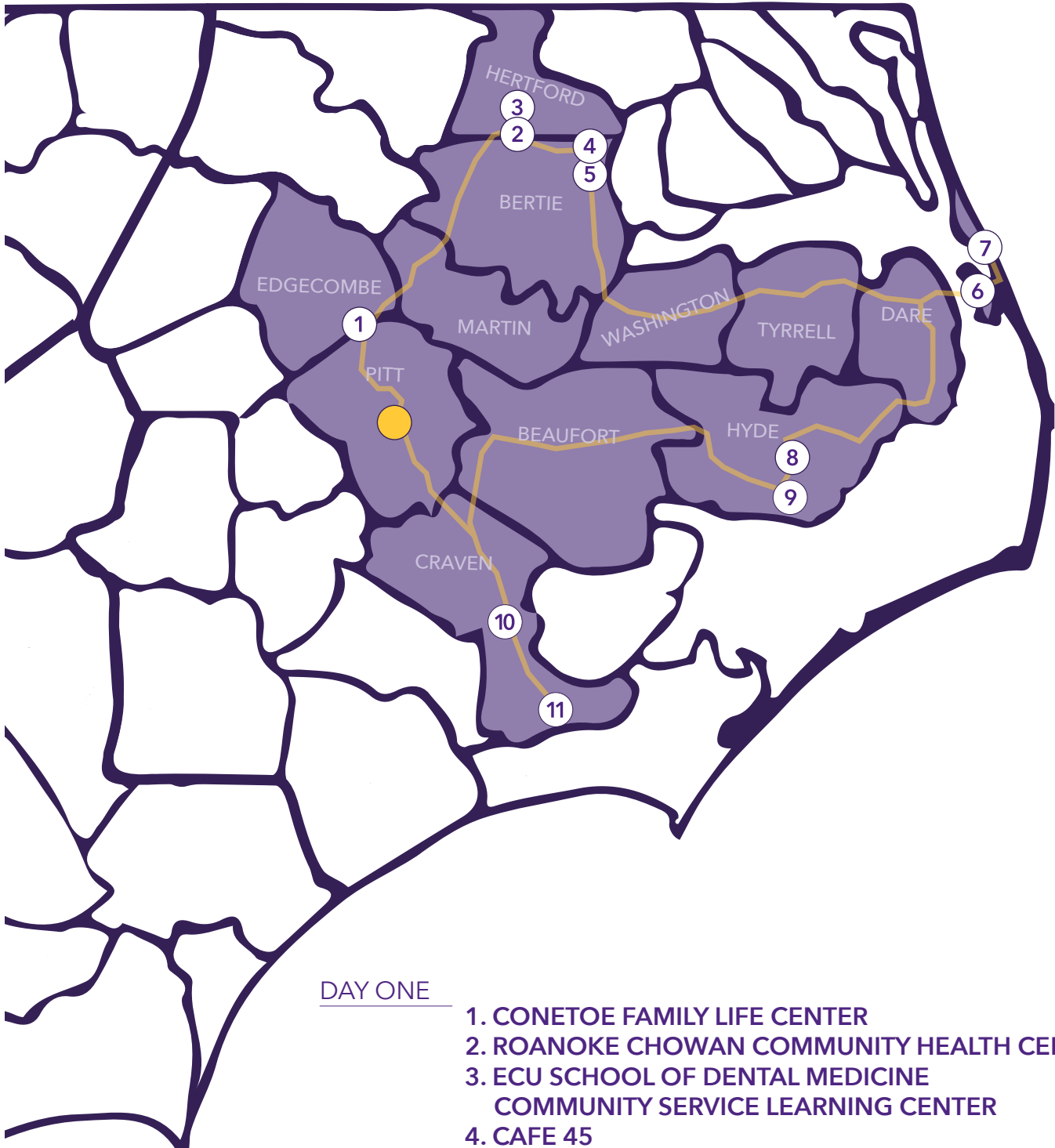


**2019 ECU
PURPLE & GOLDEN
BUS
TOUR**

A stylized map of North Carolina is positioned on the right side of the graphic. A yellow line with black dots at each stop traces a route across the state, starting from the western coast, moving north to the top, then east to the coast, and finally south to the bottom.

BUS TOUR STOPS



DAY ONE

1. CONETOE FAMILY LIFE CENTER
2. ROANOKE CHOWAN COMMUNITY HEALTH CENTER
3. ECU SCHOOL OF DENTAL MEDICINE
COMMUNITY SERVICE LEARNING CENTER
4. CAFE 45
5. WJP FARM
6. ECU OUTER BANKS CAMPUS
7. MAKO'S BEACH GRILLE + BAR

DAY TWO

8. LAKE MATTAMUSKEET NATIONAL WILDLIFE REFUGE
9. HYDE COUNTY MANAGER'S TOUR
10. NEW BERN WALKING & WINDSHIELD TOUR
11. MARINE CORPS AIR STATION CHERRY POINT

TIMELINE DAY ONE

SITE	TIME	PRESENTER	ACTIVITY & OUTCOME
DEPART ECU	8:00 AM	JAY GOLDEN Vice Chancellor, REDE	ACTIVITY: Welcome remarks GOAL: Overview of tour
CONETOE FAMILY LIFE CENTER Conetoe, Edgecombe County	30-Minute Drive ARRIVAL: 8:30 AM DEPARTURE: 9:45 AM	REV. RICHARD JOYNER Founder, Conetoe Family Life Center	ACTIVITY: Tour GOAL: Understanding of health disparities in a small town in eastern N.C.
MARTIN & HERTFORD COUNTIES Windshield tour	60-Minute Drive 9:45 - 10:45 AM	SKIP CUMMINGS Professor and Director, Family Medicine, ECU	ACTIVITY: Network on bus
ROANOKE CHOWAN COMMUNITY HEALTH CENTER (RCCHC) ECU SCHOOL OF DENTAL MEDICINE COMMUNITY SERVICE LEARNING CENTER (CSLC) Ahoskie, Hertford County	ARRIVAL: 10:45 AM DEPARTURE: 12:15 PM	CAROLINE DOHERTY Chief Development and Programs Officer, RCCHC KIM SCHWARTZ Chief Executive Officer, RCCHC GREG CHADWICK Dean, School of Dental Medicine, ECU FORD GRANT Faculty Director, Ahoskie CSLC, ECU T. ROBERT TEMPEL Associate Dean, Extramural Clinical Practices, ECU	ACTIVITY: Tour GOAL: Understanding health disparities in rural communities, Federally Qualified Health Centers, and the CSLC educational model and service to community

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SITE	TIME	PRESENTER	ACTIVITY & OUTCOME
BERTIE COUNTY Windshield tour	30-Minute Drive 12:15 - 12:45 PM	KEITH WHEELER Executive Director, National Security and Industry Initiatives, REDE	ACTIVITY: Network on bus
CAFE 45 Colerain, Bertie County	ARRIVAL: 12:45 PM DEPARTURE: 1:30 PM	MARY FARWELL Assistant Vice Chancellor for Academic Affairs Research, REDE KATHRYN VERBANAC Assistant Vice Chancellor for Health Sciences Research, REDE	ACTIVITY: Lunch and overview of ECU research administration and support
WJP FARM Colerain, Bertie County	ARRIVAL: 1:45 PM DEPARTURE: 2:45 PM	BILLY PERRY Owner, WJP Farm	ACTIVITY: Farm Tour GOAL: Understanding of agriculture and how it affects communities in eastern N.C.
WASHINGTON, TYRRELL & DARE COUNTIES Windshield tour	90-Minute Drive 2:45 - 4:15 PM		ACTIVITY: Network on bus

SITE	TIME	PRESENTER	ACTIVITY & OUTCOME
<p>ECU OUTER BANKS CAMPUS Wanchese, Dare County</p>	<p>ARRIVAL: 4:15 PM</p> <p>DEPARTURE: 6:30 PM</p>	<p>REIDE CORBETT Dean, ECU's Integrated Coastal Programs Executive Director, Coastal Studies Institute</p> <p>MIKE MUGLIA Assistant Director, Science and Research for the North Carolina Renewable Ocean Energy Plan</p> <p>JOHN MCCORD Assistant Director, Engagement and Outreach at Coastal Studies Institute</p>	<p>ACTIVITY: Tour of ECU Outer Banks Campus, STEM at Starlight event</p> <p>GOAL: Understanding N.C. coast, natural resources, ECU Outer Banks Campus resources, and opportunities for research and partnerships</p>
<p>MAKO'S BEACH GRILLE + BAR Kitty Hawk, Dare County</p>	<p>ARRIVAL: 7:00 PM</p> <p>DEPARTURE: 8:15 PM</p>	<p>MIKE KELLY Former ECU Trustee</p>	<p>ACTIVITY: Dinner and networking</p>
<p>HILTON GARDEN INN Kitty Hawk, Dare County</p>	<p>ARRIVAL: 8:25 PM</p>		<p>ACTIVITY: Overnight stay</p>

TIMELINE DAY TWO			
<p>HILTON GARDEN INN</p>	<p>6:30 - 7:45 AM</p>	<p>MARY FARWELL</p>	<p>ACTIVITY: Beach yoga and breakfast</p>
<p>DARE & HYDE COUNTIES Windshield tour</p>	<p>95-Minute Drive</p> <p>8:00 - 9:35 AM</p>		

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SITE	TIME	PRESENTER	ACTIVITY & OUTCOME
LAKE MATTAMUSKEET HYDE COUNTY	ARRIVAL: 9:35 AM DEPARTURE: 11:00 AM	KRIS NOBLE County Manager, Hyde County MARK WILLIARD President, Williard Stewart Architects	ACTIVITY: Lake Mattamuskeet National Wildlife Refuge and Tour GOAL: Understanding natural resources, culture, and economic development in a coastal community
HYDE & BEAUFORT COUNTIES Windshield tour	2.5 Hour Drive 11:00 AM - 1:30 PM		ACTIVITY: Networking on bus, New Bern video
NEW BERN Walking/ windshield tour	ARRIVAL: 1:30 PM DEPARTURE: 2:30 PM	DANA OUTLAW Mayor, New Bern SABRINA BENGEL Alderman, New Bern THARESA CHADWICK LEE Chairman, New Bern Redevelopment Commission MARK STEPHENS City Manager, New Bern	ACTIVITY: Tour GOAL: Understanding town history, review history and response of flooding and recent natural disasters from community and government perspective
CRAVEN COUNTY Windshield tour	30-Minute Drive 2:30 - 3:00 PM		
MARINE CORPS AIR STATION CHERRY POINT Havelock, Craven County	ARRIVAL: 3:00 PM DEPARTURE: 5:15 PM	JIM MENKE U.S. Navy, Retired Director of National Security Initiatives, REDE JAMES DUNCAN RIEMER Director of Operations, MCAS Cherry Point	ACTIVITY: Tour GOAL: Understanding of military impact on coastal and eastern N.C.
RETURN TO GREENVILLE 75-Minute Drive			

ADDRESSES & CONTACTS

TOUR STOPS

CONETOE FAMILY LIFE CENTER

157 Vine Lane
Tarboro, N.C. 27886
Telephone: 252-563-5411

Established in 2017, the Conetoe Family Life Center's mission is to improve the health of the youth and community by increasing access to healthy foods, increasing physical activities, and providing access to health services. The community garden and bee operation allows the youth to be involved in community-supported agriculture by learning to grow and harvest vegetables and honey. Sales proceeds from the vegetables and honey are invested in the farm, youth health programs, and after-school education.

ECU SCHOOL OF DENTAL MEDICINE COMMUNITY SERVICE LEARNING CENTER - AHOSKIE

100 Health Center Drive
Ahoskie, N.C. 27910
Telephone: 252-332-1904

The ECU School of Dental Medicine Community Service Learning Center in Ahoskie is one of eight community centers in rural North Carolina committed to providing dental services to disadvantaged communities. The center's mission is to improve the health and quality of life of all North Carolinians by creating leaders with a passion to care for the underserved and by leading the nation in community-based practice, service-learning and health education. The Ahoskie center offers comprehensive general dental services in a safe, caring, and professional setting to all patients.

ROANOKE CHOWAN COMMUNITY HEALTH CENTER

120 Health Center Drive
Ahoskie, N.C. 27910
Telephone: 252-332-3548

Roanoke Chowan Community Health Center (RCCHC) in Ahoskie is one of four locations serving the Roanoke-Chowan community. The mission at RCCHC is to provide comprehensive health care that reduces health disparities for the people of the Roanoke-Chowan area. It is one of 30 Federally Qualified Health Centers (FQHCs) in North Carolina representing 150 clinical sites. RCCHC offers complete preventive and primary health care for the entire family. They serve patients in Ahoskie, Colerain, Creswell and Murfreesboro, and administer a student wellness center at Hertford County Middle School.

WJP FARM

753 Perrytown Road
Colerain, N.C. 27924

Telephone: 252-356-2056

Perry Brothers Farm is owned and operated by Billy Perry. In 2015, Perry signed a contract with Perdue to start raising chickens on land that has been in the Perry family for generations. The farm produces 100,000 chickens over a 7-week time period four to five times per year. The farm is in the early phases of expanding with four new houses planned. These new houses will bring the total yearly production to nearly 1 million chickens.

ECU OUTER BANKS CAMPUS

850 N.C. Highway 345
Wanchese, N.C. 27981

Telephone: 252-475-5400

ECU's Outer Banks Campus is located along the second largest estuary in the United States, an iconic barrier island chain and an energetic and productive coastal ocean. The coastal campus spans 213 acres of marshes, scrub wetlands, forested wetlands, and estuarine ecosystems. The campus is home to ECU's Integrated Coastal Programs academic unit and the multi-institutional Coastal Studies Institute. Led by ECU, in partnership with NC State and UNC-Chapel Hill, the institute focuses on research and education programming that responds to the needs, issues, and topics of concern of eastern North Carolina residents.

LAKE MATTAMUSKEET NATIONAL WILDLIFE REFUGE

86 Mattamuskeet Road
Swan Quarter, N.C. 27885
Telephone: 252-926-4021

Established in 1934, the Lake Mattamuskeet National Wildlife Refuge consists of open water, marsh, and forest land on more than 50,000 acres in eastern North Carolina. The refuge is home to Lake Mattamuskeet, the state's largest natural lake at more than 40,000 acres. Lake Mattamuskeet National Wildlife Refuge annually attracts more than 200,000 ducks, geese, and swans, making it an important stopover for wintering waterfowl.

UNION POINT PARK

210 E. Front Street
New Bern, N.C. 28560

Union Point Park is a six-acre site surrounded by water where the Neuse and Trent Rivers meet. The park features a fishing pier, two public boat launches, playground facilities, restrooms, and a popular waterfront boardwalk that extends to neighboring Bicentennial Park. The park is open to the public year-round and is one of the most scenic spots to enjoy in downtown New Bern.

MARINE CORPS AIR STATION CHERRY POINT

Havelock, N.C. 28533

Built in 1941 and commissioned in 1942, Marine Corps Air Station Cherry Point is home to the 2nd Marine Aircraft Wing. MCAS Cherry Point and its associated support locations occupy approximately 29,000 acres. At the heart of the station is its massive four-point runway system, which is designed to provide multiple approach and departure advantages. More than 53,000 people make up the total Cherry Point-related population, including active duty and retired Marines, the civilian workforce, and their families.

LODGING & DINING

Café 45

105 S. Main Street

Colerain, N.C. 27924

Telephone: 252-356-1186

Café 45, opened in May 2016, is a locally owned and operated country café located in rural Bertie County that features a made-to-order breakfast, lunch, and dinner menu. The café's lunch menu features traditional fare including burgers, hot dogs, sub sandwiches, chicken or fish sandwiches, shrimp, salads, and quesadillas.

MAKO'S BEACH GRILLE & BAR

1630 N. Croatan Highway

Kill Devil Hills, NC 27948

Telephone: 252-480-1919

Mako's Beach Grille + Bar – owned by ECU alumnus and former trustee Mike Kelly – a favorite restaurant of Outer Banks visitors and locals. The restaurant offers a family friendly atmosphere and memorable dining experience. Mako's menu features fresh Outer Banks seafood, Angus beef, authentic jerk chicken, golden fried oysters, appetizers, salads, pasta dishes, homemade desserts, gluten-free items, and pizzas made in the restaurant's authentic Italian wood-burning stove.

HILTON GARDEN INN OUTER BANKS/KITTY HAWK

5353 N. Virginia Dare Trail

Kitty Hawk, NC 27949

Telephone: 252-261-1290

Fax: 252-255-0153

The Hilton Garden Inn Outer Banks/Kitty Hawk is the premier Outer Banks hotel. The hotel is located in close proximity to the Kitty Hawk fishing pier and each room features a private balcony with views of the region's unique scenery. The hotel also features a complimentary 24-hour business center, a fully-equipped fitness room, and an indoor pool. Complimentary WiFi is provided for guests.

LIST OF BUS TOUR PARTICIPANTS

FACULTY PARTICIPANTS

Oghale (Elijah) Asagbra

Health Services and Information Management
College of Allied Health Sciences

Linda Bolin

Department of Nursing Science
College of Nursing

John Cavanagh

Biochemistry and Molecular Biology
Brody School of Medicine

Leslie Coffie

Health Education and Promotion
College of Health and Human Performance

Alethia Cook

Political Science
Thomas Harriot College of Arts and Sciences

Skip Cummings

Family Medicine
Center for Health Disparities
Brody School of Medicine

Kura Duba

Engineering
College of Engineering and Technology

Kathleen Egan

Health Education and Promotion
College of Health and Human Performance

Jessica Ellis

Physiology
East Carolina Diabetes and Obesity Institute
Brody School of Medicine

Katherine Ford

Foreign Languages and Literatures
Thomas Harriot College of Arts and Sciences

Amy Gross McMillan

Physical Therapy
College of Allied Health Sciences

Kate Taylor Harcourt

Human Development and Family Science
College of Health and Human Performance

Michael Harris

Miller School of Entrepreneurship
College of Business

Elizabeth Hodge

Interdisciplinary Professions
College of Education

Patrick Horn

Biology
Thomas Harriot College of Arts and Sciences

Mi Hwa Lee

Social Work
College of Health and Human Performance

Amy McMillan

Management
College of Business

Merwan Mehta

Technology Systems
College of Engineering and Technology

Stephen Moysey

Geological Sciences
ECU Water Resources Center
Thomas Harriot College of Arts and Sciences

David Paquette

Surgical Sciences
School of Dental Medicine

Lok Pokhrel

Public Health
Brody School of Medicine

Keith Richards

School of Communication
College of Fine Arts and Communication

Alice Richman

Health Education and Promotion
College of Health and Human Performance

Kamran Sartipi

Computer Science
College of Engineering and Technology

Aimee Smith

Psychology
Thomas Harriot College of Arts and Sciences

Rebecca Snyder

Surgery
Brody School of Medicine

FACULTY PARTICIPANTS CONTINUED

Sinan Sousan

Public Health
North Carolina Agromedicine Institute
Brody School of Medicine

Michael Stellefson

Health Education and Promotion
College of Health and Human Performance

T. Robert Tempel

Extramural Clinical Practices
School of Dental Medicine

Ali Vahdati

Engineering
College of Engineering and Technology

Michael Wheeler

Nutrition Science
College of Allied Health Sciences

Nancy Winterbauer

Public Health
Brody School of Medicine

Wanda Wright

Foundational Sciences and Research
School of Dental Medicine

Rui Wu

Computer Science
College of Engineering and Technology

Jie Yang

Social Work
College of Health and Human Performance

CLUSTER DIRECTORS

Stephanie George

Engineering
College of Engineering and Technology

William (Bill) Irish

Surgery
Brody School of Medicine

Michelle Oyen

Department of Engineering
College of Engineering and Technology

Alex Manda

Geological Sciences
Thomas Harriot College of Arts and Sciences

REDE LEADERSHIP & STAFF

Jay Golden

Vice Chancellor

Mary Farwell

Assistant Vice Chancellor
Academic Affairs Research

Cassie Keel

University Program Support Associate
Community Engagement and Research

Sharon Paynter

Assistant Vice Chancellor
Community Engagement and Research

Matthew Smith

Communications Specialist

Kathryn Verbanac

Assistant Vice Chancellor
Health Sciences Research

Mark Wdowik

Executive Director
Innovation and New Ventures

Keith Wheeler

Executive Director
National Security and Industry Initiatives

VIDEOGRAPHY

Erick Green

School of Art and Design
College of Fine Arts and Communication

Lamar Gilchrist

Film
College of Fine Arts and Communication

BUS TOUR SPEAKERS

Sabrina Bengel

Alderman, New Bern
Craven County

Greg Chadwick

Dean, School of Dental Medicine
Hertford County

Theresa Chadwick Lee

Chairman, New Bern Redevelopment Commission
Craven County

Reide Corbett

Dean, ECU's Integrated Coastal Programs
Executive Director, Coastal Studies Institute
Dare County

Skip Cummings

Professor and Director, Family Medicine
Hertford County

Caroline Doherty

Founder, Conetoe Family Life Center
Hertford County

James Duncan Riemer

Director of Operations, MCAS Cherry Point
Craven County

Ford Grant

Faculty Director, Ahoskie CSLC
Hertford County

Rev. Richard Joyner

Founder, Conetoe Family Life Center
Edgecombe County

Mike Kelly

Former ECU Trustee
Dare County

John McCord

Assistant Director, Engagement and
Outreach at Coastal Studies Institute
Dare County

Jim Menke

Director, National Security Initiatives
Craven County

Mike Muglia

Assistant Director, Science and Research for the
North Carolina Renewable Ocean Energy Plan
Dare County

Kris Noble

County Manager
Hyde County

Dana Outlaw

Mayor, New Bern
Craven County

Billy Perry

Owner, WJPFarm
Bertie County

Kim Schwartz

Chief Executive Officer, RCCHC
Hertford County

Mark Stephens

City Manager, New Bern
Craven County

T. Robert Tempel

Associate Dean, Extramural Clinical Practices
Hertford County

Mark Williard

President, Williard Stewart Architects
Hyde County

BUS TOUR PARTICIPANTS



Oghale (Elijah) Asagbra | asagbrao16@ecu.edu

Health Services and Information Management
College of Allied Health Sciences

Dr. Asagbra's research focuses on health information technology (HIT) and the role patients and community health departments play in its implementation and utilization. Health information technology has been touted to be an important tool in promoting patient engagement. However, without proper adoption and use, the advantage provided by HIT for patient engagement may not be achieved. It is therefore important to understand which functionalities are germane for patient engagement. As such, Asagbra's research proposes to examine consumers' expectations, preferences and aversions, and factors that influence behavior change to stimulate active and consistent utilization. His work also explores county and community level support for the use of HIT for patient engagement.



Linda Bolin | bolinl@ecu.edu

Nursing Science
College of Nursing

Dr. Bolin's research examines the multifaceted variables for self-management in adults with resistant hypertension. The traditional triad management framework consists of medications, complimented with lifestyle modification (increasing physical activity), and decreasing dietary salt intake. Stress management is recommended, but there is limited research incorporating alternative or complementary approaches for stress management. Intervening with alternative therapies could improve symptomatology and quality of life for those with resistant hypertension. Bolin's work focuses on the addition of this fourth prong related to sympathetic dysfunction. She examines the use of heart rate variability biofeedback and baroreflex sensitivity affecting cardiac autonomic tone and blood pressure. Her goal is to provide interventions for this vulnerable population within the eastern portion of our state to ultimately decrease poor health outcomes in adults with resistant hypertension.



John Cavanagh | jcavana@ncsu.edu

Senior Vice President for Discovering Science
RTI International

Dr. Cavanagh's research has led to the development of therapeutics that overcome bacterial resistance. Practically all antibiotics these days are ineffective because bacteria have figured out how to overcome this resistance. Cavanagh's lab has discovered how bacteria do this and has developed compounds to stop them. This means that when the lab's compounds are used in conjunction with conventional antibiotics, those antibiotics work again like they are new. Cavanagh believes that patients can tackle all bacterial infections with these new compounds. Cavanagh will become the chair of the Department of Biochemistry and Molecular Biology in the Brody School of Medicine on April 1, 2019.



Leslie Cofie | cofiel18@ecu.edu

Health Education and Promotion
College of Health and Human Performance

Dr. Cofie's research focuses on cancer health disparities among racial/ethnic minority immigrants living in the U.S. His primary objective is to understand differences in sociocultural and contextual factors associated with cancer preventive behaviors between U.S.-born and foreign-born individuals. Specifically, he examines differences related to breast, cervical, and colorectal cancers between the two groups. Cofie's work includes the use of a mixed methods approach and network analysis to examine how social network characteristics uniquely impact cancer risk and prevention among foreign-born populations. The long-term goal of his work is to develop interventions that would contribute to eliminating the burden of cancers that disproportionately affect foreign-born populations.



Alethia Cook | cooka@ecu.edu

Political Science
Thomas Harriot College of Arts and Sciences

Dr. Cook's research interests focus on complex problems and the challenges they pose to governments, with a recent focus on emergency management, pandemic disease, weapons of mass destruction, and preventing the radicalization of immigrant populations. As the Department of Political Science chair, Cook believes the bus tour's impact will allow her to aid her department's faculty who study relevant issues including rural public health, sustainability, agriculture and food, and local government administration. As a transplant to ECU, she says the trip will dramatically increase her knowledge and understanding of eastern North Carolina and the unique opportunities and challenges therein.



Skip Cummings | cummingsd@ecu.edu

Family Medicine and Center for Health Disparities
Brody School of Medicine

Dr. Cummings is a health disparities researcher investigating factors associated with successful prevention and treatment of Type 2 diabetes, hypertension, and stroke in community and rural primary care settings. He is the Director of Research in Family Medicine, the Research Core Co-Director at ECU's Health Disparities Center, and the Director of ECU's practice-based research network in rural eastern N.C. He has led clinical trials of diabetes interventions and has worked collaboratively with faculty at ECU, UNC-Chapel Hill, Wake Forest University, Cornell Medical Center, and the University of Alabama-Birmingham. His research career has been devoted to understanding the critical factors necessary to optimize the prevention and treatment of, and reduce racial disparities in, diabetes, hypertension, and stroke care, specifically in primary care and community settings. He is experienced in working with community-based staff, training learners and research staff, insuring intervention fidelity, and collecting data in rural practice locations.



Teal Darkenwald | darkenwaldt@ecu.edu

Theatre and Dance
College of Fine Arts and Communication

Ms. Darkenwald is an Associate Professor in ECU's School of Theatre and Dance where she teaches jazz, ballet and modern technique classes, dance composition, and dance science courses. Darkenwald is the founder of UltraBarre®, a barre-based somatic training certification program. She was a guest artist at Ballet Philippines, Visceral Dance Center, Radford University, the University at Buffalo, Glendale Community College, and Salve Regina University. Her dual research focus is in dance science and dances of the African diaspora. She conducts research out of the Innovation Design Lab and collaborates with Dr. Paul DeVita in the ECU Biomechanics Lab and Dr. Alex Durland in ECU Physical Therapy.



Kura Duba | dubak17@ecu.edu

Engineering
College of Engineering and Technology

Dr. Duba's primary research interest includes supercritical fluids-based process development, modeling and optimization for the valorization, separation, and purification of bio-based products, and byproducts from bio-botanical sources. The target applications of the new products Duba studies include foods, pharmaceuticals, cosmetics, nutraceuticals and/or synthesis of bio-based chemicals. He also studies conversion of residual biomass for the above-mentioned processes to bioenergy using hydrothermal processes and upgrade of biofuel through combined conventional and supercritical fluids techniques.



Kathleen Egan | eganka18@ecu.edu

Health Education and Promotion
College of Health and Human Performance

Dr. Egan's research consists of epidemiologic, observational, and intervention studies on multiple substances of abuse — nonmedical prescription drugs, illicit drugs, tobacco, and alcohol — among adolescents and young adults. She is particularly interested in the implementation and evaluation of community-based interventions and policies to prevent substance use problems in communities, especially among adolescents and young adults. While she is broadly interested in substance use, her independent research has focused on nonmedical prescription drug use as it is a serious public health issue in the U.S. Over the past several years, she has focused on examining the disposal of unused prescription medications as a prevention strategy. Ultimately, the goal of her research is to influence the implementation and sustainability of effective strategies to address substance abuse in communities.



Jessica Ellis | ellisje18@ecu.edu

Physiology and East Carolina Diabetes and Obesity Institute
Brody School of Medicine

Dr. Ellis' lab uses biochemical, metabolic flux, molecular biology, and genetically-manipulated mouse model approaches to understand the regulation and importance of cellular fatty acid metabolism. Her lab focuses on the enzymatic regulation of cellular lipid metabolism within the brain and how this metabolism influences neurological function and susceptibility to neurodegenerative diseases. Her research has a special emphasis on the neuroprotective omega-3 fatty acid, docosahexaenoic acid (DHA), and mitochondrial metabolism in the muscle in relation to cardiac hypertrophy, muscle function, energetic homeostasis, obesity, and diabetes. The lab has determined that muscle fatty acid oxidation is critical for maintaining cardiac and skeletal muscle structure, function, and physiological response to stress, such as diet-induced obesity and insulin resistance, and it continues to investigate the mechanisms therein.



Katherine Ford | fordk@ecu.edu

Foreign Languages and Literatures
Thomas Harriot College of Arts and Sciences

Dr. Ford's primary area of research is contemporary Spanish American theater and, in particular, its intersection with performance studies, feminist theory, and gender studies. Her third single-authored monograph, currently in process, examines the adaptations of plays to film in the Spanish-speaking world. Additionally, she is working on a research project that involves engaged research to increase access among young Latino students to higher education and scholarships. Ford's work in her home department and in the Honors College has helped her understand more fully ECU's three commitments and what role she can play in improving student success, serving the public by better connecting and preparing local students to excel at ECU, and transforming the region by increasing access to the university.



Stephanie George | georges@ecu.edu

Engineering
College of Engineering and Technology
Co-Director, Biomaterials Research Cluster

Dr. George's work addresses clinically relevant problems using cardiovascular mechanics, modeling, and imaging techniques to develop solutions that can be translated into clinical practice. Her research agenda has been crafted to promote increasing opportunity and improving health, with specific impact in the region ECU serves. Relevant clinical problems include pulmonary hypertension, heart failure, coronary artery bypass grafts, and lymphedema. In her lab, she applies engineering tools (imaging processing, computational modeling, device design) to address the above clinical issues. Embedded within this work are opportunities for undergraduate research and integration of research into teaching. She has run an NSF-funded REU site for five years, bringing 45 undergraduates to ECU to conduct research with the goal of broadening participation in STEM graduate programs and careers.



Amy Gross McMillan | grossmcmillana@ecu.edu

Physical Therapy
College of Allied Health Sciences

Dr. Gross McMillan's current research involves the effects of maternal exercise and physical activity during pregnancy on the neuromotor development of infants and young children and the potential long-term influence on development of obesity. In addition, she's interested in the effects early physical activity and movement play in the development of obesity during childhood and adolescence. As a department chair, she also represents the research interests and skills of her department's faculty.



Kate Taylor Harcourt | harcourt14@ecu.edu

Human Development and Family Science
College of Health and Human Performance

Dr. Harcourt believes that children, youth, and families facing adversities and hardships also possess notable strengths that promote resiliency. She is highly motivated to help these families and individuals capitalize on their strengths while empowering them with the additional knowledge and skills necessary to improve their overall quality of life. As such, her research centers on using developmental and family science to advance our understanding of diverse youth and families, and to further the development of programs and practices that promote the well-being of diverse youth and families. Her research examines dynamics of underserved populations, particularly those who were previously incarcerated, and addresses the needs of these families through educational relationship interventions.



Michael Harris | harrismi@ecu.edu

Miller School of Entrepreneurship
College of Business

Dr. Harris' research has focused on entrepreneurial attitudes, intentions, and the business startup process. Focal areas have included measuring the attitudes of young adults and the strategic resources necessary for new venture launch. His previous studies have included samples from multiple universities throughout the U.S. and abroad, including emerging entrepreneurs in rural settings. His more recent research efforts have focused on entrepreneurial pedagogy and the development of comprehensive entrepreneurship programs and accompanying ecosystems. One of his particular research goals is to create a national model for rural entrepreneurship education.



Elizabeth Hodge | hodgee@ecu.edu

Interdisciplinary Professions
College of Education

Dr. Hodge's research is motivated by the use of innovative technological tools to ignite and transform learning. To date, she has produced an array of articles, chapters, and books on immersive education, e-learning, multi-user virtual environments, professional learning communities, and innovative instructional methods. Most of the research she conducts explores how a particular technology tool influences behavioral, environmental, or personal factors in which learning occurs. The primary purpose of her research is to strengthen the empirical and formal connections between educational equity and close the achievement gap among learners. She serves as the Assistant Dean for Innovations and Strategic Initiatives in the College of Education.



Patrick Horn | hornp18@ecu.edu

Biology
Thomas Harriot College of Arts and Sciences

Dr. Horn's research aims to understand the role of lipids, or plant-based oils, in plant growth and development in response to dynamic environmental conditions. His goal is to exploit this knowledge to engineer healthier plants for environmental and human health. His lab aims to understand how cells and organelles are built using these lipid building blocks, how these lipids are synthesized and metabolized, and how the amounts and types of lipids respond to environmental cues in model and N.C.-valuable crop species (e.g. soybean). As plant-based oils are essential for human health (e.g. omega-3 fatty acids) and serve as precursors for valuable bioproducts (e.g. biodiesel, cosmetics, lubricants, etc.), the lab aims to help engineer plants that produce these desired oils.



William (Bill) Irish | irishw17@ecu.edu

Surgery
Brody School of Medicine
Co-Director, Big Data and Analytics Research Cluster

Dr. Irish's major research interests consist of identification of important prognostic factors of disease and clinical outcomes and developing statistical models and assessing their clinical utility. Of interest is evaluating factors that can affect outcomes in individuals who live in rural areas. These individuals are, on average, older with a higher incidence of chronic illnesses such as obesity, diabetes, and heart disease than individuals living in urban areas. Rural residents have less exposure to health care specialties and, as such, may not seek the necessary medical care or may have delays in treatment. All these factors can result in disparate outcomes among rural versus urban residents. The goal of his research is to design, implement, and evaluate an academic/community coordinated health system strategy to improve health outcomes in the rural community.



Mi Hwa Lee | leemih17@ecu.edu

Social Work

College of Health and Human Performance

Dr. Lee's research focuses on understanding the scope and nature of breast cancer screening disparities in ethnic minority women, as well as develop interventions to increase their screening. She seeks to understand the impact of social, cultural, and physical environment factors on breast cancer screening behavior in ethnic minority women, which will lead to the development of a culturally appropriate community-based intervention to promote breast cancer screenings. Her work represents an intersection of social work/nursing/public health approaches, community-based participatory research, quantitative/qualitative methodologies, and prevention science. The ultimate goal of her research is to inform the development and implementation of relevant public policies and practices for cancer screening behavior changes in ethnic minority women.



Alex Manda | mandaa@ecu.edu

Geological Sciences

Thomas Harriot College of Arts and Sciences

Co-Director, Natural Resources and the Environment Research Cluster

Dr. Manda is interested in exploring water resources (groundwater and surface water), issues (e.g., saltwater intrusion), and the drivers that influence water resources (natural and anthropogenic). He has used a combination of field-based and computer modeling techniques to tackle various research problems in the inner and outer banks regions of eastern North Carolina. He is also interested in improving undergraduate student education in the geosciences and citizen science.



Amy McMillan | mcmillana@ecu.edu

Management

College of Business

Dr. McMillan's research focuses on three main areas including diversity management, corporate social responsibility (CSR), and organizational culture/climate. At the core of her diversity management research is an emphasis on how to harness the strategic benefits of a diverse workforce while mitigating the potential negative effects. This has included examining leadership, strategy, and hiring practices in organizations. Her research into corporate social responsibility has focused on the impact of various CSR practices on stock price as well as differences in such practices between family and non-family firms. Finally, she has studied various types of organizational culture and climate in organizations in order to understand their interaction with variables such as leadership and diversity. Her goal has always been to find ways to help organizations engage in positive organizational behaviors while still remaining profitable.



Merwan Mehta | mehtam@ecu.edu

Technology Systems

College of Engineering and Technology

Dr. Mehta's present research interests are enhancing manufacturing and business processes through Lean principles and theory of constraints and the pursuit of quality and variation control through Six-sigma and design of experiments. Prior to joining academics in 2004, he recorded more than 20 years of experience in business and industry as an owner, vice president, manufacturing manager, project director, industrial engineer, machine tool design engineer, and manufacturing engineer. He has worked as a Lean Six-sigma process improvement consultant helping businesses become more profitable and productive since 2000. He has been an examiner for the Missouri Quality Award based on the Baldrige criteria for three seasons. Mehta conducts workshops in the above subject matter in the U.S. and internationally.



Stephen Moysey | moyseys18@ecu.edu

Geological Sciences and ECU Water Resources Center
Thomas Harriot College of Arts and Sciences

Dr. Moysey's research focuses on creating and transforming novel environmental data, particularly geophysical data, into information for understanding natural and human impacts on the water cycle. While the measurements that sensors provide are important for probing the environment, they don't have meaning until the data is put into a decision-making context using physical or statistical models to support water resources management. Moysey is an active researcher in the areas of STEM education and communication, particularly through the use of technologies – like virtual reality and mobile devices – to engage students and the public in science. He has worked on projects around the world, including the U.S., India, and the Caribbean.



Michelle Oyen | oyenm18@ecu.edu

Engineering
College of Engineering and Technology
Co-Director, Biomaterials Research Cluster

Dr. Oyen, who joined ECU as an Associate Professor in 2018, conducts research in the area of biomaterials and biomechanics. Her work can be described as using engineering tools and techniques to solve real-world problems in medicine and nature. Her main research areas include: 1) trying to rebuild broken body parts using “tissue engineering” to make tissues that can't heal themselves, such as new cartilage for people with arthritis; 2) making biomimetic (nature-imitating) materials to help reduce our human contributions to the global carbon footprint, including possible replacement of steel and concrete with lab-created bone or eggshell; and, 3) slightly more unconventionally, using experimental and computational engineering tools to understand problem pregnancies. Her goal is to make a “virtual placenta” to help develop interventions for premature birth.



David Paquette | paquetted15@ecu.edu

Surgical Sciences
School of Dental Medicine

Dr. Paquette's research examines the relationship between oral (periodontal disease) and systemic conditions like diabetes, cardiovascular disease, and obesity. He is also interested in investigating oral health disparities and novel interventions (preventive, therapeutic, and diagnostic) for periodontal disease. As a dental educator, he is focused on the scholarship of teaching and learning as related to student cultural competency, service, and active learning. He serves as chair, Assistant Dean for Academic Success, and Associate Dean for Research (Interim) in the School of Dental Medicine.



Lok Pokhrel | pokhrell18@ecu.edu

Public Health
Brody School of Medicine

Dr. Pokhrel's research is focused on sustainable development of nanotechnology-based products to solve imminent public health concerns including Zika virus disease, microbial resistance, water quality issues, cancer, and understanding environmental health and safety (nano-EHS) of engineered nanomaterials and nano-based products through toxicity and risk analysis.



Keith Richards | richardsk@ecu.edu

Communication

College of Fine Arts and Communication

Dr. Richard's research examines information seeking, decision making, and intentions related to health decisions. He is particularly interested in how the use of the Internet coupled with interpersonal communication influences health-related intentions and actions. His work in this area has covered a variety of topics such as diabetes, genital human papillomavirus vaccine (HPV), and implantable cardioverter defibrillators. He is currently building upon his HPV work to look at cervical cancer screening in those who are 21 years or older. He is a communication scholar that focuses on how communication and information play an important role in making health decisions. His goal is to provide information that could be utilized in campaigns that would lead to positive health decisions.



Alice Richman | richmana@ecu.edu

Health Education and Promotion

College of Health and Human Performance

Dr. Richman's training is in public health and social science research methods with content emphasis in cancer health disparities, specifically in the areas of access to preventive health services for HPV-related cancers and breast cancer for disadvantaged populations. Her research in cancer health disparities has been focused in two main areas including understanding cancer health disparities and developing and evaluating interventions to address those disparities. She routinely engages the community in research via coalition building, community-based participatory research, and in training and collaborating with community health workers to create sustainable change.



Kamran Sartipi | sartipik16@ecu.edu

Computer Science

College of Engineering and Technology

Dr. Sartipi's research activities are interdisciplinary, consisting of different aspects of an intelligent and secure infrastructure for mined-knowledge driven decision support systems through behavior pattern extraction, constraint clustering, artificial intelligence, complex pattern matching, and big data analytics. Currently, he is working on projects focused on intelligent cybersecurity which assists security administrators of distributed systems to identify malicious user behaviors; clinical decision support systems to assist physicians in underserved regions to access to medical knowledge of specialties; and intelligent homecare for elderly and acute patients to enhance patient care and reduce hospital readmissions. These projects are multi-disciplinary with collaborations among experts in computer science, electrical engineering, medicine, nursing, biostatistics, and behavior economics.



Aimee Smith | smithaim18@ecu.edu

Psychology

Thomas Harriot College of Arts and Sciences

Dr. Smith's research works to transform approaches to pediatric chronic illness, medication adherence, and health care transition using principles of health behavior change. Her work focuses on adolescents and young adults who are at greatest risk for poor adherence (the primary cause of treatment failure in chronic illnesses) due to developmental and neurobiological processes. She specializes in health care transition — the move from pediatric to adult providers — which further impairs adherence. Her interests include barriers to and facilitators of transition and adherence and she examines longitudinal trajectories of adherence to understand how barriers change over time, particularly during transition. Her ultimate goal is to improve health care practices and quality of life for youth with chronic illness during their most vulnerable and underserved stage.



Rebecca Snyder | rsnyder@ghs.org

Surgery
Brody School of Medicine

Dr. Snyder is a gastrointestinal surgical oncologist, with a clinical interest in colorectal, liver, and pancreatic cancers. Her research background is in health services research, specifically cancer care delivery. She is most interested in disparities in treatment delivery for colorectal cancer among rural and underserved populations. She has experience with large administrative datasets and focuses on leveraging data to inform addressing disparities in colorectal cancer treatment.



Sinan Sousan | sousans18@ecu.edu

Public Health
Brody School of Medicine

Dr. Sousan is researching occupational exposure to particulate matter, toxic gases, noise, and extreme temperatures that are associated with adverse health effects. Short- and long-term exposure risk is affected by various factors that require different prevention methods to decrease exposure. Workers are at a higher exposure risk, compared to environmental exposure, especially in indoor operations. His research focuses on low-cost direct reading sensors that provide high-temporal and spatial resolution. Low-cost sensors have become increasingly popular, where institutions and companies are providing sensors that are rigid, portable, and lightweight, including small form factor devices that can provide area or personal exposure. Tracking worker exposure will help Sousan identify exposure risk at any time and location, allowing him to implement engineering solutions that can be put in place to decrease these exposures.



Michael Stellefson | stellefsonm17@ecu.edu

Health Education and Promotion
College of Health and Human Performance

Dr. Stellefson's research focuses on developing and evaluating patient-centered technology to improve patient self-management in chronic disease, primarily for patients living with Chronic Obstructive Pulmonary Disease (COPD). His two main research goals aim to develop, deliver, and evaluate web-based educational tools for COPD self-management and measure and promote eHealth literacy among COPD patients and their caregivers. He assesses eHealth literacy and patient use of the Internet and social media for chronic disease self-management information and support. To conduct his research, Stellefson uses a combination of web-based interventions and surveys, technology usability testing procedures, multimedia content analyses, and qualitative interviews.



T. Robert Tempel | tempelt18@ecu.edu

Extramural Clinical Practices
School of Dental Medicine

Dr. Tempel's research interests are founded on the premise that achieving health is a team effort which can be greatly enhanced through community involvement. Rural North Carolina must attract quality health care providers who work collaboratively with each other and community leaders in order to develop sustainable systems for health. His interests are not only in the improved health outcomes that can be achieved through medical and dental team collaboration, but how communities can get involved in supporting recruitment of providers and care for underserved populations. In addition, he would like to study efforts to develop leadership skills in health care learners and recent graduates interested in serving in eastern North Carolina.



Ali Vahdati | vahdatia18@ecu.edu

Engineering
College of Engineering and Technology

Dr. Vahdati's research lies at the nexus of engineering, biology, and medicine. His work utilizes computer modeling (virtual experiments) and experimental techniques to study the interaction of implants and tissue-engineered constructs with native tissue and to predict the outcome of various surgeries that interrupt the natural mechanical environment of the cells and tissues in the human body. Ultimately, his research aims at finding solutions and developing technologies for prevention and early diagnosis of soft and calcified tissue pathologies and improving and predicting the outcome of various surgeries.



Michael Wheeler | wheelerm@ecu.edu

Nutrition Science
College of Allied Health Sciences

Dr. Wheeler's research examines the role of nutrient availability and nutrient "sensing" on immune cell function, using animal genetics and "-omics" approaches. The interaction between nutrient metabolism and immunity has important implications in metabolic diseases as well as cancer development. The long-term goal of this research is to identify "targetable" pathways that can be exploited by drug therapies for the prevention or treatment of chronic diseases. He is serving as chair (interim) of his department.



Nancy Winterbauer | winterbauern@ecu.edu

Public Health
Brody School of Medicine

Dr. Winterbauer takes a participatory and mixed-method approach to research. She has a particular, but not exclusive, interest in diabetes prevention and management. Recent work includes a diabetes awareness campaign based on recent lessons from the field of entertainment education. Proposed work includes elaboration of photovoice methods, that are suited to low literacy population groups. She is also interested in health services delivery and treatment informed from the patient perspective.



Wanda Wright | wrightwa15@ecu.edu

Foundational Sciences and Research
School of Dental Medicine

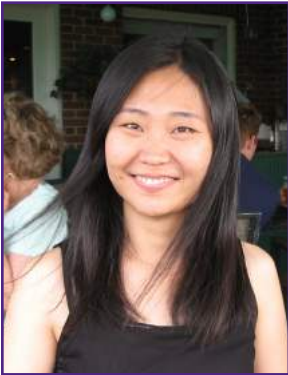
Dr. Wright's research interests include health disparities, oral health-related quality of life, and tobacco cessation. Her work involves examining factors associated with the development of a tobacco cessation program at the ECU School of Dental Medicine from the patient and provider perspectives. She also completed the development and psychometric testing of the Teen Oral Health Related Quality of Life Instrument. Most recently, she has been examining factors associated with access to dental service in rural North Carolina and measuring the level of cultural competency of dental students before and after didactic instruction.



Rui Wu | wur18@ecu.edu

Computer Science
College of Engineering and Technology

Dr. Wu's research interests focus on data mining and data visualization. He has worked with hydrological scientists for the last four years. One of his projects focuses on improving a physically-based parameter-distributed hydrological model. The original model requires abundant time to calibrate (e.g. 3 years). His proposed method is able to generate equivalent quality results in a much shorter time frame (e.g. 1 day). The key idea is to use data mining techniques to find out possible connections between model outputs and inputs. He would like to work with anyone who is interested in environmental parameter prediction or classification models, such as fire models and streamflow prediction models.



Jie Yang | yangji18@ecu.edu

Social Work
College of Health and Human Performance

Dr. Yang's research focuses broadly on healthy aging. In particular, she is interested in productive engagement and social isolation among older adults. Both areas have recently been identified as one of the 12 grand challenges in social work. She has researched the aging workforce, the unemployed, and senior LGBT adults. She is interested in identifying social and environmental risk and protective factors that can help to provide evidence and insights for future intervention development. Yang also specializes in longitudinal analyses and looks forward to the collaboration with scholars of similar interests.

REDE LEADERSHIP



Jay Golden | goldenj17@ecu.edu

Dr. Golden was named the Vice Chancellor for ECU's Division of Research, Economic Development and Engagement (REDE) in 2017. Golden came to ECU from Duke University where he served as the Associate Vice Provost for Research and directed the university's corporate relations office. Golden received his doctorate in engineering from the University of Cambridge where he also earned his master's in environmental engineering and sustainable development as part of a joint program with the Massachusetts Institute of Technology. As Vice Chancellor, Golden oversees the REDE initiatives of ECU, while promoting the university's research accomplishments, centers and institutes to a national audience.



Mary Farwell | farwellm@ecu.edu

Dr. Farwell serves as the Assistant Vice Chancellor for Academic Affairs, Director of Undergraduate Research, and Professor of Biology at ECU. Farwell received her doctorate in biochemistry from the University of California, Berkeley. Farwell's research interests include mitochondrial regulation of cell death in cancer cells and student success in STEM.



Jim Menke | menkej@ecu.edu

Retired U.S. Navy Master Chief Petty Officer Menke is the Director of National Security Initiatives in the Office of National Security and Industry Initiatives. Menke spent 30 years in the Navy, reaching the branch's highest enlisted rank. He holds both master's and bachelor's degree in health sciences and previously served ECU as the Director of Military Research Partnerships. He is committed to strengthening ECU connections with military and federal partners, increasing research development opportunities and connecting researchers with national security projects. These partnerships allow ECU faculty to examine aspects of U.S. national security, while assisting the university as it introduces new programs and services that help protect the nation from attack.



Sharon Paynter | paynters@ecu.edu

Dr. Paynter is the Assistant Vice Chancellor for Community Engagement and Research. She also serves as an Associate Professor of Political Science at ECU. Paynter joined the ECU faculty in 2009. She received her doctorate in public administration from North Carolina State University, her master's from the University of Denver, and her MPA and bachelor's degrees from UNC-Chapel Hill. Paynter's research interests include hunger, poverty, and public policy.



Kathryn Verbanac | verbanack@ecu.edu

Dr. Verbanac serves as the Assistant Vice Chancellor for Health Sciences Research, Director of Postdoctoral Affairs, and Professor of Surgery at ECU. Verbanac received her doctorate in biochemistry from the University of Iowa. Verbanac's current breast cancer research focuses on the tissue microenvironment and immune signatures at metastatic sites.



Mark Wdowik | wdowikm18@ecu.edu

Mr. Wdowik joined REDE in 2018 after being named the inaugural Executive Director for the newly created Office of Innovation and New Ventures at East Carolina University. He joins ECU after a 20-plus-year career in innovation development in higher education with extensive experience with technology transfer, commercialization, economic development, investment funds, industry partnerships, new product development, and startups. Wdowik oversees the university's rapidly expanding efforts to discover, develop and commercialize ideas and inventions cultivated by ECU's students, faculty and partners.



Keith Wheeler | wheelerch18@ecu.edu

Retired U.S. Navy Capt. Wheeler serves as ECU's Executive Director of National Security and Industry Initiatives. The Manteo native has held numerous leadership positions in the Navy, including commanding officer of U.S.S. McInerney where he led the Navy's first at-sea autonomous flight tests of the Fire Scout unmanned aerial vehicle, as well as a daring night capture of a self-propelled semi-submersible drug sub off the coast of Central America. Wheeler plays a critical role in supporting REDE's mission to actively grow ECU's research enterprise with federal agencies and industry partners.

REDE STAFF



Cassie Keel | keelc15@ecu.edu

Ms. Keel is the University Program Support Associate for the Office of Community Engagement and Research (OCER). She received her bachelor's in psychology from East Carolina University. She manages the SECU Public Fellows Internship program and supports other OCER efforts.



Matt Smith | smithmatt17@ecu.edu

Mr. Smith spent seven years in the newspaper industry before joining the division as REDE's Communication Specialist. Smith earned his master's in digital media from UNC-Chapel Hill. Smith oversees REDE's communication efforts with internal and external media outlets, while operating the division's online presence.



ECU

RURAL
PROSPERITY
INITIATIVE

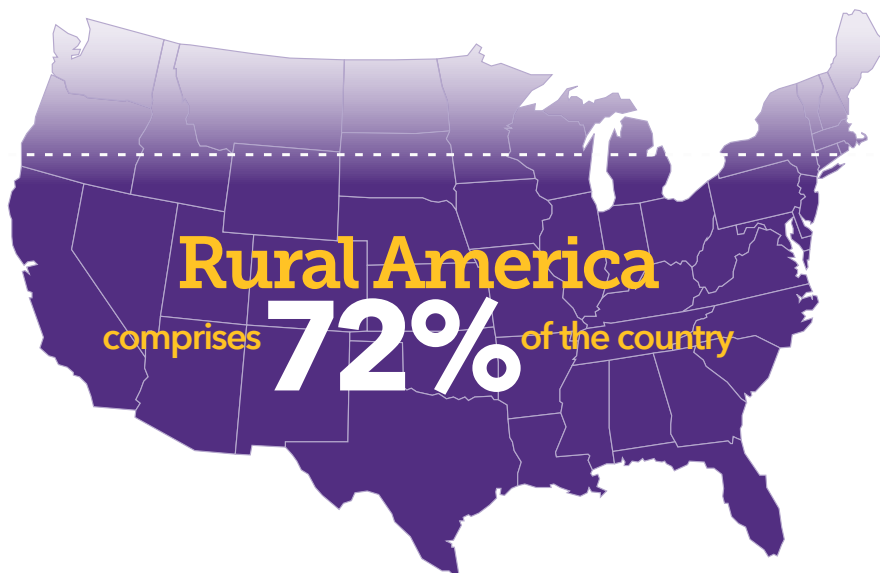
Rural Sustains America.

America is NOT Sustaining Rural.

Nearly 72 percent of the land area in the United States, comprised of 1,976 counties, is rural. Rural America produces the **majority of affordable food and energy**, contains the **minerals and metals** used in manufacturing, supplies **clean drinking water**, and provides the most opportunities for **outdoor recreation**.

Rural America's population is aging as **younger generations leave** for better economic opportunities in cities. At the same time, **rural health and education** continue to lag behind urban centers. Rural America is facing unprecedented **stress and decline** that puts the security and prosperity of our nation at risk.

Committed to Rural Prosperity



Eastern North Carolinians face greater challenges than the **rest of the United States**, including the following:

50% more people **die** from diabetes.

15% more people over the age of 25 **did not** finish high school.

20% more people are living **below** the poverty line.

3 of the top **25** regions in the country for **opioid abuse** are in eastern North Carolina.

93% of North Carolina schools receiving a **D or F** on their state report card were from poverty-stricken areas.

About East Carolina University®

ECU serves **twice** as many undergraduate students from **rural communities** than any other in the University of North Carolina system.

ECU is the **only** university in North Carolina with **dental medicine, engineering** and **medicine** schools at the same institution.

Approaching **30,000** students, ECU offers **84** bachelor's, **72** master's and **19** doctoral degrees.

ECU hosts the **largest** business school enrollment and **largest** number of new nurses and education professionals produced by a four-year campus in the University of North Carolina system.

ECU'S RURAL PROSPERITY INITIATIVE

For 111 years, ECU has been North Carolina's rural and coastal university. With the Rural Prosperity Initiative, ECU is focused on what the region needs for healthy, ready-to-work, and prosperous communities.

TOGETHER WE CAN CAPTURE OUR HORIZON.

VISION

ECU has committed to rural prosperity by leveraging assets from all corners of the university. We partner with government, industry and community groups to develop new tools and approaches that drive job creation, health innovation, and improve educational outcomes in rural and coastal communities.

RESEARCH CLUSTERS

ECU has launched pan-university research clusters that focus on research and engagement in support of the Rural Prosperity Initiative. Read more about the clusters to find out how our researchers are addressing the needs of rural North Carolina.

HEALTH BEHAVIOR

Kim Larson, LARSONK@ECU.EDU

Lisa Campbell, CAMPBELL@ECU.EDU

This research area focuses on serving as a liaison between multiple research and clinical faculty to improve population health and wellness through health behavior change and reduction of risk behaviors across the lifespan. Collaborations with the cluster are being fostered to define and address the specific challenges of rural youth.

HUMAN HEALTH & DISEASE

Mark Mannie, MANNIEM@ECU.EDU

This research area focuses on facilitating advancements in scientific knowledge that can be used to develop novel and impactful interventions for major diseases that afflict eastern North Carolinians. The cluster focuses on pathogenic mechanisms underlying diabetes, cardiovascular disease, neurodegenerative disease, infectious disease, and cancer, among others. The cluster will seek to enhance extramural funding success, scientific collaboration and research integration among the basic, clinical and social sciences.

BIOMATERIALS

Michelle Oyen, OYENM18@ECU.EDU

Stephanie George, GEORGES@ECU.EDU

Nathan Hudson, HUDSONN16@ECU.EDU

This research area focuses on the broad field of next generation biomaterials, including materials for tissue engineering, regenerative medicine and drug delivery, as well as protein-based and biomimetic materials. The cluster will encourage collaborations between clinicians in medicine, dentistry and allied health with basic scientists in engineering, physics, chemistry and the biological sciences.

BIG DATA & ANALYTICS

Huigang Liang, LIANGH@ECU.EDU

Bill Irish, IRISHW17@ECU.EDU

This research area focuses on the challenge of making sense of the vast amount of data generated by the diverse information technology systems of our society. The cluster develops university-wide data analytics capabilities by leveraging state-of-the-art data analytics and visualization technologies. The cluster is focused on discovering trustworthy knowledge from big data to support informed decisions for teaching, research and regional economic development.

STEAM EDUCATION

Shawn Moore, MOORESHA@ECU.EDU

Dan Dickerson, DICKERSOND15@ECU.EDU

This research area focuses on the teaching and learning of science, technology, engineering, arts, and mathematics content and pedagogy. The cluster places an emphasis on research-based innovative technologies and tools, authentic interdisciplinary engagement, and the creation of educational materials for the global marketplace.

NATURAL RESOURCES & THE ENVIRONMENT

Burrell Montz, MONTZB@ECU.EDU

Alex Manda, MANDAA@ECU.EDU

This research area focuses on discovering new ways to support and optimize sustainable use of our natural resources and the environment. The cluster will place an emphasis on studying biogas and water quality and quantity issues in eastern North Carolina.

Learn more about how to contribute by visiting REDE.ECU.EDU/RURAL-PROSPERITY



RURAL PROSPERITY INITIATIVE CLUSTER DIRECTORS

BIG DATA & ANALYTICS



William (Bill) Irish | irishw17@ecu.edu

Surgery, Brody School of Medicine

Dr. Irish's major research interests consist of identification of important prognostic factors of disease and clinical outcomes and developing statistical models and assessing their clinical utility. Of interest is evaluating factors that can affect outcomes in individuals who live in rural areas. These individuals are, on average, older with a higher incidence of chronic illnesses such as obesity, diabetes, and heart disease than individuals living in urban areas. Rural residents have less exposure to health care specialties and, as such, may not seek the necessary medical care or have delays in treatment. All these factors can result in disparate outcomes among rural versus urban residents. Irish's goal is to design, implement, and evaluate an academic/community coordinated health system strategy to improve health outcomes in the rural community.



Huigang Liang | liangh@ecu.edu

Management Information Systems, College of Business

Dr. Liang is the Robert Dillard Teer Jr. Endowed Chair in Research and Associate Professor for ECU's Department of Management Information Systems. Liang serves as the Director of the Center for Healthcare Management Systems and his research interests include the social, behavioral, psychological, and managerial aspects of information systems phenomena, including IT adoption, IT compliance, IT security, IT strategy, IT implementation, outsourcing, knowledge management, e-commerce/online behaviors, and health informatics. He has authored 36 papers in peer-reviewed academic journals, having published nine papers in the top four journals in the information systems discipline since 2007.

HUMAN HEALTH & DISEASE



Mark Mannie | manniem@ecu.edu

Microbiology and Immunology, Brody School of Medicine

Dr. Mannie is a Professor of Microbiology and Immunology at ECU's Brody School of Medicine. Mannie's research is focused upon the molecular and cellular basis of an autoimmune disease known as experimental autoimmune encephalitis. Due to the clinical and histological features of this disease, EAE is widely regarded as a relevant animal model for human demyelinating diseases such as multiple sclerosis. His primary research interest is to advance a novel class of tolerogenic vaccines as a therapy for multiple sclerosis. These vaccines consist of cytokine-neuroantigen (NAg) fusion proteins that act to restore homeostatic self-tolerance in EAE.

HEALTH BEHAVIOR



Lisa Campbell | campbell@ecu.edu

Psychology, Thomas Harriot College of Arts and Sciences

Dr. Campbell is a Licensed Clinical Psychologist and clinical researcher. Her research focuses on ethnic disparities in pain conditions and cancer outcomes, as well as developing culturally sensitive psychosocial and behavioral interventions to enhance post-treatment quality of life in African American prostate cancer survivors. Campbell's research is funded by the National Cancer Institute and the Department of Defense Prostate Cancer Research Program. She earned her doctorate from the University of Florida and has been published in peer-refereed journals including *Pain Medicine*, the *Journal of Pain and Palliative Care Pharmacotherapy*, and the *Journal of Pain & Symptom Management: Including Palliative Care*.



Kim Larson | larsonk@ecu.edu

Nursing Science, College of Nursing

Dr. Larson is an Associate Professor in the College of Nursing. Her clinical expertise in international population health includes work in Honduras, Guatemala, and Mexico. As a nurse fluent in Spanish, she works closely with the Latino population in North Carolina through health departments, migrant health centers, and school-based health centers. Her research foci are community-based participatory research with Latino communities across the lifespan and sexual risk reduction interventions with Latino adolescents.

NATURAL RESOURCES & THE ENVIRONMENT



Alex Manda | mandaa@ecu.edu

Geological Sciences, Thomas Harriot College of Arts and Sciences

Dr. Manda is interested in exploring water resources (groundwater and surface water) issues (e.g., saltwater intrusion) and the drivers that influence water resources (natural and anthropogenic). He has used a combination of field-based and computer modeling techniques to tackle various research problems in the inner and outer banks regions of eastern North Carolina. He is also interested in improving undergraduate student education in the geosciences and citizen science.



Burrell Montz | montzb@ecu.edu

Geography, Thomas Harriot College of Arts and Sciences

Dr. Montz was an environmental planner with responsibility for developing nonpoint source management plans before she embarked on an academic career. Throughout her career, she has been involved in teaching and research on natural hazards, water resources management, and environmental impact analysis, having mentored many graduate students in these areas. Her focuses have centered on floodplain management and policy, vulnerability to hazards, responses to warnings, and environmental decision-making. Montz currently serves as a Professor of Environmental Geography and Planning and her research has documented the effects of flooding on property values, perceptions of risk and responses to warnings, sources and management options for water pollution, and the vulnerability of communities.

STEAM EDUCATION



Shawn Moore | mooresha@ecu.edu

Center for STEM Education, College of Education

Dr. Moore is the Director for the Center for Science Technology Engineering and Mathematics (STEM) Education and is the co-director for the STEAM Education Research Cluster (SERC). The cluster functions as an interdisciplinary collaborative resource and partner to support and serve institutional projects that focus on STEAM education directly or projects that have an educational component. SERC supports faculty researchers who have an interest in interdisciplinary projects that prepare a pipeline of talented STEAM professionals, develop STEAM related tools and technologies to impact rural prosperity, and negotiate research projects that may link to other clusters and projects throughout the university. Research projects are co-developed with input from leadership, core members, advisory council, and other key stakeholders.



Daniel Dickerson | dickersond15@ecu.edu

**Mathematics, Science and Instructional Technology Education (MSITE),
College of Education**

Dr. Dickerson is an Associate Professor of Science Education in the Department of Mathematics, Science, and Instructional Technology Education. He is also the Coordinator of the STEM CoRE (Collaborative for Research in Education) at ECU. His research focuses on the teaching and learning of earth and environmental science content, environmental education, and STEM teaching and learning. He is a former high school earth science teacher who has served as PI, Co-PI, or evaluator on NOAA, NSF, NIH, U.S. Department of Education, IMLS, state, and foundation funded projects.

BIOMATERIALS



Stephanie George | georges@ecu.edu

Engineering, College of Engineering and Technology

Dr. George is an Associate Professor in ECU's Department of Engineering. Her research interests include computational modeling of the cardiovascular system using MRI, pulmonary hypertension with sickle cell disease, and heart failure patient monitoring. She currently serves as a faculty mentor to the Society of Women Engineers chapter and Biomedical Engineering Society chapter. As part of her involvement in the American Society of Mechanical Engineers Bioengineering Division, she has reviewed abstracts and judged poster presentations for the division's undergraduate research competition at the summer bioengineering conference and has also reviewed undergraduate papers for the Proceedings of the National Conferences on Undergraduate Research.

BIOMATERIALS CONTINUED...



Nathan Hudson | HUDSONN16@ecu.edu
Engineering, College of Engineering and Technology

Dr. Hudson is an Assistant Professor of Physics in the Thomas Harriot College of Arts and Sciences. Hudson is interested in understanding how biological systems respond to mechanical forces with the goal of leveraging this understanding to address problems related to human health and novel materials engineering. His research experience includes using fluorescence microscopy, atomic force microscopy, laser tweezers, and molecular biology methodologies to study and engineer the mechanical properties of proteins.



Michelle Oyen | OYENM18@ecu.edu
Engineering, College of Engineering and Technology

Dr. Oyen, who joined ECU as an Associate Professor in the Department of Engineering in 2018, conducts research in the area of biomaterials and biomechanics. Her work can be described as using engineering tools and techniques to solve real-world problems in medicine and nature. Her main research areas include trying to rebuild broken body parts using “tissue engineering” to make tissues that can’t heal themselves, such as new cartilage for people with arthritis and making biomimetic (nature-imitating) materials to help reduce our human contributions to the global carbon footprint. This could involve replacing steel and concrete with lab-created bone or eggshell. Finally, and slightly more unconventionally, her research uses experimental and computational engineering tools to understand problem pregnancies. Her goal is to make a “virtual placenta” to help develop interventions for premature birth.

CENTER FOR HEALTH DISPARITIES



Keith Keene | KEENEK@ecu.edu
Biology, Thomas Harriot College of Arts and Sciences
Director (Interim), Center for Health Disparities

Dr. Keene is an Assistant Professor in the Department of Biology and is the director (interim) of the Center for Health Disparities. He has over 14 years of experience in molecular genetics and has collaborated on several genome-wide association studies of complex human diseases, including stroke, recurrent stroke, diabetes, and dyslipidemia. The Keene Laboratory utilizes cutting edge “-omics” approaches (genetics, epigenetics, metabolomics, etc.) to interrogate heritable factors that contribute to disease and health disparities. The Keene Laboratory seeks to combine big “-omics” data and bioinformatics to accomplish the goals of precision medicine. These approaches will allow improved personalization of risk assessment and targeted prevention, address why particular disparities exist, and provide insight regarding one’s ability to control manageable risk factors and likewise one’s response to current treatment regimens.

RESEARCH CLUSTER DESCRIPTIONS

Health Behavior

The Health Behavior Research Cluster (HBRC) takes a lifespan approach to improving mental and physical health by focusing on the science of health behavior from a socioecological standpoint, from childhood to adulthood, with an emphasis on critical concerns arising in eastern North Carolina (eNC) communities.

To date, the HBRC has facilitated the development of two interprofessional research teams that are working in the areas of child and adolescent health. One team is examining the influence of prenatal exercise on infant health and the second team is developing a mApp for smartphone use with adolescents to reduce substance misuse. Community partners, such as the Vice President of Programs with the Boys & Girls Clubs of the Coastal Plain, are instrumental in these research teams.

The HBRC also launched its first critical concern initiative focusing on the opioid crisis. The first proposal submission in December 2018 addressed prevention and screening for substance use disorder at primary care sites in eNC through integration with the NC-STeP telepsychiatry program. Other emerging areas of interest related to this initiative include opioid cardiotoxicity and environmental impacts of household opioid disposal. Researchers in these areas are developing interprofessional teams for a coordinated comprehensive approach to address the opioid crises.

The HBRC also coordinated a regional networking event in February that brought ECU researchers, international researchers from RTI International, and community organizations together to exchange ideas and forge collaborations to help combat the opioid crisis. In January, the HBRC conducted a survey to identify the scope of health behavior research being conducted at ECU. More than 150 faculty responded to the survey, indicating a wide range of health behavior research interests across multiple disciplines, with notable reach throughout eNC counties. Currently, a searchable database is being developed from survey responses that will allow ECU researchers to identify potential collaborators from other disciplines with shared interests and complementary expertise.

For more information about the HBRC visit: <https://rede.ecu.edu/clusters/health-behavior/>.

Cluster Publications

Clark, E, Isler, C, Strickland, D, Gross McMillan, A, Fang, X, Kuehn, D, Ravisankar, S, Strom, C May, L. (2018) Influence of Exercise on Maternal Lipid Levels and Offspring Morphometrics. *Int J Obes (Lond)*. 2018 Nov 21. doi: 10.1038/s41366-018-0258-z.

Gross McMillan, A, Isler, C, Kuehn, D, May, LE. (2019). The Effects of Exercise During Pregnancy on Infant Neuromotor Skills at One Month of Age. *Medicine and Science in Sports and Exercise* (in print).

Larson, KL, Ballard, SM, Sias, S, Ellis, D, Peery, J, Cary, J, Levy, R, & Nelson, T. (submitted 02/2019). Adolescent perceptions on health and social concerns to guide the Development of a risk reduction mobile application. *Journal of Child and Family Studies* (under review).

McDonald, S, Satterfield, N, May, LE, Newton, E, Livingston, J, Fang, X. (2018) Influence of Exercise in Pregnancy on Fetal Heart Response during Labor and Delivery. *Health Sci Rep*. 2018 Aug 13;1(10): e81. doi: 10.1002/hsr2.81.

McDonald, S.M., Marsh, L., May, L.E., Newton, E.R., Strickland, D., Isler, C., Haven, K., Kuehn, D., Kelley, G., Chasan-Taber, L., Fang, X. (2019). The effects of maternal exercise during pregnancy on fetal body fat in overweight or obese pregnant women: A randomized controlled trial. *Pediatric Obesity* (under review).

Cluster Presentations

Ballard, SM, Larson, KL, Levy, R, Sias, S, Ellis, D, Peery, J, Cary, J, & Nelson, T. (submitted 02/2019) Using the Theory of Triadic Influence to Guide the Development of a Risk Reduction Smartphone Application for Adolescents. Podium presentation at the 2019 Annual Conference of the National Council on Family Relations, November 20-23, 2019, Fort Worth, TX.

Forbes, L, Jones, R, Newton, E, Strickland, D, Isler, C, Haven, K, Steed, RD, Hartman, R, Applegate, S, Kelley, GA, Chasan-Taber, L, McDonald, S, Kuehn, D, May, LE. (2019) Influence of maternal aerobic exercise on fetal right-sided heart function: a randomized controlled trial. Society of Maternal Fetal Medicine-Pregnancy Meeting, Las Vegas, NV. February 11-16, 2019.

Larson, KL, Ballard, SM, Sias, S, Ellis, D, Peery, J, Cary, J, Levy, R, & Nelson, T. (2019) Adolescent Perceptions on Health and Social Concerns to Guide the Development of a Risk Reduction Mobile Application. (submitted 2/2019) Podium presentation at the APHA 2019 Annual Meeting & Expo, November 2-5, 2019, Philadelphia, PA.

May, L, McDonald, S, Kuehn, D, Kew, K, Isler, C, Haven, K, Newton, E. (2019). The Effects of Exercise Mode During Pregnancy on Infant Metabolomic Outcomes. American College of Sports Medicine Annual Conference, Orlando, FL. May 28-June 1, 2019.

McDonald, S, Kuehn, D, Kew, K, Isler, C, Haven, K, Newton, E, May, L. (2019). The Effects of Exercise Mode During Pregnancy on Maternal Metabolism. American College of Sports Medicine (ACSM) Annual Conference, Orlando, FL. May 28-June 1, 2019.

Natural Resources and Environment

The Natural Resources and the Environment Research Cluster focuses on discovering new ways to support and optimize sustainable use of our natural resources and the environment, with an initial focus on water quality, water quantity, and sustainable energy.

To meet its goals, the cluster supports core faculty members in a variety of ways. These include provision of seed grants to initiate ideas for developing large proposals, access to proposal reviewers, access to travel funds, access to incubator sessions to develop proposals, and access to multi-disciplinary faculty to collaborate on big proposals.

This past year, the cluster awarded four seed grants to faculty with the range of topics reflecting the breadth of the cluster's interests, including hydrokinetic energy development, evaluation of nano-filters to improve water quality, oyster restoration and water quality, and evaluating pro-conservation behaviors in eastern North Carolina. The cluster is also interested in fostering collaborations with other ECU clusters, as well as public/private groups and organizations whose interests align with the cluster's focus areas. For example, the cluster is collaborating with Sylvan Heights Bird Park in addressing species preservation and research, as well as habitat and land use trends.

Seed Grant Proposals

"An Innovative Bio-inspired Hydrokinetic Energy Extractor." Praveen Malali, Center for Sustainable Energy and Environmental Engineering; Ranjeet Agarwala, Department of Technology Systems.

"Development and Performance Evaluation of the Next Generation Nano-filters for 1,4-Dioxane Removal from Water and Comparisons with Naturally Available Renewable Filter Matrices (Luffa and woodchips)." Lok R. Pokhrel, Public Health; Charles Humphrey, Health Education and Promotion; Michael O'Driscoll, Coastal Studies; Jinkun Lee, Engineering.

"Developing Design Criteria and Novel Monitoring Approaches for Oyster Restoration to Improve Water Quality and Enhance Estuarine Habitat Value." Rachel Gittman, Biology; April Blakeslee, Biology and Coastal Studies Institute.

"A Regional Model for Evaluating Pro-Conservation Behaviors Related to Wildlife across Eastern North Carolina." Jeffrey Skibins, Recreation and Leisure Studies.

Big Data and Analytics

Big data in health care can mean a lot of things to different individuals. However, there is one common element – data complexity. This is due, in part, to the fact that health care data can come from numerous sources including electronic health records, medical imaging, payor records, pharmaceutical research, patient and disease registries, and government claims, to name a few. Because it derives from many sources, it is highly variable in structure and nature, and therefore, requires special analysis techniques beyond traditional methods. Although challenging, technological improvements in computing and analytics allow one to systematically utilize big data to help inform health decisions.

The Big Data and Analytic Research Cluster was formed to bring together internal and external experts in support of the university's mission in health care research. The overall goal is to utilize big data from different health data sources to systematically support informed decisions for teaching, research, and delivery of health care. To realize this, the cluster will develop university-wide data analytics capabilities by leveraging state-of-the-art big data technologies; build data collection, storage, and analysis capabilities in support of health care research; increase the awareness of the value of big data for health care research by promoting data sharing, information exchange, and interdisciplinary collaboration; and provide data analytic services to internal and external stakeholders.

The Big Data and Analytics Research Cluster is in the final stages of developing a research plan. This plan is designed to govern the research activities of the cluster, in collaboration with internal stakeholders. Initially, efforts will focus on health care data analytics while partnering with the other research clusters and ECU faculty to improve patient care, especially in eastern North Carolina communities. Several research gaps have been identified in diabetes, obesity, oncology, and cardiovascular diseases, with the goal of obtaining external funding. Currently, the cluster is working on validating a type 2 diabetes staging algorithm using data from the Veteran's Hospital database.

To increase awareness, the Big Data and Analytics Research Cluster is hosting the 2019 Big Data at ENC Symposium on April 16. The purpose is to create a forum where data analytics educators, practitioners and researchers can exchange opinions, ideas, and research findings. This initial step has important implications for the long-term success of the cluster. The long-term goal is to have a sustainable infrastructure to support big data and analytic research activities while promoting ECU as a leader in rural health care.

Biomaterials

The Biomaterials Research Cluster focuses on the broad field of next generation biomaterials, including materials for tissue engineering, regenerative medicine and drug delivery, and protein-based and biomimetic materials. The cluster encourages collaborations between clinicians in medicine, dentistry, and allied health with basic scientists in engineering, physics, chemistry, and the biological sciences.

The cluster launches with an event in April as a part of ECU's Research and Creative Achievement Week. Researchers at all levels, including students and trainees, are encouraged to submit lightning talks (one slide, four minutes maximum) to share their own research and interests with other potential participants of the cluster. A social reception will follow the lightning talks. Full details of the launch event are below.

Learn more about the Biomaterials Research Cluster online at <https://rede.ecu.edu/clusters/biomaterials/>.

The ECU Biomaterials Research Cluster Launch Event

Are you interested in tissue engineering, drug delivery, 3-D printing, personalized medical implants, theranostics, organs-on-a-chip, or biosensors? Do you have needs for new biomaterials in clinical practice? Do you want to use novel biomaterials systems to study basic cellular or tissue physiology? Are you looking to write more grants, establish new collaborations, have access to new equipment, and meet potential industry partners?

If any of these are true, then the new ECU Biomaterials Research Cluster can help you!

ECU is hosting a symposium to celebrate the launch of the new Biomaterials Research Cluster covering all of these topics and more. Please submit a title for a four-minute, single slide, lightning talk highlighting your research, your ideas, and your interests, or come and just listen to the exciting work of your ECU colleagues. A networking social event will follow the lightning talks.

This is an interdisciplinary event open to but not limited to engineering, chemistry, physics, biological sciences, medicine, dentistry, and bioethics. Presentations are welcome from faculty and students at all levels of study. Use the following link to submit your lightning talk title and/or register to attend the event.

Registration Link: <https://app.smartsheet.com/b/form/b61e10d1143c48c6a0388e2b79d86de0>

STEAM Education

The STEAM Education Research Cluster's focuses are in the following areas:

- PK-12, community college, undergraduate, graduate, and life-long learners in STEAM (Science, Technology, Engineering, Arts, and Mathematics)
- Educational research including program evaluations, outreach, summer camps, grants, and study design
- Educational and STEAM entrepreneurial research and development

Example Project Abstracts

Arctic Expedition to Develop Climate Change Sensor

Our team was able to collaborate on a research effort with Old Dominion University that involves an Arctic expedition which will allow data collection and the testing of sensors that are being co-developed between ODU and ECU faculty and students. This project will engage students from the Department of Engineering in development of these sensors. This collaboration has allowed our team to lead grant development along this line of research for PK-16 students and teachers. Dr. Daniel Dickerson will go to the Arctic in late March/early April to deploy and test sensors in conjunction with the ODU team. While there, we have the opportunity to be filmed by NBC's Today Show and to share information on the research and sensor development.

Watershed Observation System Development

We are leveraging groundwater well data and surface water observation stations to develop an integrated watershed observation system in North Carolina that can be used by PK-16 students and faculty for instruction. Additionally, this system is designed to provide real-time/near-time data collection through cell or IR-based telemetry to support research at universities, state and federal agencies, and nongovernmental organizations. Exhibits will be developed at Merchants Millpond State Park in its visitor center to provide outreach to the public. We anticipate growing this effort to additional watersheds and enhancing the suite of parameters measured.

Project Summary List

- Grant Development
 - » 9 National Science Foundation Proposals Under Review or in Development
 - » 1 National Institute of Health Proposal Under Review
 - » 2 Foundation Proposals Under Review
- Product Development
 - » Recreational Water Quality Sensor Development
 - » Climate Change Sensor Development
 - » Instructional Technology for Teaching Biological Evolution Concepts
 - » Instructional Technology for Teaching Mineralogy Concepts
- Research Capacity Development
 - » Watershed Observation System

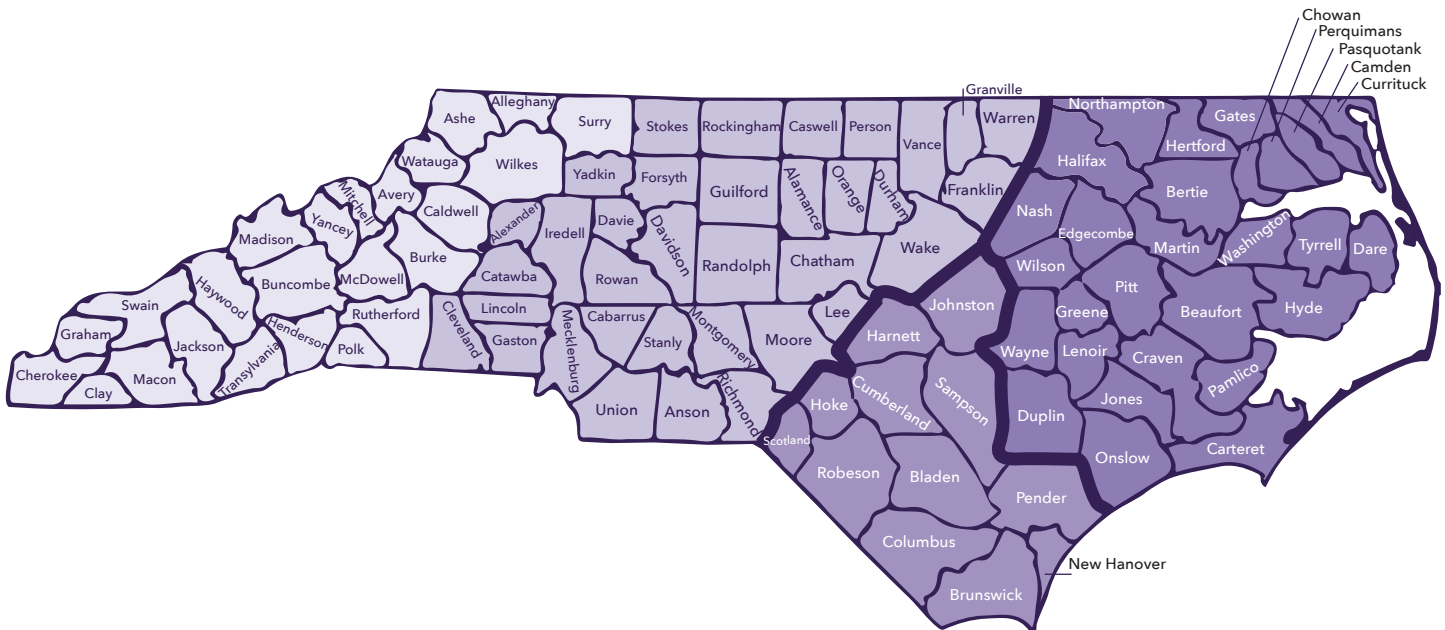
Current Partners and Potential Partners

The following is a partial list of partners associated with the STEAM Education Research Cluster.

- U.S. Bureau of Indian Education
- ECU Geography
- ECU Engineering
- ECU STEM CoRE
- ECU MSITE
- ECU Fine Arts and Communication
- ECU Center for STEM Education
- Old Dominion University Department of Ocean, Earth and Atmospheric Sciences
- ODU STEM Education and Professional Studies
- U.S. National Ice Center
- ECU Geology
- Merchant's Millpond State Park
- Center for Environment & Society at Washington College
- ECU School of Art & Design
- NC Dept of Environmental Quality
- ECU Biology
- ECU Food-based Early Education Lab
- ECU Center for Sustainable Energy & Environmental Engineering (CSE3)
- ECU School of Communication
- ECU Coastal Studies Institute

The cluster is currently looking to add partners in the following fields: health sciences, computer science, foreign languages, business, early childhood education, adult education, those interested in using data from the watershed observation system, and others with ideas.

EASTERN NORTH CAROLINA



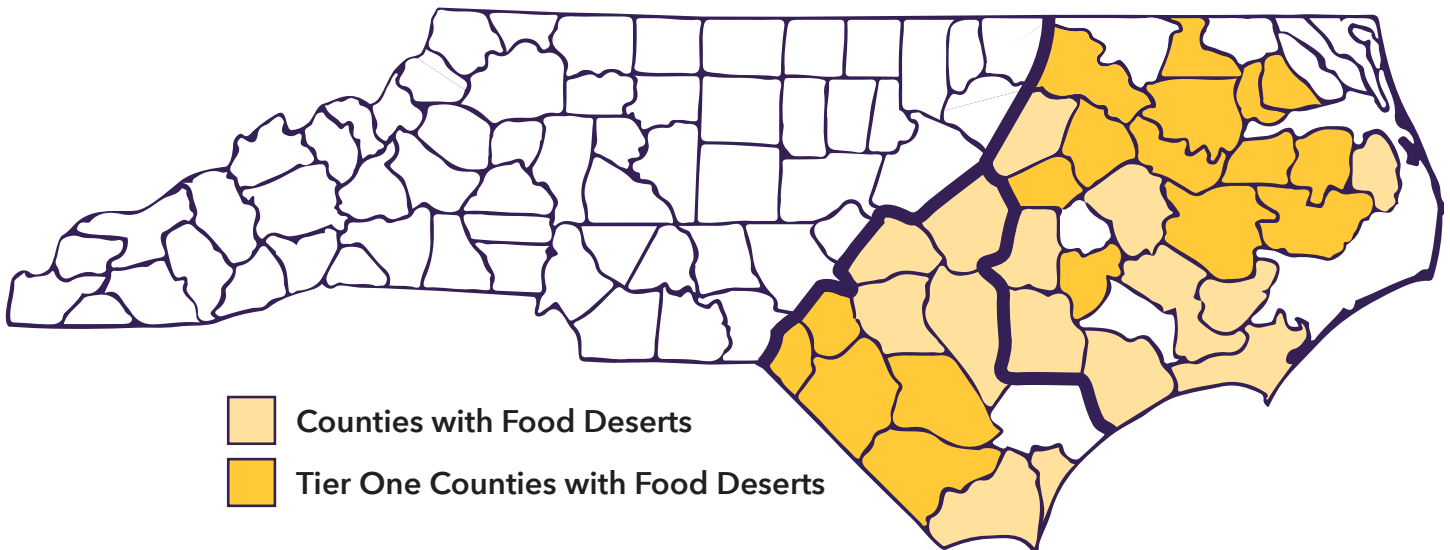
For 110 years, ECU has been North Carolina’s rural and coastal university. ECU’s Rural Prosperity Initiative will harness the intellectual strengths and research resources of ECU to improve the quality of life, health, education, and employment for the people of our area, creating prosperous communities in eastern North Carolina that will not only benefit our region, but the state as a whole.

North Carolina’s topography is composed of three main regions – the coastal plain, the piedmont, and the mountains. The state’s 41 counties east of Interstate 95, primarily made up of coastal plain counties, are referred to as eastern North Carolina.

These 41 counties make up the ENC-41 region. This region is more likely than the rest of North Carolina to be in poorer overall health, while facing higher death rates from cancer, cardiovascular disease, and diabetes. These regional differences are found throughout these counties regardless of race, income, and education.

ECU’s primary goal is to service 29 main counties in this region, known as ENC-29. These counties – including Northampton, Hertford, Gates, Halifax, Lenoir, Bertie, Chowan, Perquimans, Pasquotank, Camden, Currituck, Nash, Edgecombe, Martin, Washington, Tyrrell, Dare, Wilson, Pitt, Beaufort, Hyde, Wayne, Greene, Craven, Pamlico, Jones, Duplin, Onslow, and Carteret – are faced with greater economic, education, and health disparities due to their local population and lack of resources.

FOOD DESERTS



Residents of eastern North Carolina are nearly 1.5 times more likely to experience food insecurity—the limited or uncertain availability of nutritionally adequate and safe foods—as compared to the national average. Food insecurity in eastern North Carolina is highly correlated with the prevalence of food deserts. Food deserts are parts of the country devoid of fresh fruit, vegetables, and other healthful whole foods, usually found in impoverished areas, due to a lack of grocery stores, farmers’ markets, and healthy food providers. Approximately 38 percent of residents in the region struggle with ready access to healthy food, defined as living more than 0.5 miles (urban) or 10 miles (rural) from a supermarket. Of North Carolina’s 4.4 million acres of crops harvested in 2016, just 4.5 percent (198,600 acres) were fresh fruits and vegetables. Thus, while eastern North Carolina contains vast and fertile farmland, much of which could grow fruits and vegetables, these assets and subsequent health-related benefits are not fully realized.

A lack of access to affordable, healthy food has been directly linked to chronic disease. Obesity is a major risk factor for diabetes, cardiovascular disease, and cancer—three major health disparities prevalent across eastern North Carolina. Children living in rural food deserts have disproportionately higher rates of obesity and diabetes. In the region, 50 percent of the residents have a higher mortality rate from diabetes than the rest of the United States. As such, school and workplace performance are negatively impacted, creating a spiral of negative ripple effects throughout the region. Households found in the southern United States, including those in eastern North Carolina, have high rates of food insecurity. Obesity is a complex, multi-layered problem, spanning from environmental factors to individual dietary and physical activity choices. Complex problems require comprehensive solutions.

FUNDING ENTREPRENEURS

ECU receives \$1M grant for rural innovation, student businesses



Robert Ola (center) presents his business model of a clothing design company during the first round of the 2019 Pirate Entrepreneurship Challenge. Students like Ola are getting a boost for their business and entrepreneurship ideas from a \$1 million grant from the Golden LEAF Foundation to support ECU's newest microenterprise program, RISE-29. (Photos by Cliff Hollis)

East Carolina University received a \$1 million award from the Golden LEAF Foundation to support rural economic prosperity through innovation and entrepreneurship.

The grant, awarded on Feb. 7, will support ECU's recently launched university-wide program focused on creating a new generation of business owners in the 29 counties of eastern North Carolina, reflective of its name RISE-29.

The Golden LEAF grant supports and strengthens partnerships between ECU and the counties of Beaufort, Hyde, Martin and Pitt. The partners will create a pipeline for ECU graduates to establish new businesses in towns throughout the region, which has been hit hard by the loss of manufacturing and supporting industry.

Additionally, many students who graduate through the RISE-29 program will team with small businesses in the region looking for succession and continuity plans as the small business owners prepare for retirement. County partners and regional mentors will provide students with in-depth knowledge about the communities housing these young microenterprises, helping them integrate with the community. RISE-29 will provide regional employment opportunities to graduating students, helping to reverse negative population trends in eastern North Carolina.

"ECU is making significant investments in entrepreneurship, innovation and new ventures, which we expect will drive student success and regional economic prosperity," said Jay Golden, vice chancellor for research, economic development and engagement. "This generous grant from the Golden LEAF Foundation allows us to grow and leverage our resources to give back to eastern North Carolina through strategic partnerships with business, community and government partners."

Golden LEAF President Dan Gerlach agreed with Golden, touting the number of jobs the program is projected to create in eastern North Carolina.

"Golden LEAF is pleased to support ECU's RISE-29, a regional project to serve job creators in northeastern North Carolina," Gerlach said. "This innovative partnership will help create 150 jobs in rural communities and provide long-term business growth strategies for current and budding business leaders."

Faculty and staff at ECU will work with the student teams to develop and refine business plans, obtain sector specific training, locate workforce needs, and access grants and critical seed funding. The student teams will engage in leading entrepreneurship programs through ECU and the College of Business' Miller School of Entrepreneurship.

Teams will also develop and refine their technology or service business with seasoned business professionals at ECU's Van and Jennifer Isley Innovation Hub. Currently under construction, the 25,000-square-foot building will be the state's largest university-based innovation hub housing business startup creation, prototyping equipment, pitch rooms, sales training and collaboration space.



Jay Golden, vice chancellor for research, economic development and engagement, shares ECU's goals for student entrepreneurship and economic development to regional industry leaders at ECU's industry roundtable luncheon in January.

“Economic development professionals across RISE-29’s service area identified a need for career development through internships and data-driven community development,” RISE-29 Program Director Sharon Paynter said. “Through RISE-29, students emerge from learners to doers, providing an engaged, supportive network of microenterprises that become community assets for the region.”

Students will be recruited to RISE-29 through several pathways, including Golden LEAF Scholars, the Miller School of Entrepreneurship, ECU’s Honor’s College, the university’s Horizon Living and Learning Community, the Pirate Entrepreneurship Challenge, and various entrepreneurship courses and internship programs.

“It’s an exciting time at ECU for emerging entrepreneurs,” Miller School Director Mike Harris said. “Various initiatives have demonstrated a substantial increase in the number of students interested in business ownership. There is a coordinated effort across campus to prepare our students to become successful entrepreneurs and we’re excited to partner with RISE-29 communities to connect them with strategic, data-driven opportunities.”

Jason Semple, president and CEO of Martin County Economic Development Corporation, said he’s looking forward to exploring how the program will bolster regional businesses.

“Small business creation is essential to the long-term health of rural communities,” Semple said. “We’re excited about the opportunity to partner with Golden LEAF and ECU as part of the university’s Rural Prosperity Initiative. This project will encourage entrepreneurial growth in Martin County and provide much-needed support as we seek ways to strengthen our local and regional economies.”

In addition to the Golden LEAF grant, RISE-29 will be supported by ECU’s philanthropic microenterprise fund. Those interested in supporting student teams or serving as industry mentors can contact ECU’s Office of Innovation and New Ventures.

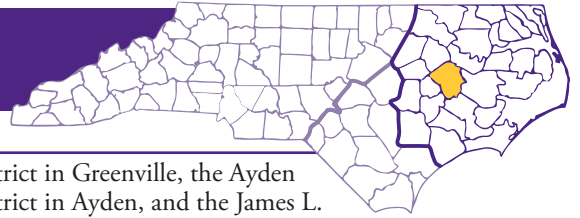
About ECU

ECU offers more than 85 bachelor’s, 72 master’s and 19 doctoral degrees to more than 28,000 students at its Greenville, North Carolina, campus and through its acclaimed online learning program. During fiscal year 2017, ECU produced five top 100 national programs for public school research productivity and ranks fourth in the UNC System in total research productivity. ECU received \$3.1 million in total economic development revenue for the 2016-17 academic year, with eight startups formed, six patents issued and 15 total products to market.

About Golden LEAF Foundation

The Golden LEAF Foundation was created in 1999 by the North Carolina legislature. The nonprofit’s mission is to increase economic opportunity in North Carolina’s rural and tobacco-dependent communities through leadership in grantsmaking, collaboration, innovation, and stewardship as an independent and perpetual foundation. To date the foundation has created more than 63,000 new jobs, \$624 million in new payroll, and more than 68,000 trained workers in rural areas of the state.

PITT COUNTY



ABOUT


Established in 1760 after the annexation of Beaufort County, Pitt County was named for British statesman William Pitt. A regional courthouse and prison were built within the county, with the county seat set in Martinsborough – renamed Greenville – in 1787.


Other communities located in Pitt County include Ayden, Bethel, Black Jack, Calico, Grifton, Grimesland, Pactolus, Simpson, and Stokes.


Pitt County is home to East Carolina University, established in 1907, and features historic structures including the College View

Historic District in Greenville, the Ayden Historic District in Ayden, and the James L. Fleming House in Greenville.

Pitt County's historical cultural attractions include the Ayden Arts and Recreation Center, the Dance Arts Theatre, the Greenville Museum of Art, and the Walter Stasavich Science and Nature Center. The county hosts annual festivals such as the Ayden Collard Festival, the Farmville Dogwood Festival, and the Winterville Watermelon Festival.

		COUNTY	NC AVG	US AVG
 <p>DEMOGRAPHICS ^{1,2,4}</p> <p>POPULATION: 179,042 NC RANKING: 14th <small>*ranked HIGH to LOW out of 100 counties</small></p>	BLACK	36%	22%	13%
	WHITE	55%	63%	77%
	HISPANIC	6%	10%	17%
	MEDIAN AGE	31	38	38
	RENT ≥ 30% INCOME	52%	44%	47%
	FAMILIES HEADED BY A FEMALE	17%	13%	19%
	PROJECTED 2025 POPULATION	234,741	9.4M	335M

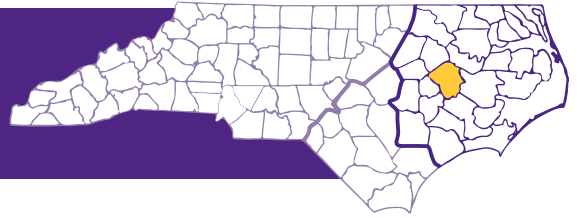
		COUNTY	NC AVG	US AVG
 <p>EDUCATION ^{1,2,3}</p> <p>HIGH SCHOOL GRADUATION RATE: 86% NC: 87% US: 83%</p>	STUDENT EXPENDITURE K-12	\$8,823	\$8,898	\$11,800
	STUDENTS RECEIVING FREE OR REDUCED LUNCH	59%	50%	48%
	THIRD GRADERS READING AT GRADE LEVEL: 50% NC: 58% US: 68%	COMMUNITY COLLEGES & 4-YEAR UNIVERSITIES: ECU Pitt Community College		

		COUNTY	NC AVG	US AVG
 <p>HEALTH ^{1,2}</p> <p>PRIMARY CARE PHYSICIANS PER 10,000: 12 NC: 25 US: 28</p>	DENTISTS PER 10,000	7	5	6
	GROCERY STORES PER 10,000	1	15	13
	CANCER INCIDENCE PER 10,000	43	47	45
	HEART DISEASE DEATHS PER 10,000	17	16	16
	UNINSURED ADULTS	15%	15%	9%
	OBESITY	34%	32%	37%

		COUNTY	NC AVG	US AVG
 <p>ECONOMY ^{1,2}</p> <p>MEDIAN HOUSEHOLD INCOME: \$42,011 NC RANKING: 47th <small>*ranked HIGHEST to LOWEST out of 100 counties</small></p>	UNEMPLOYED	5%	5%	4%
	LIVE IN POVERTY	22%	15%	13%
		LARGEST EMPLOYER: Vidant Medical Center		

SOURCES: ¹ NC Health Data Explorer ² NCIOM ³ NC School Report Cards ⁴ NC Office of State Budget and Management ⁵ NC DPI Statistical Profile State Per Pupil Expenditure 2016-17 | "About" information provided by the North Carolina History Project

PITT COUNTY SPEAKERS



Jay Golden | goldenj17@ecu.edu

Dr. Jay S. Golden was named the Vice Chancellor for ECU's Division of Research, Economic Development and Engagement (REDE) in 2017. Golden came to ECU from Duke University where he served as the Associate Vice Provost for Research and directed the university's corporate relations office. Golden received his doctorate in engineering from the University of Cambridge where he also earned his master's in environmental engineering and sustainable development as part of a joint program with the Massachusetts Institute of Technology. As Vice Chancellor, Golden oversees the REDE initiatives of ECU, while promoting the university's research accomplishments, centers and institutes to a national audience.

community engagement

“Community engagement (CE) describes collaboration between institutions of higher education and their larger communities (local, regional/state, national, global) for the mutually beneficial exchange of knowledge and resources in a context of partnership and reciprocity.” – Carnegie Foundation

See www.ecu.edu/wps/engaged-institution.cfm for more detail.

- **In your unit, what CE collaboration and activities are faculty conducting?**
- **Are there existing partnerships between faculty in your unit and community organizations that could become CE projects?**

community

Communities can be defined by geography (neighborhood, city), circumstance (disaster survival, belonging to a school district), identity (gender, ethnicity, race, etc.), kinship, affiliation (political party, alumni group), or profession (field of expertise, type of business). “The purpose of community engagement is the partnership of college and university resources with those of public and private sectors to enrich scholarship, research, and creative activity; enhance curriculum, teaching, and learning; prepare educated, engaged citizens; strengthen democratic values and civic responsibility; address critical societal issues; and contribute to the public good.” – Carnegie Foundation

- **What communities are natural partners for faculty in your discipline, department, or college?**
- **How do community partners connect with faculty in your discipline, department, or college?**

public service

Broadly defined, public service at ECU is the use of university resources to address societal challenges and contribute to the common good.

- **In your unit, what are examples of public service?**
- **What criteria do you use to judge its quality?**

outreach

The voluntary provision of programs, services, activities, or expertise **for** those outside the traditional university community. In comparison, community engaged scholarship relies on collaborative, mutually beneficial work **with** a community partner.

- **What are examples of outreach undertaken by faculty in your unit?**
- **What criteria do you use to judge its quality?**

scholarship

Community engaged scholarship (CES) focuses on issues that are important to communities and educational institutions. CES should be evaluated by clear standards of rigor and quality just as other forms of scholarship are judged in the Academy. CES takes the form of peer-reviewed manuscripts and conference presentations as well as other products such as training manuals, patents and copyrights, classroom lectures, curricula, news articles, websites, technical bulletins, evaluation reports, public performances, workshops, and more. Faculty scholarship at ECU includes the scholarship of research, the scholarship of creative activity/innovation, and the scholarship of engagement and/or outreach.

– *-ECU Faculty Manual, Part VII, Section I*

- **What counts as CES in your discipline, department, and college**
- **What criteria are used to judge the quality of scholarship?**

type of activity

Faculty may partner with communities through research, scholarship, and creative activity, teaching and learning (such as service learning course or co-curricular activities), service (such as technical assistance or expert testimony), or innovation and entrepreneurship (such as patents, licenses, new business ventures, etc.).

- **In your discipline, department and college what common types of scholarly outreach and engagement activities are faculty involved in?**
- **What could your department do to increase involvement in scholarly outreach and engagement activities with community partners?**

integration

Scholarly outreach and engagement activities integrate with traditional faculty responsibilities when they are research, scholarship, or creative activities; make contributions to student learning and instruction; or have commercialization potential.

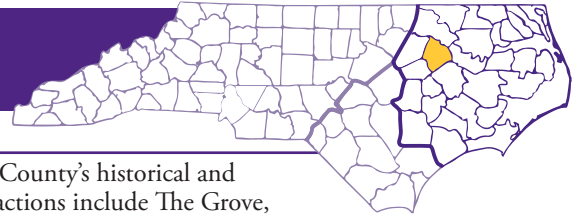
- **In your discipline, department, or college, how might faculty integrate their engaged scholarship with other responsibilities?**
- **Are outreach and engagement activities listed in your unit code?**

sustainability

It is important to address sustainability in university-community partnerships by considering plans for sharing resources, development of joint funding proposals, dissemination of research findings, and thinking about how the partnership can mature.

- **In your unit, what are examples of sustainable partnerships?**
- **What can the University do to support sustainable partnerships?**

EDGECOMBE COUNTY



ABOUT

Established in 1741, Edgemcombe County was named for Richard Edgemcombe, a member of British Parliament and a Lord of Treasury. Tarboro serves as the county seat. It is the state's ninth oldest incorporated town. The oldest town incorporated by African Americans, Princeville, is also found in Edgemcombe County.

The largest city in Edgemcombe County is Rocky Mount, home to Hardee's and Rocky Mount Instruments. Other communities located in Edgemcombe County include Conetoe, Leggett, Macclesfield, Pinetops, Princeville, Sharpsburg, Speed, and Whitakers.

Edgemcombe County's historical and cultural attractions include The Grove, a colonial-era plantation and former residence of American Revolutionary War veteran and North Carolina statesman Thomas Blount, and the historic Tarboro Town Common — a large park that includes several memorials.

	COUNTY	NC AVG	US AVG
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DEMOGRAPHICS ^{1,2,4}



POPULATION:
52,747
NC RANKING:
53rd

*ranked HIGH to LOW
out of 100 counties

BLACK	58%	22%	13%
WHITE	36%	63%	77%
HISPANIC	4%	10%	17%
MEDIAN AGE	40	38	38
RENT ≥ 30% INCOME	44%	44%	47%
FAMILIES HEADED BY A FEMALE	23%	13%	19%
PROJECTED 2025 POPULATION	61,556	9.4M	335M

EDUCATION ^{1,2,3}



HIGH SCHOOL GRADUATION RATE: **81%**
NC: 87% | US: 83%



THIRD GRADERS READING AT GRADE LEVEL: **32%**
NC: 58% | US: 68%

STUDENT EXPENDITURE K-12	\$9,728	\$8,898	\$11,800
STUDENTS RECEIVING FREE OR REDUCED LUNCH	65%	50%	48%

COMMUNITY COLLEGES & 4-YEAR UNIVERSITIES:
Edgemcombe Community College

HEALTH ^{1,2,6,7}



PRIMARY CARE PHYSICIANS PER 10,000: **6**
NC: 25 | US: 28

BREAST CANCER PER 10,000	1	2	2
STROKE DEATHS PER 10,000	9	6	4
DENTISTS PER 10,000	2	5	6
GROCERY STORES PER 10,000	2	15	13
CANCER INCIDENCE PER 10,000	45	47	45
HEART DISEASE DEATHS PER 10,000	20	16	16
UNINSURED ADULTS	15%	15%	9%
OBESITY	41%	32%	37%

ECONOMY ^{1,2}

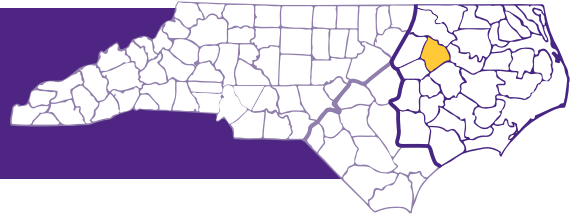


MEDIAN HOUSEHOLD INCOME: **\$33,892**
NC RANKING: **97th**
*ranked HIGHEST to LOWEST
out of 100 counties

UNEMPLOYED	8%	5%	4%
LIVE IN POVERTY	24%	15%	13%

LARGEST EMPLOYER: **City Of Rocky Mount**

EDGECOMBE COUNTY SPEAKERS



Rev. Richard Joyner | info@conetoelife.org

Rev. Joyner, a Greenville native, grew up in a family of sharecroppers in Pitt County. Joyner attended Shaw University Divinity School and served in the U.S. Army and U.S. National Guard before assuming his current role as Chaplin at Nash General Hospital. Joyner became the Pastor of Conetoe Chapel Mission Baptist in 2002 before establishing the Conetoe Family Life Center in 2007. Eight years later, Joyner was recognized by CNN as a Top 10 CNN Hero for his work with the center, bringing healthy eating habits and increased physical activity opportunities to the town. Joyner was elected to the Rocky Mount City Council in 2017.

GET TO KNOW CONETOE



First of all, you're probably saying it wrong. Six miles southeast of Tarboro in Edgecombe County, the town of Conetoe – pronounced “Kuh-Neat-Uh” – is home to extraordinary natural resources and scenic beauty. With a population of just 294 according to the 2010 Census, the town comprises an area less than half a square mile. Its population peaked at 365 nearly 20 years ago, but since then Conetoe has labored to find its footing in a region facing economic and health care disparities.

Before we touch on the Conetoe of today, it's worth taking a look back at the town's history. There's a good chance you're not the only person that has trouble saying the name, as many historians and cartographers struggled to even spell the town correctly for much of its past. The creek the town's named after first appeared in county records as early as 1795, but maps published the town's name incorrectly through much of the 18th and 19th centuries. Famous misnomers include Keneightan Creek, Congeto Creek, Corntoe Creek, and Coneetoe Creek – oh so close with that one!

North Carolina's 1884 Post Route Map likely had the first appearance of Conetoe and by 1886, Conetoe and Conetoe Creek were both recognized on the Shaffer's Township Map of North Carolina. If you're wondering about the origin of Conetoe, not just its spelling, the name comes from the Tuscarora Indian tribe meaning “sunken pine or cypress.”

Today, nearly 12 percent of Conetoe's population lives below the poverty line. The town's median income is \$14,774 with a median household income of \$35,227.

Conetoe is home to a pair of National Register of Historic Places homes – the Wilkinson-Dozier House and Worsley Burnette House plantations – but is probably best known for the Conetoe Family Life Center. The center, established in 2007, aims to improve the health of the town's community by increasing access to healthy foods, increasing physical activity, and providing access to health services. The center supports this mission through its youth development initiatives, healthy living programs, and bee-keeping operation. In 2015, the center's founder, Rev. Richard Joyner, was named one of CNN's Top 10 Hometown Heroes for his efforts in the Conetoe community.

SOURCES: ¹“2010 U.S. Census” https://factfinder.census.gov/faces/nav/jsf/pages/community_facts.xhtml

²“What's in a name? Conetoe, NC” <http://blog.ncmaps.org/index.php/conetoe/>

³“By nourishing plants, you're nourishing community” <https://www.cnn.com/2015/09/24/us/cnn-heroes-joyner/index.html>

PRINCEVILLE BACKGROUND

Princeville, a town of about 2,100 located in Edgecombe County, is the oldest town established by African Americans in the United States. Settled after the American Civil War in 1865, the town was originally called Freedom Hill by former slaves. In 1885, Freedom Hill was incorporated. The name was later changed to Princeville in honor of Turner Prince, an African-American man who was responsible for building many of the homes in the community.

Due to its proximity to the Tar River, flaws in the design of the levee that runs along the river, and other issues with mitigating storm waters, Princeville is prone to flooding. To combat flooding events, the Princeville Dike was built by the Army Corps of Engineers in 1965. The dike held back the Tar River's waters until 1999, when heavy rains from Hurricane Floyd caused the dike to fail, submerging the town. The hurricane damaged or destroyed 700 homes in Princeville, as 24 feet of water covered the town.

It took years for Princeville to recover, only to once again face flood waters in 2016. Three days after Hurricane Matthew made landfall in eastern North Carolina, flaws in the dike caused the town to flood, once again covering Princeville with water. Eighty percent of the town was underwater after the dike broke, with estimated damages nearing \$21 million.

Today, the small town is starting to recover again after the region's most recent flooding, however, there are hurdles. Households in Princeville have a median annual income of \$31,563, with 37 percent of the town's population living in poverty. Two years after Hurricane Matthew, many questions still remain about the fate of this historic town.

Many Princeville residents, however, have vowed to stay.

"I have always been proud to say that I was from Princeville," Linda Worsley, a Princeville resident whose land has been in her family since the 1920s, told the *New York Times* in 2016. "To just lose all of that, it would be like Princeville is another lost colony."

Recovery has been slow thus far. As of September 2018, the town's public housing complex and elementary school remain deserted. A controversial plan has been developed that could move the town to a 52-acre plot of land about two miles from downtown Princeville. The land is outside of the flood plain that typically receives damage when the Tar River overflows.

SOURCES: ¹ <http://www.townofprinceville.com/page/our-history>

² <https://www.nytimes.com/2016/12/09/us/princeville-north-carolina-hurricane-matthew-floods-black-history.html>

³ <http://www.wral.com/after-matthew-flaws-in-levee-design-left-princeville-under-water-again/16492492/>

FLOODING DESTROYS BEE HIVES IN CONETOE



CONETOE — Hurricane Matthew left immense property damage throughout Eastern North Carolina, especially in Edgecombe County.

In the small town of Conetoe, the Conetoe Family Life Center was a victim of the hurricane with some destruction to the 25-acre community garden and even more catastrophic was 120 bee hives destroyed by the flood, said the Rev. Richard Joyner, founder of the Conetoe Family Life Center and pastor of the Conetoe Missionary Baptist Church.

“Like most people in the area, we didn’t think we were going to get that much rain,” Joyner said. “The hives during that time were out pollinating at other farmland and being rented out. The water damage caused (left the hives so they) weren’t able to be used again.”

Ted Sherburne, parishioner of Church of the Good Shepherd, who has worked with Joyner over the past few years at the Conetoe Family Life Center, said this past spring the Family Life Center was planning to initiate another campaign to add an additional 200 beehives to the amount it already had.

However, the damages to the 120 bee hives plus some additional bee hive equipment from Matthew has caused the Family Life Center to alter its plan. Consequently, Sherburne said, the lost bee hives won’t allow the Family Life Center to offer a quart of honey to groups making a donation this year.

Sherburne added he is in the process of sending a letter seeking financial support from local churches to replace the bee hives and hopefully getting financial assistance from area businesses and community organizations. He said the cost of the hives has increased to \$125 and the cost of bees will be determined sometime in January but will be at least \$110 per package.

The community doesn’t have to donate a complete hive or a package of bees, while donations of any amount will be appreciated and are tax deductible because Conetoe Family Life Center is a 501c(3) nonprofit organization, Sherburne said.

“We’re seeking support for a more ambitious program with the goal to increase to 300 to 400 bee hives over the next two years that will allow us to expand the program and have more activities,” he said. “We’re hoping with the community help that the additional hives provide stability and growth for years to come.”

Joyner said the bee hive program for youth is a critical component for the Conetoe Family Life Center. He added the bee hive training was one of the program ideas begun by the Conetoe youth.

“This is how we train our students, and we have certified beekeepers that help the kids make the honey that is marketed or sold to the public,” he said. “The thing that we are known for the most is the honey and the kids love working with the bees. A lot of people used the honey for Christmas gifts and we use the honey for our own health, so honey has made a multiple impact on our region and helped us a lot.”

Scqasia White, 15, a student at South West Edgecombe, said she enjoys working with the bees and love the experience of selling honey at Lowes Food in Apex.

“I was so surprised that people love honey so much,” White said. “It was disappointing and I was a little sad to learn that the bee hives were destroyed, but hopefully we can have them replaced soon.”

Garrie Moore, executive director of the Conetoe Family Life Center, said the bee hive program allows the youths to acquire knowledge in a multitude of areas.

“This allows them to learn about the importance of pollinating crops and also about agribusiness and agriculture,” Moore said. “In addition to the education component, the kids also are able to engage in physical activity as they work in the garden.”

Sherburne said helping the bee hive program and supporting the Conetoe Family Life Center is vital to the community because the activities and work being done at the garden has brought together many local churches from different denominations, religions and races. Adults and youth from different churches have worked with the Conetoe youth on several occasions in either planting or harvesting crops in Conetoe.



Also, through the purchase of the hive kits from a distributor in Hillsborough, construction and painting parties were held on weekends during the spring for youth groups and adults from area churches and organizations that convened at Church of the Good Shepherd to put together, prime and paint 100 hives.

“I love seeing these young people interacting, and I think what is being done in Conetoe is the kind of movement that needs to be packaged and done in other areas,” Sherburne said. “I think places like Conetoe and Rocky Mount are microcosms of many different communities around the country. The kids can help bridge the gap in terms of race, culture and religion because we’re so divided among political and socioeconomic lines. I think what is being done in Conetoe is a great model.”

CONETOE FAMILY LIFE CENTER FARM GROWS, INSPIRES

For Edgecombe County children, a shared garden feeds and provides a sense of purpose.



A gaggle of children in purple gloves and boots bend toward the dirt, snapping collard greens. Two girls shove bundles of veggies as large as their torsos into trash bags. Another kid leapfrogs over a row of plants on this 25-acre farm in Conetoe, a tiny village in Edgecombe County.

The children teetering along rows of collards, broccoli, kale, and turnips aren't from farming families. Many of them come from less-than-stable homes. But on this crisp day, as the sun sets behind the pine trees surrounding the vast plots of vegetables, they have found nourishment.

The Rev. Richard Joyner conceived of this children's farm — he calls it a community garden — eight years ago, after becoming pastor of the Conetoe Chapel Missionary Church. Edgecombe County is one of the poorest places in North Carolina, home to many homeless children, and Conetoe, with its trailer park and abandoned buildings, is an emblem of such blight. Through his garden, Joyner seeks to promote healthy living and, in doing so, instill confidence in youths.

“The truth of it is, it gives the kids something to give,” says Joyner. “It's better than money. We're giving them something that sustains a life.”

Called to the soil

Joyner was one of 13 children raised on a Pitt County farm, the son of a sharecropper who grew corn, peanuts, soybeans, and tobacco. Distressed by how little money his father made, Joyner wanted nothing to do with farming after high school. But after a career spent in the Army, National Guard, and Nash County General Hospital, where he is the director of pastoral care, Joyner was called, once again, to the soil.

Shortly after he became a pastor, the state labeled Edgecombe County as a food desert, Joyner says, with little access to fresh, local, affordable food. The minister noticed that several of his parishioners suffered from health problems. Many were overweight. Joyner presided over too many funerals. A thought occurred to him: Why not create a garden to foster nutrition and give poor children a sense of purpose?

Joyner approached a local farmer, Ernest Vines, and inquired about using some of his land. Vines offered up his entire farm. It took a year to bring in equipment, all donated. The first seeds were planted in 2007. What began as an after-school program morphed into a yearlong endeavor, culminating with a summer camp enrolling 60 kids, ages 4 to 16, who come from a 25-mile radius.

Joyner harvests more than vegetables: He uses the garden to preach the benefits of labor, economics, community relations, and self-sufficiency. At first, kids are often dismayed at the workload; it's only when the crops sprout, and the eating begins, that they fully appreciate the effort. Eventually, they'll start eating beans right from the vine. "True country living!" says the pastor, who runs the garden through his nonprofit, the Conetoe Family Life Center.

"My friends say I'm crazy 'cause it's hot out," says 15-year-old Abdul Grant. "But you don't see a lot of people growing any garden, and this teaches us values." Grant now wants to be a chef and tend his own garden.

Today, the garden is a veritable business, producing thousands of pounds of vegetables worth hundreds of thousands of dollars each year. Joyner and the children give much of the food away — to senior citizen homes, hospitals, and poor families, with the goal of cutting monthly grocery bills in half. They sell the remainder of the food at farmers markets. The garden is largely funded by community donors. Joyner has partnered with several churches to sponsor health fairs, as well as the county school system and local agriculture extension.

Abutting the garden sits a refrigerator and freezer donated by the Deer Hunter Society, a greenhouse that can hold one million plants, and a tunnel house, built by the community. Two local cats skulk the grounds, warding off snakes. There's also a "Bee Bus" — an old school bus housing 50 hives. The kids climb aboard, extract the honey, bottle it, and sell it at the Family Life Center, area Lowes Foods, and local businesses like Milton & Miles restaurant and Almand's drug store in Rocky Mount.

Joyner is typically the first to arrive at the garden and the last to leave; he wants the kids to see him as a farmer, not simply a minister. "You can't be seen as someone standing at the pulpit yelling at these kids," Joyner says. "If you're gonna hold on to the kids in the rural church, you gotta go beyond Sunday."

Though he never thought he'd get back into the farming he was born into, Joyner says the garden sustains not just human lives, but also memories. Older folks visit, sitting in the shade and watching the kids tend to the vegetables, reminding them of their own youth.

"When you put your heart, labor, and sweat into something, it becomes a part of you," Joyner says. "It gives you value as a human being."

A WRENCHING DECISION WHERE BLACK HISTORY AND FLOODS INTERTWINE

Residents of Princeville, N.C., are considering the prospect of leaving their town after enduring a 100-year flood for the second time in 17 years.



PRINCEVILLE, N.C. — Betty Cobb’s house is a shell nearly two months after floodwaters went halfway up the walls of her one-story home.

Volunteers have ripped out moldy wallboard. Two small chandeliers hung over the bones of the living and dining rooms, the furniture and the carpeting long gone. On the kitchen counter lay a patchwork of family photographs, their vibrant colors washed away, and a book — “Hurricane Floyd and the Flood of the Century” — saved from the water.

Hurricane Floyd, which roared through here in 1999, was supposed to be just that: a once-in-a-lifetime event that caused flooding the likes of which this town’s residents would never see again.

But that perception was shattered in early October when Hurricane Matthew barreled inland and sent water pouring around a levee built along the Tar River and into the town, inundating hundreds of homes, including Ms. Cobb’s.

Seventeen years ago, Ms. Cobb decided to rebuild, here in a town that has a special place in American history. Princeville, population 2,100, is believed to be the oldest town chartered by freed slaves, who founded a community that has survived numerous floods and the Jim Crow era. It remains 96 percent black.

Ms. Cobb, 69, is now considering a question looming over many homeowners: After two devastating floods, does she want the option to sell her home to the Federal Emergency Management Agency, something that the town’s leaders voted down in 1999, fearing it would lead to the end of their community?

“This is home, this is what I know,” said Ms. Cobb, who was leaning toward staying but worried about taking out a loan to rebuild. “I really don’t know.”

A number of residents have expressed an interest in selling to FEMA, which would prevent anyone from building again on their flood-prone land and lead to a reduction in the town’s tax base. The town’s four commissioners will vote at some point on whether to make that available to residents (the mayor votes in case of a tie). They can also consider elevation of homes and reconstruction of damaged ones.

Residents on the nation’s coasts and along inland waterways have assessed storm damage and wondered if they should relocate — a painful and fairly uncommon form of hazard mitigation known as retreat.

Here, the consideration has a wrenching historical dimension. This is where a freed slave, Turner Prince, established Freedom Hill in 1865, which became Princeville 20 years later, a town where extended families have proudly lived for generations. And many of them are determined to rebuild.

This stretch along the Tar River is no stranger to flooding, and some say that it is probably the reason that African-Americans were able to settle the land in the first place. White landowners in the 19th century did not want it.



Angela Mallory-Pitt outside her gutted Princeville home.
Photos by Travis Dove.



Outside Ms. Mallory-Pitt's home, a water-damaged photograph of her in-laws.

“Their existence in this space was not a matter of chance or choice, but instead the discarded and unwanted space was what former slaveholders allowed them to occupy,” Richard M. Mizelle, Jr., an associate professor of history at the University of Houston, wrote earlier this year, tying Princeville’s location to environmental racism — the relegation of black people to flood-prone land and hazardous areas that expose them to greater levels of pollution.

But many people are proud of what they have built here, and how it has endured. “The freed slaves made it what it is,” said Mayor Bobbie Jones, 55, who wants the levee improved and opposes the buyouts and hopes residents who want to leave will first seek private buyers, perhaps like himself.

“If we decide to allow individuals to participate in the buyout, it will have a devastating effect,” Mr. Jones said, standing in front of more than 100 residents at a recent meeting.

Other black-founded towns like Eatonville, Fla., which was incorporated in 1887, still exist today. Many others have faded, like Nicodemus, Kan., which has about 25 residents, or Blackdom, N.M., which was abandoned after a drought.

“I’m fighting so hard to make sure that Princeville is not one of the casualties,” Mr. Jones said. “It would be a devastating tragedy, not only for me, but for the world.”

Still, residents like Angela Mallory-Pitt, 46, want at least the option to move beyond this low-lying land.

“That history will never be lost,” said Ms. Mallory-Pitt, whose small white house filled with floodwater after Matthew. The town’s founders, she said, would have settled safer land if they had the chance.

“I really believe that they would want better for us,” Ms. Mallory-Pitt said.

In 1967, the Army Corps of Engineers completed a levee that held off floods until Hurricane Floyd’s sent water over its top, forcing harrowing rooftop rescues — including Mr. Jones’ — and damaging or ruining nearly every home here.

The town leadership rejected taking buyouts at that time and instead chose to rebuild the town and fix the levee. Last year, the Corps of Engineers completed another proposal to extend the levee, which officials with the corps say would have at least reduced the latest destruction, but it has not been funded.

The flood inundated community pillars like the school and the fire station — which is currently operating out of a tent — and left residents displaced and streets still piled with debris.

“So many people have lost so much, and we’ll have to start all over again,” Linda Worsley, 66, a retired telephone company analyst, said as she picked up the mail at her uninhabitable home even as it was being demolished.

Ms. Worsley is determined to rebuild on land that has been in her family since her grandfather, a sharecropper, and his brother bought it in the 1920s. Ms. Worsley, who as a commissioner voted against buyouts in 1999, said residents should have the option this time, although she hopes few people will take them.



Linda Worsley outside her Princeville home, which was demolished after being damaged in a flood caused by Hurricane Matthew. Photos by Travis Dove.

“I have always been proud to say that I was from Princeville,” Ms. Worsley said, adding, “To just lose all of that, it would be like Princeville is another lost colony.”

It was her job to organize the town’s Christmas parade, which was scheduled for last Saturday but had to be canceled. Instead, Ms. Worsley and her neighbors gathered at the Quality Inn in Tarboro, which is across the Tar River from Princeville, for a lunch of pulled pork, chicken and green beans. So many displaced residents are staying at the hotel while they await FEMA trailers that it has become a stop for the school bus, its lobby a town square for Princeville residents.

Mary Alston, a volunteer from Cary, N.C., put the question to Ms. Worsley and two of her friends, “Are y’all going to stay or ...”

“I’m going to stay,” Annette Waller, 60, said.

“Oh yes,” Brenda Hunter said, “I’m going to stay in Princeville,” and talk at the table turned to demolition, duct work and how long it would take to return home.

Others in the hotel have decided to leave. David Birth, 70, a retired machine operator, whose home on Main Street was destroyed, said he had already bought land in Tarboro and would live there, in a trailer.

“When the first flood came, it took the first house,” he said. “The second flood took this one. I’m not going to let my grandchildren be in the same situation.”

For now, many families are waiting: waiting to see how far flood insurance goes, what FEMA will offer, and what the town decides.

Back at Ms. Cobb’s house, as volunteers carted away wheelbarrows filled with wallboard, Ms. Cobb’s daughter, Regina, 48, looked across the street where trees hide the Tar River. If it were up to her, she said, she would leave, although she said she would support her mother’s decision.

“We were supposed to be on a 100-year flood plain, and we only made it through 17 years,” Regina Cobb said. “That river isn’t going anywhere.”

A cotton field on the edge of Princeville.
Photos by Travis Dove.



Books and papers drying in the Princeville Fire Department’s former garage.



TARBORO

The waters came. The waters went. But the people stayed, giving this eastern North Carolina town the chance to fight back and become even stronger – “after the flood.”



Reminders of the Great Flood of 1999 remain in Catherine Williams’ sitting room.

Perched on side tables flanking her couch, two green lamps that belonged to her mother look normal and still turn on. But upon peering closer, the brass trim looks a little off. Dark blotches of tarnish dot the metal rim.

Everything else was junked after Hurricane Floyd’s floodwaters filled her brick home in this east Tarboro neighborhood.

“The whole house was completely muddy, mildewed. All the furniture was upside down,” says Williams, a former bookkeeper who grew up in the family house before moving to New York City after high school.

Outside, on the surface, Tarboro doesn’t show many signs of the flood anymore.

But inside, in the homes and hearts, the remnants are scattered in a box of saved newspaper clippings, on a law office wall where a decal shows how high the water reached, or, for Williams, on the side tables.

Williams was living in New York when the storm hit. But she had kept the house in Tarboro after her parents died, hoping to one day retire in this small, eastern North Carolina town.

Inside, the water reached six feet high. The house had to be gutted and the appliances and furnishings given up.

“I saved two lamps to remember the flood,” says Williams. “I didn’t want to throw them away.”

Despite the fact that the home had to be stripped down to the frame, Williams had no doubt about starting again from the skeleton out.

“This is a family home,” she says. “I knew one day I planned to come live here.

“This is home.”

Rising waters

Today, Tarboro looks like many other old Southern towns. Homes from the 18th and 19th centuries and meandering sidewalks spread from its center, past magnolia and dogwood trees.

Eleven years ago, it was a soggy mess.

As Hurricane Floyd approached in mid-September, Tarboro and the rest of the state braced for what was expected to be a massive storm.

Although weaker than originally feared when it made landfall, Floyd's winds still ripped down trees and electrical poles in Tarboro.

But it's not the wind that people still talk about. It's the water that dumped down and slowly crept up for days, eventually filling up buildings downtown and submerging the neighboring town of Princeville.

The ground, already soaked from Hurricane Dennis weeks earlier, was like a full sponge.

"I was sitting out here on a nice, beautiful, sunny Friday," says Rusty Holderness, recalling the day after Floyd swept through. "We were cooking, grilling hamburgers, and then they started talking about the water rising."

Holderness went down to prepare his wife's store, a gift shop named Rusty's in the town's historic district.

"We went down there, picked everything up, putting things on tables, thinking that was going to be the extent of it," he says, shaking his head with the perspective of hindsight. "It kept rising, rising. It was pretty weather, sunny, and it kept rising."

His wife, Mary Ann, was out of town visiting family. By the time she made it back after the weekend, water had seeped up through the basement and reached more than three feet up.

Her merchandise, along with the tables it was piled on for refuge, floated around.

The Tar River — the very lifeline that first drew settlements to the Tarboro area in the early 1700s — crested 24 feet above flood stage in Floyd's wake.

On the Princeville side of the river, the water breached a levee and took over the entire town. All the homes, many of which floated away off their foundations, were destroyed, and town officials held a vote on whether to close everything and move to higher ground. In part because of its history, they decided to rebuild Princeville, the nation's oldest town incorporated by freed slaves after the Civil War.

In Tarboro, which slopes up from the river and had never had significant flooding before, water filled at least half the buildings downtown.

Surveying the damage in the eastern part of the state, then-president Bill Clinton stopped outside of Tarboro's storefronts days after the storm and spoke of recovery.

In one photo of the aftermath, an office supply store owner stands on sandbags, pumping water away from her front door as a boat floats by on Main Street.

There was no pumping possible for Mary Ann's store, located on the end of the street closer to the swollen river. After 27 years in business, she nearly shut everything down.

"I thought, 'That's it,'" she says.

But there was still a supply of undamaged Christmas merchandise stored upstairs and the future of downtown to consider.

"We had all that stuff, so we just got busy cleaning," Mary Ann says. "Once you have something going and then have to close things, that's discouraging to everyone else."

A chance for renewal

Like Mary Ann, other Main Street business owners began to pick up the waterlogged pieces and restart.

In fact, after the water withdrew, residents went about making the town better than it was before Floyd swept into their lives.

"Before the flood, downtown was like a lot of downtowns. It was mostly empty. There were a lot of buildings in blight situations," says Mary Haviland, who has lived in Tarboro for 13 years. "The flood gave a lot of people a wake-up call. We had to do this clean-up anyway. It made us take action."

Soon a nonprofit formed. Haviland directed it. The group undertook a \$3.5 million restoration of two adjacent buildings downtown.

One of them, dating back to 1907, is the Bridgers building. It originally housed the offices for East Carolina Railroad founder Henry Clark Bridgers Sr.

Before the flood even made a mark, the building was an eyesore with boarded-up windows and home to hundreds of squatting pigeons. Now, it holds stores, a coffee shop, and connects to renovated apartments where both young professionals and retirees live in lofts. The renewal spread from there.

“Because we did that, other folks took on some other projects,” Haviland says, pointing out a 1919 movie house that the Rotary Club is renovating.

Preserving history

Flood or no flood, renovation is a big deal in Tarboro, the county seat for Edgecombe County, about 20 minutes east of Rocky Mount.

Wooden plaques with dates and names of early owners hang on nearly every house and business in the town’s historic district — one of the largest in the state, covering 45 blocks.

Despite the flooding in the historic storefronts downtown, none of the old homes in the district’s residential section suffered damage.

Driving around the neighborhood streets, Haviland prattles off homes in various stages of restoration.

“Here’s one in progress,” she says, motioning to a home owned by a local doctor. “He put a beautiful copper roof on the porch.”

“This,” she moves on, “has been recently redone. A couple from Winston-Salem bought that one.”

Haviland lives in one of the stately Victorian homes that line the north side of the Town Common, a green swath of park laid out when the town was chartered in 1760.

Tarboro’s homes are a buffet of centuries-old styles, creating a display of architectural fashions of the past.

Federal-style homes dating from the late 1790s mingle with gingerbread-trimmed Victorians and Arts and Crafts bungalows from the 1930s.

“There is an effort to try and save as much as we can of the architecturally historic buildings,” says Monika Fleming, director of the historic preservation program at Edgecombe Community College. “We’re lucky that we have saved so many of them. Not too many towns can claim to have that many buildings still in use.”

Fleming, who lives in Tarboro and leads walking tours on the weekends, says the town’s small size is one reason it has been able to preserve its history.

“It’s a great walking town,” says Denise Sanderson, who moved to Tarboro in 2006 with her husband to restore a late 1800s home into a bed and breakfast, named the Main Street Inn. “We do a lot of sitting on front porches.”

On the Main Street Inn’s long front porch, next to the rocking chairs, is the courting swing. “A hundred years ago, many of the young men would propose there,” Sanderson says.

Always a memory

For a town so conscious of history, the Great Flood of 1999 will remain in memories for some time.

Although the brown water marks have faded from the sun or been painted over, people still use the flood as a point of reference when trying to recall when someone moved or when a store opened.

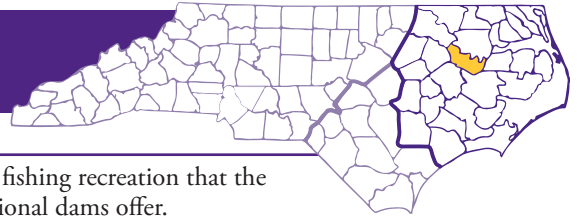
“It’s always ‘before the flood’ or ‘after the flood,’ ” Rusty Holderness says.

And, Holderness adds, things look pretty good in the “after” chapter.

“I hope people think about what a great place it is now,” he says. “It’s just a wonderful place to live and raise a family. It’s a unique place. I hope that’s what sticks with people.”

THIS STORY WAS PUBLISHED ON AUGUST 1, 2012 - WRITTEN BY OUR STATE STAFF

MARTIN COUNTY



ABOUT


Established in 1774 out of Halifax and Tyrrell counties, Martin County was named for Josiah Martin, the last royal governor of North Carolina. Williamston serves as the county seat.


Other communities located in Martin County include Bear Grass, Darden, Everetts, Gold Point, Hamilton, Hassell, Jamesville, Oak City, Parmele, and Robersonville.


The Roanoke River served as an important trade route through Martin County, allowing the county's industries in tar, pitch, turpentine, forest, and meat products to grow the county in its early development. Today, the county sees an influx of naturalists for

hunting and fishing recreation that the river and regional dams offer.

Martin County's historical and cultural attractions include Fort Branch, a renovated Confederate fort, the Darden Hotel, the Martin County Courthouse, and the Green Memorial Church, which in 1963 held civil rights "Freedom Rallies" for 32 days featuring over 400 protesters.

		COUNTY	NC AVG	US AVG
 <p>DEMOGRAPHICS ^{1,2,4}</p> <p>POPULATION: 22,789 NC RANKING: 77th <small>*ranked HIGH to LOW out of 100 counties</small></p>	BLACK	42%	22%	13%
	WHITE	52%	63%	77%
	HISPANIC	4%	10%	17%
	MEDIAN AGE	45	38	38
	RENT ≥ 30% INCOME	41%	44%	47%
	FAMILIES HEADED BY A FEMALE	14%	13%	19%
	PROJECTED 2025 POPULATION	24,354	9.4M	335M

		COUNTY	NC AVG	US AVG
 <p>EDUCATION ^{1,2,3}</p> <p>HIGH SCHOOL GRADUATION RATE: 82% NC: 87% US: 83%</p>	STUDENT EXPENDITURE K-12	\$11,001	\$8,898	\$11,800
	STUDENTS RECEIVING FREE OR REDUCED LUNCH	60%	50%	48%
	THIRD GRADERS READING AT GRADE LEVEL: 41% NC: 58% US: 68%	COMMUNITY COLLEGES & 4-YEAR UNIVERSITIES: Martin Community College		

		COUNTY	NC AVG	US AVG
 <p>HEALTH ^{1,2}</p> <p>PRIMARY CARE PHYSICIANS PER 10,000: 5 NC: 25 US: 28</p>	DENTISTS PER 10,000	2	5	6
	GROCERY STORES PER 10,000	2	15	13
	CANCER INCIDENCE PER 10,000	47	47	45
	HEART DISEASE DEATHS PER 10,000	22	16	16
	UNINSURED ADULTS	14%	15%	9%
	OBESITY	38%	32%	37%

		COUNTY	NC AVG	US AVG
 <p>ECONOMY ^{1,2}</p> <p>MEDIAN HOUSEHOLD INCOME: \$36,132 NC RANKING: 80th <small>*ranked HIGHEST to LOWEST out of 100 counties</small></p>	UNEMPLOYED	6%	5%	4%
	LIVE IN POVERTY	23%	15%	13%
LARGEST EMPLOYER:		Martin County Board of Education		

SOURCES: ¹ NC Health Data Explorer ² NCIOM ³ NC School Report Cards ⁴ NC Office of State Budget and Management ⁵ NC DPI Statistical Profile State Per Pupil Expenditure 2016-17 | "About" information provided by the North Carolina History Project

CHILDREN FACE STRUGGLES IN SOME NORTH CAROLINA COUNTIES, STATS SHOW



The numbers say North Carolina is middle-of-the-road edging toward poor in some categories when it comes to the well-being of the state's children, with some counties posting alarmingly high numbers for neglect cases and children in foster care.

But children are more than just numbers, and even accurate data often reflects difficult and complex situations. Sometimes the data points toward solutions. Sometimes it can obscure the everyday realities in resource-deprived communities.

Carolina Public Press recently talked with DSS officials in three northeastern counties that posted low indicators for child well-being in new data published by the Annie E. Casey Foundation.

Kids Count Statistics

Since 1990, the Annie E. Casey Foundation has analyzed 16 key indicators to determine the well-being of children across the nation. The indicators each fall into one of four categories: economic well-being, education, health, and family and community.

Based on these indicators, North Carolina has been ranked 32nd overall in the 2018 Kids Count Data Book. Of the four categories, North Carolina rates highest in education at 22nd, but lowest in family and community at 36th.

“Our ranking in each domain is dependent on our own progress but also that of every other state,” said Whitney Tucker, research director at NC Child, a Raleigh-based children's advocacy organization.

“In all but one indicator within the family and community domain, North Carolina has actually shown improvement from 2010 to 2016. This domain highlights the fact that while our state is moving in the right direction for families, we're not taking big enough steps as quickly as other states to promote the things we want to see.”

NC Child works with the Annie E. Casey Foundation to provide accurate data for the state. NC Child also compiles data cards for each of North Carolina's 100 counties using similar categories.

Based on the research, NC Child found 7.1 children per 1,000 are in foster care in North Carolina, an increase from 6.8 from the previous year. Similarly, 56.3 children per 1,000 have been assessed for abuse or neglect, down from 57.2.

Pointing Toward Improvements

Several counties ranked well above this statewide average, including a number in the state's northeastern region. That's not a surprise, but a call to action, according to Nancy Connor, the Williamston-based supervisor of Martin County Child Protective Services.

Connor said the data represents her county well, even though Martin County has a rate of 14.7 children per 1,000 in foster care, more than double the statewide average.

Connor points to the county assuming custody of two large sibling groups for this statistical spike. Even so, she said, her county could use more resources in terms of employment and mental health services.

"Martin County's primary goal is to ensure the safety of children by assessing and investigating reports of abuse, neglect and dependency," Connor said.

"In that process, we provide families with resources to adequately meet their needs by linking the family with providers within and outside of the county. We provide community outreach to educate and bring awareness to services we provide and preventative measures to ensure the safety of our children."

Still, Connor said, the outreach and services may not be enough if the county lacks the economic resources to help the families of these children.

"Parents need high-paying jobs, affordable housing and child care," Connor said. "Families need accessible mental health providers and available resources within the community for children with special needs."

Tucker agrees that more resources should be available to children. Because of new legislation, only 3,700 North Carolina children will gain access to services provided by Child Care Subsidy, which uses state and federal money to help families with the cost of child care, Tucker said. The waiting list has more than 50,000 children.

Tucker said she would like to see money that was recently taken away from child welfare by legislators be returned so that North Carolina's children can be properly cared for.

"North Carolina has a variety of critical programs to help children and families, but many need to be scaled up so that all children can access them," Tucker said. "The network of public programs generally does a great job for kids, but not for parents, and we know that kids need strong families to thrive."

What Data Doesn't Show

DSS officials in several northeastern counties said they were surprised North Carolina ranked so low in the family and community category, and questioned whether the numbers accurately represent their trends.

Teresa Gilliam, the Jackson-based supervisor of Northampton County DSS' children services, said the data does not fairly or accurately represent her county nor does she believe North Carolina should be ranked so low.

"As a rural county, we are limited in resources," Gilliam said. "However, we are creative in locating resources to assist families. In addition, we provide outreach services throughout the county and raise awareness of abuse, neglect and dependency."

Dora Carter, the Halifax-based director of the Halifax County DSS, said the ranking does not surprise her because of the lack of resources in rural North Carolina counties, but she agrees with Gilliam in that the data does not necessarily accurately reflect reality.

"Just because Halifax County assesses children's cases for neglect and abuse does not mean the cases are substantiated and that neglect and abuse is found," Carter said. "We use foster care as a last resort. We also have some repeat cases that may contribute to data points."

Carter's point that resources are lacking in rural North Carolina is not unique to Halifax County. Most of the lower-ranking counties are rural while counties with mid-size cities tend to rank statistically higher for child welfare.

State intervention in Cherokee County

Not every county with troubling children's well-being numbers was located in the same part of the state, and not every one of them has the same history.

Cherokee County, in the state's far west, has some of the highest incidences of foster care and assessment for abuse and neglect at 26.5 per 1,000 and 118 per 1,000, respectively. Its history may include some of the same resource challenges as other rural counties but also involves poor decisions made by adults in positions of authority.

The N.C. Department of Health and Human Services took control of Cherokee County Department of Social Services in March after a three-month investigation of the system.

Kelly Haight, state Department of Health and Human Services spokesperson, said the investigation revealed Cherokee County DSS had since 2009 been sidestepping the required court mandates to place children in foster care, instead using a policy of custody visitation agreements. DHHS has since advised all counties that this is unacceptable.

"(DHHS) will work with county leadership to develop a plan to return administration of child welfare services to Cherokee DSS upon completion of training, hiring staff in key positions and ensuring effective supervision of child welfare services," Haight said.

"The Cherokee County Board of County Commissioners and the Cherokee County Social Services Board have supported our intervention."

Cherokee County DSS Cindy Palmer was suspended, and the department's actions under her are the subject of a State Bureau of Investigation probe.

Cherokee County DSS did not respond to requests for comment from Carolina Public Press.

MAPS SHOW LIFE EXPECTANCY VARIES BETWEEN NEARBY NC ZIP CODES



A couple miles up Highway 540 in Raleigh could mean a difference of 12 years in life expectancy, according to new maps from the Virginia Commonwealth University Center on Society and Health and the Robert Wood Johnson Foundation (RWJF).

The maps of North Carolina illustrate that health conditions can vary within neighboring counties and zip codes. One of the maps shows that along U.S. Route 64, from Wake County to rural Martin County, life expectancy can differ by as much as seven years.

“The maps we’ve developed for North Carolina demonstrate that short distances to large gaps in health can occur in big cities, small towns and in rural areas,” said Derek Chapman, Ph.D., associate director for research at the VCU Center on Society and Health. “This is rarely due to a single cause, but instead linked to factors such as opportunities for education and jobs, safe and affordable housing, availability of nutritious food and places for physical activity, clean air, and access to health care, child care, and social services.”

A map of Raleigh demonstrates that people born in Southeast Raleigh can expect to live 12 fewer years than those born near the Raleigh-Durham International Airport, a difference of about 18 miles.

Chapman said the maps are intended to be conversation starters for policy makers and community organizations, and improvements in health conditions go beyond access to health care.

“It takes everybody to build a culture of health. Individuals, communities and even businesses play a role in fostering healthy communities,” Chapman said.

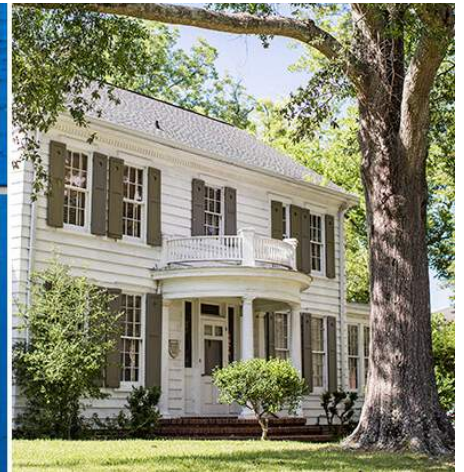
He said his team wants to raise public awareness of the factors that shape health conditions, such as education, housing and transportation.

“Something so simple as sidewalks can reduce the risk of obesity, which is a risk factor for heart diseases,” Chapman said. “Neighborhood safety and accessibility of grocery stores can also play a role before you show up at the hospital with your crisis.”

The maps of North Carolina are a part of 20 maps Chapman’s team is constructing on life expectancy in different regions across the country.

LIKE A LOCAL: WILLIAMSTON

Like the river it's situated next to, Williamston is a steady force in northeastern North Carolina. From a decades-old oyster bar to a barn-turned-bed-and-breakfast, the town boasts surprises at every turn.



Discover local tradition by bivalves

If you can't steam it, you probably can't find it at Sunny Side Oyster Bar. That's fine by co-owner Bill Jones. "All we have are oysters, shrimp, scallops, crab legs, sauce, butter crackers, and cold beer," Jones says. "We do have one vegetable — it's broccoli and we sprinkle cheese on top of it." Despite the restaurant's sparse vegetable offerings — and only being open in months that have the letter "r" in their name — Sunny Side has remained a Williamston institution and vestige of small-town USA since it opened in 1935. It was owned and operated by the same family until 1992, when Jones, alongside Bermey Stevens, Doug Chesson, and Raymond Andrews took over. When the original contract was written up, they paid more for the sauce recipe than they did for the building. It would've been cheaper to demolish the building and start from scratch, but in an effort to preserve Sunny Side's history, the four made repairs to the original structure. "Some of the stoves in there are original. We've got a couple of employees in there that are almost original," Stevens deadpans. Each August, a month before Sunny Side reopens for the season, Jones starts receiving a slew of calls of folks inquiring about the official open date. Oyster shacks are no strangers to the Inner Banks, but there's something about Sunny Side. "Our average customer drives at least 30 miles to come eat with us," Jones says. When Sunny Side isn't shucking, enjoy two other unique local delicacies: banana fritters at Griffin's Quick Lunch and a cheese biscuit from Shaw's Barbecue House.





Meet Williamston's neighbors

While Williamston might be the Martin County seat, the area surrounding the town is worth exploring. A short drive northwest, Hamilton is chock-full of Civil War history and was once the site of a Confederate Army fortification. Fort Branch remains as a place where visitors can view original artifacts, such as cannons, an 1800s steam engine, and pottery made by local Native American tribes. The site is open on Saturdays and Sundays from April to November, and each season culminates with an annual reenactment weekend. Decades ago, up and down eastern North Carolina's riverbanks was the familiar site of makeshift "cook-up shacks," where herring was guaranteed to be on the menu in the early months of the year. Once plentiful in the Roanoke River's waters, the fish's population has drastically decreased for a number of reasons ranging from overfishing to an increase in striped bass. As herring dwindled, so did the number of shacks, but Cypress Grill stands as the last place of its kind where you can try what's known as "cremated herring." The fish has the reputation of being quite oily, so Cypress Grill coats it generously with a cornmeal batter before frying it "within an inch of its life," says Barney Conway, executive director of the Martin County Tourism Development Authority. Customers can also order the herring "sunny side up," which is only lightly fried. During the Prohibition, the nearby town of Bear Grass earned the reputation as the "Moonshine Capital of the World." Today, Deadwood Western Theme Park pays homage to the town's outlaw ways. Home to a saloon and steak restaurant, Deadwood also makes for a fun family destination and boasts a small rollercoaster, train, and miniature golf.



Hit up the trails

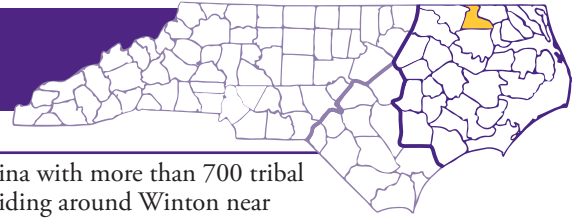
To truly see Martin County, it'll require some meandering. In Williamston, you have your choice to do it by foot, by paddle, or car with its three distinct trails. The first trail is an obvious one: The Skewarkee Trail is northeastern North Carolina's only rail-trail, and the 0.8-mile paved path presents the perfect opportunity for a quick jog. The trail cuts through downtown Williamston and ends at the Roanoke River. Extend your adventure by making a stop at Martin Supply Company, which has operated as a no-frills feed-and-seed since 1941. Not that the Skewarkee Trail is particularly rugged, but Martin's has all the essential provisions — see: camouflage and hoop cheese — should you need them. When you arrive at the river, Heber Coltrain is your go-to guy. He sees the river as a trail, too. Owner of Roanoke Outdoor Adventures, Coltrain provides canoes and kayaks and organizes a variety of paddling, camping, fishing, and hunting excursions in the area. Intrepid explorers can camp at one of 15 platforms located along the Roanoke River and its tributaries. For those who prefer to admire the passing countryside from the comfort of their car, The Quilt Trails of the Tar & Roanoke Rivers make for a picturesque afternoon. Inspired by the barn quilts of the Blue Ridge, this eastern North Carolina trail seeks to weave together the stories and heritage of surrounding communities with each unique and intricate piece that's commissioned.



Get some R&R

“Hitting the hay” takes on a whole new meaning when your bed and breakfast happens to be a beautifully converted barn and the room you’re staying in once housed corn that was fed to the mules. Chloe Tuttle used to ride those mules around town, and now she’s the owner of Big Mill Bed & Breakfast. When you check-in, take a look at the room to your left. Tuttle was born there. Her parents built the property in 1922, and after they passed away, she came back home to turn it into an inn. At first, she had just one room, but people started showing up from all over. “And then all of a sudden, I started needing more rooms,” Tuttle says. Big Mill has five now, each with its own distinct character, but she doesn’t plan to have any more. “I need to have some time with my guests.” Her affable, breezy attitude fits in well with the ethos of the place. Hammocks and twinkle lights are strung about, and she has an extensive on-site garden where she grows much of the produce that appears on your plate at breakfast. During her years as an innkeeper, she thinks she’s figured out the magic of Williamston that seems to capture those who step foot here for the first time. “What amazes me is that people love the heritage, even though it isn’t theirs,” Tuttle says.

HERTFORD COUNTY



ABOUT


Established in 1759 out of Chowan, Bertie, and Northampton counties, Hertford County was named in honor of Francis Seymour-Conway, the Marquess of Hertford, England. Winton serves as the county seat.


Other communities located in Hertford County include Ahoskie, Como, Harrellsville, and Murfreesboro.


Soil and water resources in Hertford County sustained its early inhabitants. The Tuscarora, Chowanoc, and Meherrin tribes lived in the region and the Meherrin tribe is recognized by the state of

North Carolina with more than 700 tribal members residing around Winton near the Meherrin River.

Hertford County's historical and cultural attractions include the John Wheeler House, the Murfreesboro Historic District, and the William Rea Store in Murfreesboro – one of the oldest commercial buildings in North Carolina. Hertford County is also home to Chowan University, established in 1848.

		COUNTY	NC AVG	US AVG
 <p>DEMOGRAPHICS ^{1,2,4}</p> <p>POPULATION: 23,906 NC RANKING: 76th <small>*ranked HIGH to LOW out of 100 counties</small></p>	BLACK	61%	22%	13%
	WHITE	33%	63%	77%
	HISPANIC	4%	10%	17%
	MEDIAN AGE	42	38	38
	RENT ≥ 30% INCOME	44%	44%	47%
	FAMILIES HEADED BY A FEMALE	23%	13%	19%
	PROJECTED 2025 POPULATION	27,447	9.4M	335M

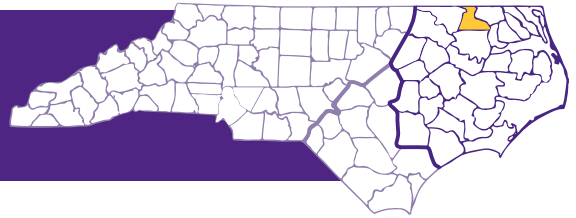
		COUNTY	NC AVG	US AVG
 <p>EDUCATION ^{1,2,3}</p> <p>HIGH SCHOOL GRADUATION RATE: 83% NC: 87% US: 83%</p>	STUDENT EXPENDITURE K-12	\$10,775	\$8,898	\$11,800
	STUDENTS RECEIVING FREE OR REDUCED LUNCH	69%	50%	48%
	THIRD GRADERS READING AT GRADE LEVEL: 41% NC: 58% US: 68%	COMMUNITY COLLEGES & 4-YEAR UNIVERSITIES: Roanoke-Chowan Community College Chowan University		

		COUNTY	NC AVG	US AVG
 <p>HEALTH ^{1,2}</p> <p>PRIMARY CARE PHYSICIANS PER 10,000: 8 NC: 25 US: 28</p>	DENTISTS PER 10,000	3	5	6
	GROCERY STORES PER 10,000	3	15	13
	CANCER INCIDENCE PER 10,000	39	47	45
	HEART DISEASE DEATHS PER 10,000	17	16	16
	UNINSURED ADULTS	15%	15%	9%
	OBESITY	37%	32%	37%

		COUNTY	NC AVG	US AVG
 <p>ECONOMY ^{1,2}</p> <p>MEDIAN HOUSEHOLD INCOME: \$32,201 NC RANKING: 89th <small>*ranked HIGHEST to LOWEST out of 100 counties</small></p>	UNEMPLOYED	6%	5%	4%
	LIVE IN POVERTY	26%	15%	13%
		LARGEST EMPLOYER: Vidant Medical Center		

SOURCES: ¹ NC Health Data Explorer ² NCIOM ³ NC School Report Cards ⁴ NC Office of State Budget and Management ⁵ NC DPI Statistical Profile State Per Pupil Expenditure 2016-17 | "About" information provided by the North Carolina History Project

HERTFORD COUNTY SPEAKERS



Skip Cummings | cummingsd@ecu.edu

Dr. Cummings is a health disparities researcher investigating factors associated with successful prevention and treatment of Type 2 diabetes, hypertension, and stroke in community and rural primary care settings. He is the Director of Research in Family Medicine, the Research Core Co-Director at ECU's Health Disparities Center, and the Director of ECU's practice-based research network in rural eastern N.C. He has led clinical trials of diabetes interventions and has also worked collaboratively with faculty at ECU, UNC-Chapel Hill, Wake Forest University, Cornell Medical Center, and the University of Alabama-Birmingham. His research career has been devoted to understanding the critical factors necessary to optimize the prevention and treatment of, and reduce racial disparities in, diabetes, hypertension, and stroke care, specifically in primary care and community settings. He is experienced in working with community-based staff, training learners and research staff, insuring intervention fidelity, and collecting data in rural practice locations.



Greg Chadwick | chadwickg@ecu.edu

Dr. Chadwick serves as dean at the East Carolina University School of Dental Medicine. Formerly he served as Associate Vice Chancellor for Oral Health at ECU where he led the effort to establish the dental school. Dr. Chadwick, a native of North Carolina, received a B.S. in business administration from the University of North Carolina at Chapel Hill. After graduating from the UNC School of Dentistry he practiced general dentistry in community health centers in Prospect Hill and Moncure, North Carolina before entering a residency in endodontics. He earned a M.S. in endodontics from the UNC School of Dentistry and subsequently practiced endodontics in his hometown of Charlotte for almost thirty years. He is a former president of numerous dental organizations including the American Dental Association and the North Carolina Dental Society.



Ford Grant | fordg@ecu.edu

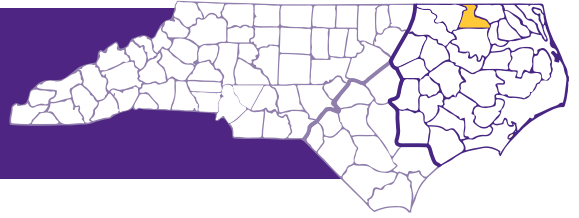
Dr. Grant serves as a Clinical Associate Professor at ECU's School of Dental Medicine and is the Director of the Ahoskie Community Service Learning Center. The Louisville, Kentucky native received dental training from the Louisville School of Dentistry where he served as a part-time faculty member for five years while in private practice. He is a past president and fellow of the American Society for Geriatric Dentistry, a founding member and diplomate of the American Board of Special Care Dentistry, and is a member of the Royal College of Surgeons, Edinburgh in Special Needs Dentistry. In 1997, in conjunction with the Carolinas Medical Center in Charlotte, Grant helped establish Carolinas Mobile Dentistry – a nationally recognized mobile nursing home dental service.



T. Robert Temple | tempelt18@ecu.edu

Dr. Tempel's research interests are founded on the premise that achieving health is a team effort which can be greatly enhanced through community involvement. Rural North Carolina must attract quality health care providers who work collaboratively with each other and community leaders in order to develop sustainable systems for health. His interests are not only in the improved health outcomes that can be achieved through medical and dental team collaboration, but how communities can get involved in supporting recruitment of providers and care for underserved populations. In addition, he would like to study efforts to develop leadership skills in health care learners and recent graduates interested in serving in eastern North Carolina.

HERTFORD COUNTY SPEAKERS CONTINUED



Caroline Doherty | cdoherty@rcchc.org

Ms. Doherty has served as Chief Development and Programs Officer for RCCHC since September 2017. She served as a consultant to RCCHC since 2006 along with several other NC health centers and other safety net providers. Caroline received her MSW and MPH from the University of NC at Chapel Hill and served as the director of the NC Farmworker Health Program (statewide BPHC Voucher Program) at the NC Office of Rural Health for 10 years. Caroline is responsible for RCCHC's efforts in population health, farmworker health, school-based health, communications, and our role in the community network for the uninsured.



Kim Schwartz | kschwartz@rcchc.org

Ms. Schwartz currently serves as the Chief Executive Officer of Roanoke Chowan Community Health Center (RCCHC), a Federally Qualified Community Health Center in Eastern North Carolina. In this role, she champions the unique challenges of the health care needs of rural communities in underserved areas and has generated key collaborations and innovations to advance RCCHC's mission of enhancing the lives of Eastern North Carolinians. Kim leads RCCHC's team as a member of the Institute of Health Improvement (IHI) Leadership Alliance, represents US Congressional District 1 on the North Carolina Medical Care Advisory Committee, and serves on the Board of the North Carolina Institute of Medicine and immediate past Chair of the North Carolina Community Health Center Association.

ROANOKE CHOWAN COMMUNITY HEALTH CENTER



The Ahoskie Comprehensive Care Roanoke Chowan Community Health Center (RCCHC) provides total wellness care to the people of the Roanoke-Chowan area with the goal of reducing health disparities in the region. The center opened in August 2011 thanks to a \$6.2 million federal grant provided by the Affordable Care Act for shovel-ready health care projects.

The Ahoskie facility includes a two-story, 40,000-square foot health center that holds 48 exam rooms, laboratories, an in-house pharmacy, and corporate offices for the RCCHC. The facility has the capability to serve up to 10,000 patients in the region, providing medical resources to an area with limited health care options.

The Ahoskie Comprehensive Care Center offers pediatric care, pharmacy services, and behavioral health care services. A primary focus of the Ahoskie facility is childhood obesity. Through its Fit For Kids program, the center helps school-aged children develop or maintain a fitness regimen, while also providing nutrition tips to help build a healthier community. Hertford County, home to Ahoskie, is classified as a food desert, having just three grocery stores per 10,000 people – below the state average of 15 per 10,000.

The RCCHC is classified as a Federally Qualified Health Center (FQHC) – one of 1,124 centers that serve urban and rural under-served areas throughout the country. A FQHC is a reimbursement designation from the Bureau of Primary Health Care and the Centers for Medicare and Medicaid Services of the U.S. Department of Health and Human Services. FQHCs are community-based organizations that provide comprehensive primary care and preventive care to persons of all ages, regardless of their ability to pay or health insurance status. FQHCs are also called Community Health Centers (CHC) and are designated as health professional shortage facilities. North Carolina is home to 30 FQHCs representing 150 clinical sites. The RCCHC offers primary health care services regardless of ability to pay, and offers a sliding fee discount program for families based on annual household income.

In addition to its Ahoskie site, the RCCHC provides primary health care services in Murfreesboro, Creswell, and Colerain. The center offers additional behavioral and health promotion services at its Hertford County Student Wellness center on the campus of Hertford County Middle School in Murfreesboro.

Adjacent to the Ahoskie campus is ECU's School of Dental Medicine Community Service Learning Center. The 8,000 square foot facility includes 16 dental chairs and is staffed by full-time ECU faculty dentists, residents, and students. The Ahoskie Community Service Learning Center was the first of the university's eight CSLCs to open in the state.

SOURCES: ¹"Healthcare partners join forces"

<https://www.roanoke-chowannewsdial.com/2011/08/17/healthcare-partners-join-forces/>

²"Roanoke Chowan Community Health Center" <http://science.unctv.org/content/roanoke-chowan-community-health-center>

³"RCCHC Primary Website" <https://www.rcchc.org/>

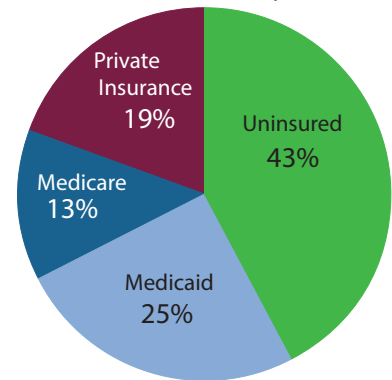
WHAT ARE COMMUNITY HEALTH CENTERS?

Not-for-profit health care practices that provide comprehensive, patient-centered primary care

42 North Carolina Community Health Centers:

- 520,000 patients served in 2016
- \$675 annual average patient costs
- Fees adjusted based on patients' ability to pay
- Serve medically underserved populations
- Demonstrate sound clinical and financial management
- Governed by a patient-majority board
- Serve all 100 North Carolina counties

Insurance Coverage of North Carolina Community Health Center Patients, 2016



\$1,233
Median Cost per
Emergency Room
Visit

\$151
Cost per Community
Health Center (CHC)
Medical Visit

CHCs Take Care of the Whole Person

- Primary medical care
- Dental care
- Behavioral/ mental health care and substance abuse counseling
- Pharmacy or medication assistance programs
- Health insurance outreach and enrollment
- Enabling services: case management, health education, interpretation, WIC programs, transportation

North Carolina CHC Visits by Type of Service¹:


Medical
1,329,324


Dental
224,220


Behavioral &
substance abuse
95,968

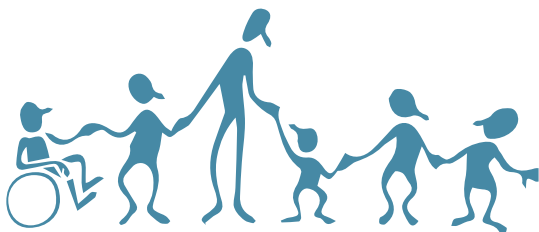

Enabling
160,886

1. BPHC, HRSA, 2016 Uniform Data System (UDS)

MEDICAID & CHCS WORK TOGETHER

More Insured People Will Grow Our Economy

- Insurance coverage is needed when CHC preventive and primary care is not enough for patients that need specialty and hospital care.
- 390,000 more North Carolinians would have insurance coverage if the state expanded Medicaid.
- People without health insurance are sicker and poorer, making it more difficult for them to contribute to the economy.¹
- The healthcare system is a driving force in North Carolina's economy. Making health coverage available to the uninsured could add 43,000 jobs over four years.¹
- States that reduced their uninsured populations saw uncompensated care at hospitals decrease by 21% compared to states that did not act.²



390,000 more North Carolinians would have insurance coverage



43,000 jobs could be added to NC

Medicaid Helps NC Fulfill the CHC Mission

Every North Carolina community should have access to a patient-centered, patient-governed, culturally competent health care home. Many CHCs go further to meet community needs by integrating high quality medical, pharmacy, dental, vision, behavioral health, and enabling services, serving patients without regard to a person's ability to pay. Medicaid helps fulfill that vision.

- Medicaid covers 19% of NC CHC patients
- NC CHCs serve 6.2% of NC Medicaid patients and account for only 0.5% of the state's Medicaid expenditures¹

A Strong Medicaid Program:

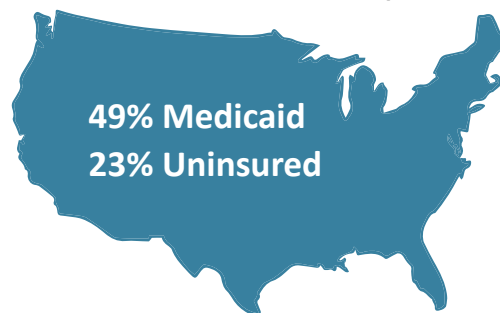
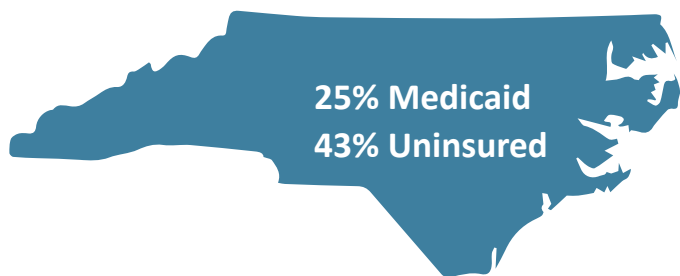
- Maintains services for beneficiaries
- Helps CHCs plan for future years / budgets / growth / increase in services
- Helps patients with specialty & wraparound services that improve health & reduce expensive emergency department visits
- Means that CHCs are able to competitively recruit, hire, and retain staff

1. Ku, L., Bruen, B., Steinmetz, E., Byshe, T. (December 2014). The Economic and Employment Costs of Not Expanding Medicaid in North Carolina: A County-Level Analysis. The George Washington University Center for Health Policy Research. Retrieved from: <http://www.conehealthfoundation.com/app/files/public/4202/The-Economic-and-Employment-Costs-of-Not-Expanding-Medicaid-in-North-Carolina.pdf>

2. Office of the Assistant Secretary for Planning and Evaluation. "Economic Impact of the Medicaid Expansion." (March 2015). Available online at: https://aspe.hhs.gov/sites/default/files/pdf/139231/ib_MedicaidExpansion.pdf.

NC HAS LESS COVERAGE THAN THE USA

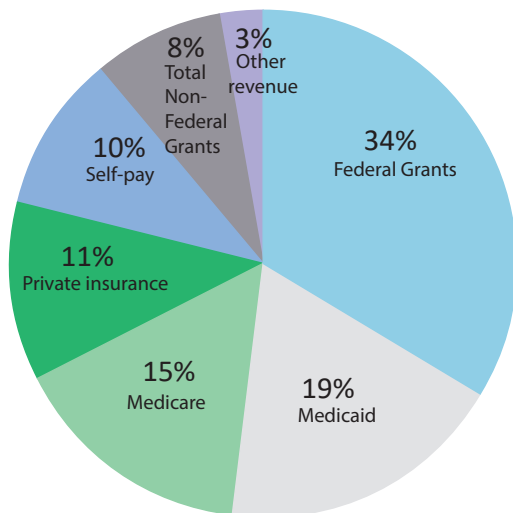
North Carolina has to cover more uninsured patients



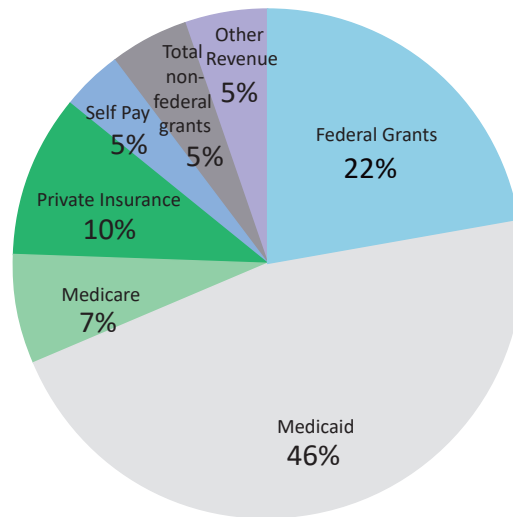
North Carolina Community Health Centers have twice as many uninsured (“self-pay”) patients and less than half as many patients covered by Medicaid than CHCs nationally. With such a high percentage of federal grant funding dedicated to sliding scale patient fees, North Carolina CHCs are more limited in:

- Expanding sites
- Adding services
- Developing new programs that could help improve health outcomes

North Carolina Community Health Center
Revenue Sources, 2016



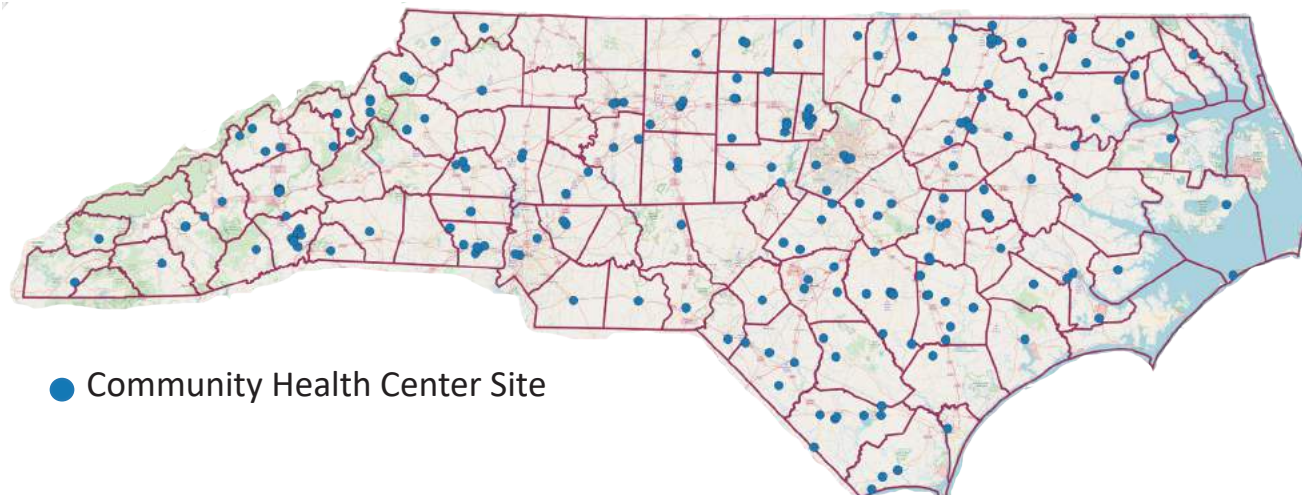
National Community Health Center
Revenue Sources, 2016



Federal grants are almost half of NC CHC revenues. To be less dependent on federal grant funding, North Carolina would have to cover more people.

Pie charts for NC CHC and National CHC Revenue Sources are drawn from BPHC, HRSA, 2016 Uniform Data System (UDS)

STRENGTHENING NORTH CAROLINA'S ECONOMY



Federal Grant Dollars to NC

Direct economic impact:

\$127,843,883

Indirect economic impact:

\$111,774,361¹

Total Jobs (full-time equivalents)

= 3,765 including¹

- 1,312 Medical FTEs
- 272 Dental FTEs
- 190 Pharmacy FTEs
- 102 Mental Health/ Substance Abuse FTEs

National Health Service Corps Brings People to NC

The National Health Service Corps is a loan forgiveness program that encourages recent medical school graduates to work in rural health locations.

- North Carolina had 237 NHSC placements in 2016, 103 of which are at CHCs

“We couldn’t continue to fully staff our CHC without the National Health Service Corps Program,” says Chuck Shelton, CEO of Mountain Community Health Partnership. “They have been and continue to be a key factor in our ability to attract providers to our rural location.”

1. BPHC, HRSA, 2016 Uniform Data System (UDS)

340B DRUG DISCOUNT PROGRAM

340B Program Gives Access to Needed Medicine

The 340B Drug Discount Pricing Program is a federal program that enables qualified safety net organizations, including Community Health Centers, to purchase discounted outpatient drugs directly from pharmaceutical companies. Drug manufacturers participating in the Medicare and Medicaid programs are required to participate.

Health Centers utilize the 340B Program to:

- Provide access to low-cost medications for uninsured patients
- Reinvest savings to:
 - Provide medication management services
 - Offer patient navigation services that connect patients to other community services
 - Connect clinical pharmacists and primary care providers to manage chronic conditions as a care team
 - Support staff time to work on quality improvement initiatives
 - Conduct local community health education
 - Expand pharmacy services through innovative initiatives, such as a medication delivery service pilot

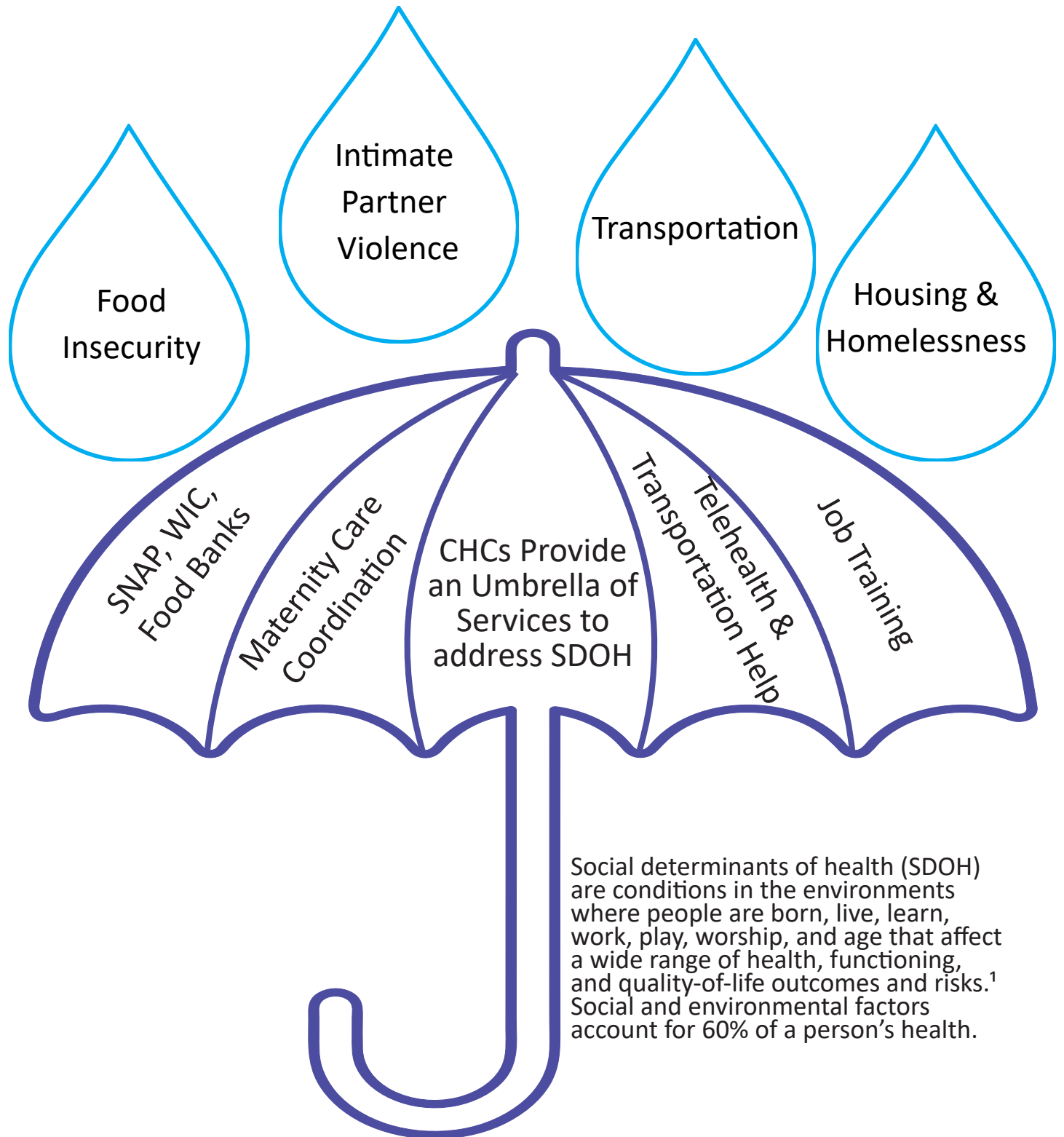


Health centers exemplify the type of safety net program that the 340B program was intended to support. By law, all health centers:

- serve only those areas and populations that HHS as designated as high need
- ensure that all patients can access the full range of services they provide, regardless of insurance status, income, or ability to pay
- are required to reinvest all 340B savings into activities that are federally-approved as advancing their charitable mission of ensuring access to care for the underserved

SOCIAL DETERMINANTS OF HEALTH

CHCs Help Address Social Determinants of Health



1. <https://www.healthypeople.gov/2020/topics-objectives/topic/social-determinants-of-health>

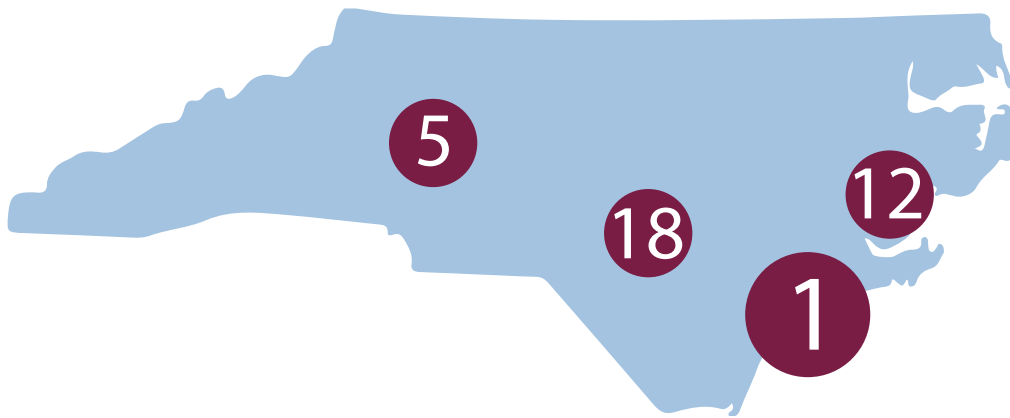
BEHAVIORAL HEALTH

CHCs are Important Players in Behavioral Health

Behavioral Health Services by the Numbers:

- 29: NC CHCs offering behavioral health diagnosis and treatment
- 96,000: Behavioral Health & Substance Abuse visits, an increase from 2015
- 102: FTE Behavioral Health Professionals in 2016 (psychiatrists, clinical psychologists, licensed clinical social workers, addiction specialists, others)

Wilmington, NC has the highest rate of opioid addiction (11.6%) in the country, and three other NC cities are in the top 25: Hickory (9.9%), Jacksonville (8.2%) and Fayetteville (7.9%).¹



North Carolina CHCs and their patients are best served when there is a strong mental health and substance abuse treatment system. Community Health Centers work closely with other providers, including mental health services, hospitals, academic medical centers, community providers, and private practitioners to ensure the needs of patients are being met.

FQHCs Delivering Medication Assisted Treatment

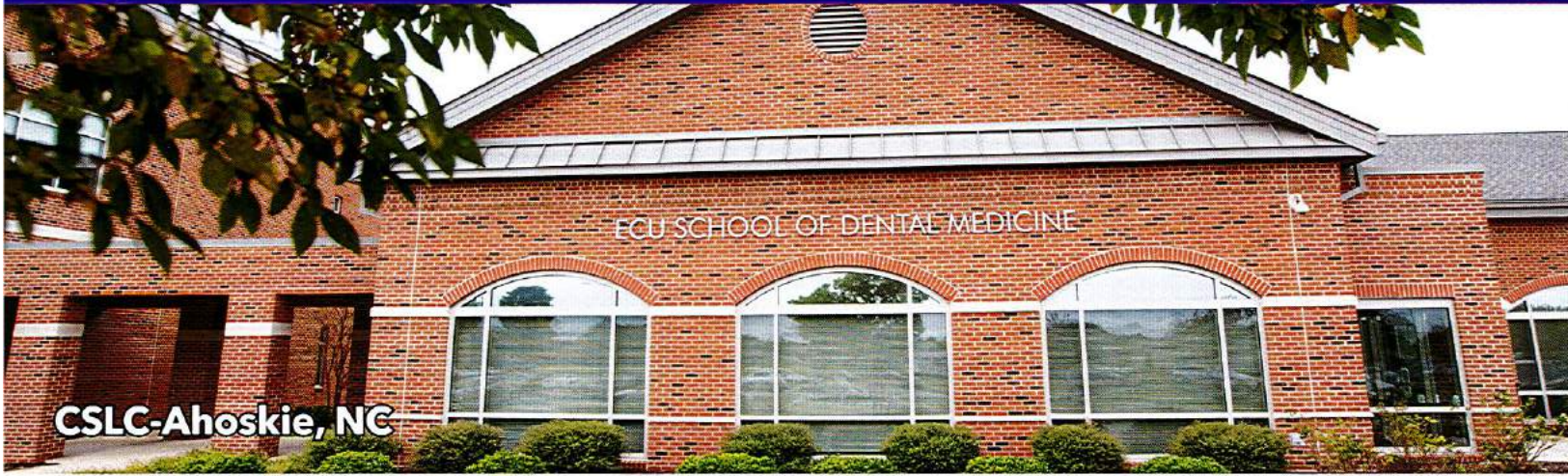
- Appalachian Mountain Community Health Centers
- Blue Ridge Health
- Gaston Family Health Services
- High Country Community Health*
- Lincoln Community Health Center*
- Metropolitan Community Health Services, Inc.*
- Mountain Community Health Partnership
- Piedmont Health Services
- Stedman-Wade Health Services, Inc.
- And more are planning to do this in the future

*These health centers are participating in a Medication-Assisted Opioid Use Disorder Treatment Pilot Program created by the NC General Assembly through House Bill 1030.

1. Knopf, T. (27 July 2017). Four North Carolina Cities Make Top 25 List for Opioid Abuse. *North Carolina Health News*. <http://www.northcarolina-healthnews.org/2017/07/27/four-north-carolina-cities-make-top-25-list-opioid-abuse/>

NC COMMUNITY HEALTH CENTERS 2018

Alamance | Piedmont Health Services
Alleghany | AppHealthCare
Anson | Anson Regional Medical Services
Ashe | AppHealthCare
Avery | High Country Community Health
Beaufort | Metropolitan Community Health Services
Bertie | Bertie County Rural Health Association |
Roanoke Chowan Community Health Center
Bladen | CommWell Health
Brunswick | CommWell Health | Goshen Medical Center
Buncombe | Western NC Community Health Services |
Blue Ridge Health
Burke | High Country Community Health
Cabarrus | Cabarrus Rowan Community Health Center
Caldwell | West Caldwell Health Council
Caswell | Caswell Family Medical Center | Piedmont
Health Services
Catawba | Gaston Family Health Services
Chatham | Piedmont Health Services
Cherokee | Appalachian Mountain Community Health
Centers
Chowan | Gateway Community Health Centers
Columbus | Goshen Medical Center | Robeson Health
Care Corporation
Craven | Goshen Medical Center | Craven County
Community Health Center
Cumberland | Stedman-Wade Health Services |
South Central Community Health Center
Davidson | Gaston Family Health Services
Duplin | Goshen Medical Center
Durham | Lincoln Community Health Center
Edgecombe | Carolina Family Health Centers | OIC
Family Medical Center | Rural Health Group
Forsyth | United Health Centers
Franklin | Advance Community Health
Gaston | Gaston Family Health Services
Gates | Gateway CHC
Graham | Appalachian Mountain Community Health
Centers
Greene | Greene County Health Care
Guilford | Triad Adult and Pediatric Medicine
Halifax | Rural Health Group
Harnett | First Choice Community Health Center
Haywood | Appalachian Mountain Community Health
Centers | Blue Ridge Community Health Services
Henderson | Blue Ridge Health
Hertford | Roanoke Chowan Community Health Center
Hoke | South Central Community Health Center
Hyde Mountain Community Health Partnership
Iredell | Gaston Family Health Services
Jackson | Appalachian Mountain Community Health
Centers | Blue Ridge Health
Johnston | CommWell Health
Jones | Goshen Medical Center
Lenoir | Kinston Community Health Center
Lincoln | Gaston Family Health Services
Macon | Appalachian Mountain Health Center
Madison | Hot Springs Health Program
Martin | Metropolitan Community Health Services
McDowell | Appalachian Mountain Community Health
Centers
Mecklenburg | C.W. Williams Community Health Center |
Charlotte Community Health
Mitchell | Mountain Community Health Partnership
Montgomery | Robeson Health Care Corporation
Nash | Carolina Family Health Centers
New Hanover | MedNorth Health Center
Northampton | Rural Health Group
Onslow | Goshen Medical Center
Orange | Piedmont Health Services
Pamlico | Greene County Health Care
Pasquotank | Gateway Community Health Centers
Pender | CommWell Health | Black River Health Services
Person | Person Family Medical Center
Polk | Blue Ridge Health
Pitt | Greene County Health Care
Randolph | Randolph Family Health Care at MERCE
Richmond | Anson Regional Medical Services
Robeson | Robeson Health Care Corporation
Rockingham | Triad Adult and Pediatric Medicine
Rowan | Cabarrus Rowan Community Health Centers
Rutherford | Blue Ridge Community Health Services
Sampson | CommWell Health | Goshen Medical Center
Scotland | Robeson Health Care Corporation
Transylvania | Blue Ridge Health
Union | Anson Regional Medical Services
Vance | Rural Health Group
Wake | Advance Community Health
Warren | Rural Health Group
Washington | Roanoke Chowan | Metropolitan
Community Health Center
Watauga | High Country Community Health
Wayne | Goshen Medical Center
Wilkes | Wilkes Community Health Center
Wilson | Carolina Family Health Centers
Yancey | Mountain Community Health Partnership



Welcome

Welcome to the ECU School of Dental Medicine Community Service Learning Center-Ahoskie. The center exemplifies the dental school's vision to improve the health and quality of life of all North Carolinians by creating leaders with a passion to care for the underserved and by leading the nation in community-based, service learning oral health education.

Our faculty, student, and resident providers are committed to offering comprehensive general dental services for adults, children, and special care patients in a safe, caring, and professional setting. We are proud to serve the medical and dental care needs of the entire region as an operational partner with the Roanoke Chowan Community Health Center. We welcome patients Monday through Friday 8:00 a.m. until 5:00 p.m. Emergency services are provided Monday through Friday on a walk-in basis. After hours emergency services are provided for patients of record as requested.

Presenting:

Dr. Ford Grant, DMD, Faculty Director
Dr. Michael Tumbarello, DMD, Assistant Faculty Director
Toni Bennett, Business Manager

Services include:

Comprehensive General Dentistry
Children's Dentistry
Oral Surgery - Extractions
Root Canals
Sealants and Tooth Colored Fillings
Crowns and Bridges
Implant Services
Dentures and Partial Dentures
Periodontal Services and Cleanings
Cosmetic Tooth Whitening
Digital Radiography
3-D/Cone Beam Imaging

Ahoskie /ə'ɦɒski/ is a town in Hertford County, North Carolina. The population was 5,039 at the 2010 census. Ahoskie is located in North Carolina's Inner Banks region. Its nickname is "The Only One" because no other town in the world is known by the same name. The origin of the word Ahoskie, which was originally spelled "Ahotsky," came from the Wyanoke Indians who entered the Hertford County area at the beginning of European settlement.
-Wikipedia

ECU School of Dental Medicine

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Greenville, NC 27834-4354
252-737-7834
www.ecu.edu/dental

D. Gregory Chadwick, DDS, MS
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Associate Dean for Extramural
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Department of Surgical Sciences
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Department of Pediatric
Dentistry, Orthodontics and
Dentofacial Orthopedics
252-737-7033

Department of Foundational
Sciences
252-737-7156



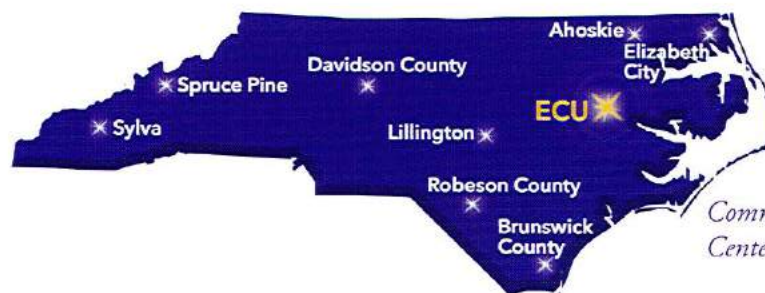
The CSLC-Ahoskie:

- Opened in July 2012 as ECU's first Community Service Learning Center.
- Provides an annual economic impact of well over \$1 million to the community.
- Since opening, has provided over \$7.5 million in dental services.
- Is the dental provider for the Roanoke Chowan Community Health Center (RCCHC), a Federally Qualified Health Center (FQHC), located next door. The CSLC also maintains a close relationship with Vidant Roanoke Chowan Hospital in Ahoskie.
- Is planning research on diabetes/hypertension prevalence and referral for intervention, periodontal disease/systemic health connections, and opioid prescribing patterns.
- Maintains an advisory board of local leaders who provide community networking and resources.
- Participates each February in the American Dental Association's Give Kids a Smile day, providing cleanings, fluoride treatments, sealants and dental education for local school children free of charge.

Students, Residents and Staff

On any given week day, four students and two residents provide patient care under the supervision of faculty dentists at the CSLC. Students complete nine-week rotations while residents remain at the center for a year. Students and residents live in the Ahoskie community while practicing there. A majority of the center's staff were either born in the area or are long-time residents.

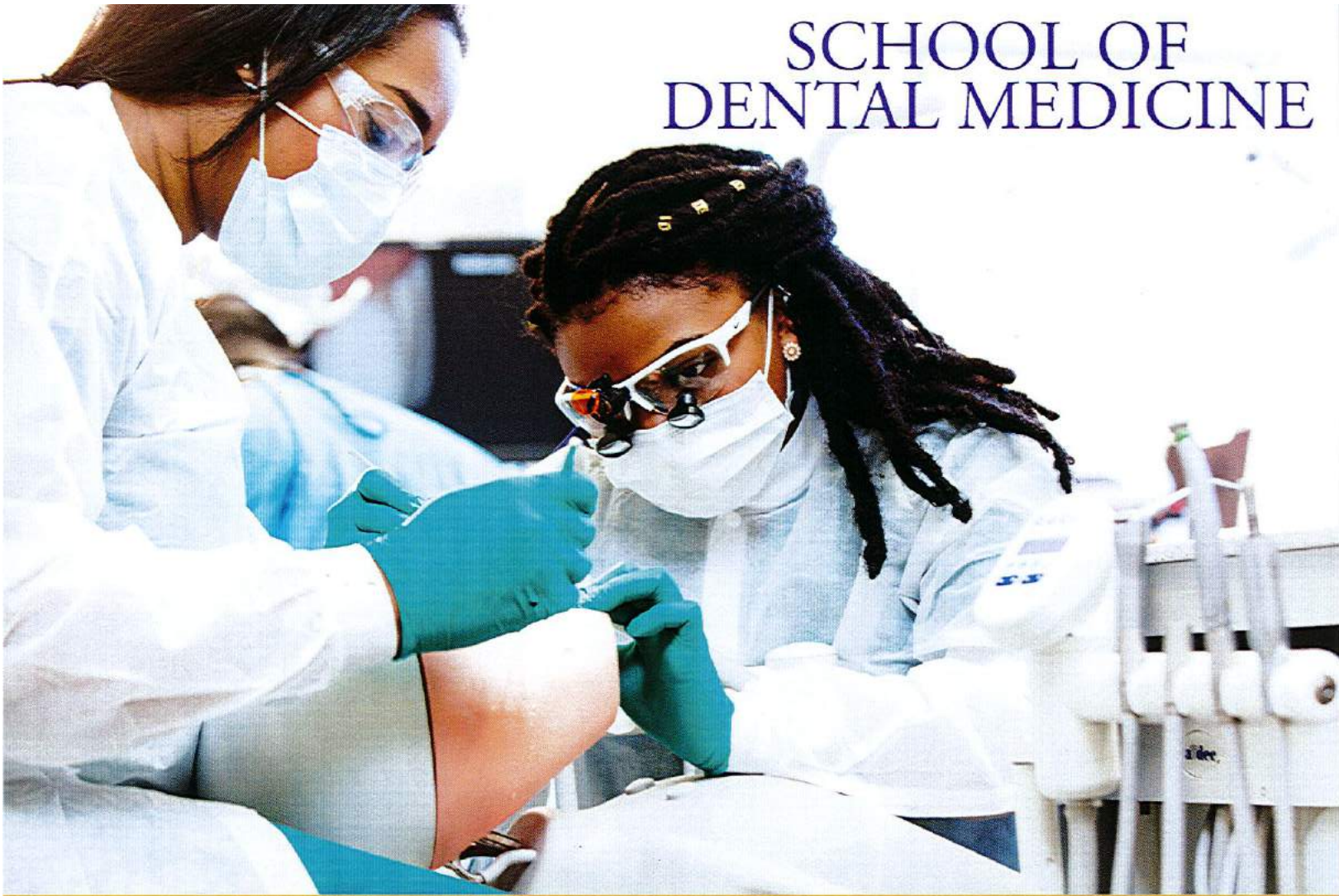
Dr. Ford Grant, faculty director, will co-present at the Special Care Dental Association National Meeting in spring 2019 on integration or "mainstreaming" dental care of patients with special needs into the resident and student clinic experience.



*Community Service Learning
Centers across North Carolina*

Making a Difference
in North Carolina

SCHOOL OF DENTAL MEDICINE



A UNIQUE MODEL OF EDUCATION AND SERVICE

ECU's School of Dental Medicine uses a nationally unique model of education and patient care. Students receive classroom instruction and hands-on training in Ledyard E. Ross Hall on ECU's Health Sciences Campus, using state-of-the-art technology and equipment and the most modern methods of treatment and care. During their fourth year, students complete three nine-week rotations at the school's statewide community service learning centers (CSLCs), giving them a well-rounded and diverse experience serving patient populations in different parts of North Carolina. The CSLCs are considered the "fifth floor" of Ross Hall, the on-campus home of the School of Dental Medicine, because of the hands-on learning experience they provide students.

The School of Dental Medicine's first of eight CSLCs opened in 2012 in Ahoskie. The centers were created to provide dental care to rural and underserved communities identified by school leaders and other local, state and university stakeholders. These communities and surrounding areas faced a shortage of dentists, and their residents demonstrated a variety of challenges—including financial and geographical—in accessing oral health care.

Through these CSLCs, the school has literally broken ground on setting a new standard—and pioneering model—for dental education, service, research and outreach. They are creating smiles across North Carolina and shaping tomorrow's dentists with minds geared toward service.



Locations of the community service learning centers





LEADING THE WAY

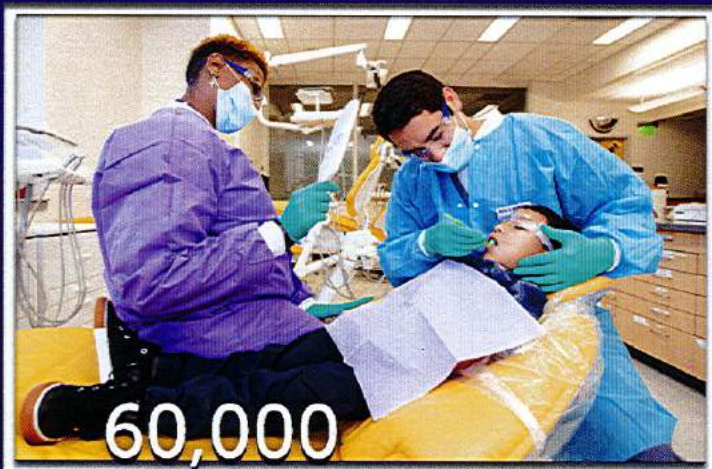
In 2015, the School of Dental Medicine graduated its inaugural class, leading the school's mission to improve the oral health care of the people of North Carolina while educating the next generation of dentists. Since then, the school has surpassed goals and celebrated milestones, from placing new dentists in high-need areas of the state to earning national accolades for its model of education and service. More notable achievements include the following:



More than
200 alumni



of alumni are already practicing
in North Carolina.

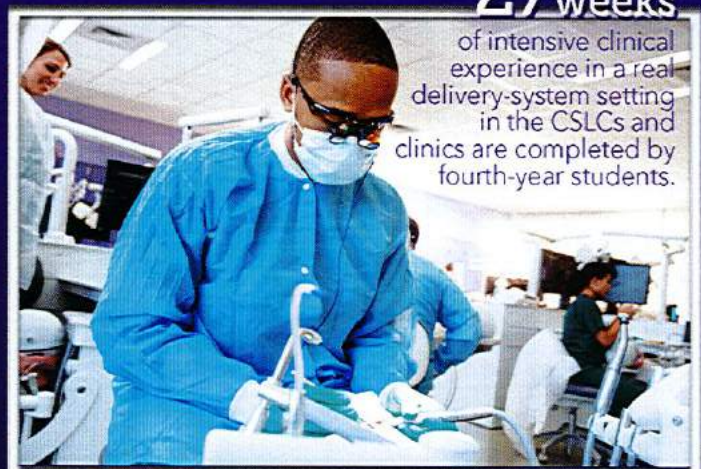


60,000
patients

from all 100 North Carolina counties have been treated at campus clinics and statewide community service learning centers.

330+
patients

have been served through the school's Patient Care Fund, which fully or partially covers the cost of dental procedures for patients who meet certain financial criteria. The fund is sustained by charitable gifts from donors across the state.



27 weeks

of intensive clinical experience in a real delivery-system setting in the CSLCs and clinics are completed by fourth-year students.



2019 winner of the American Dental Education Association's Gies Award for the school's innovative model of placing the CSLCs strategically across the state to educate future dentists while addressing North Carolina's oral health care disparities.

'SUN CENTRAL'



Construction material, along with a large fleet of equipment, is currently being staged along Joe Holloman Road, off NC 11 near Millennium, where the one of the state's largest solar facilities will be built. Photo by Cal Bryant.

MILLENNIUM – Hertford County is experiencing a huge jump in population....that is if you count solar panels as permanent residents.

The number of panels is expected to increase by nearly 400,000 very soon with the recent announcement by Fifth Third Bancorp, saying it has become the first Fortune 500 Company and first bank to sign a power purchase agreement to achieve 100 percent renewable power through a single project. This power purchase agreement will lead to the construction of an 80-Megawatt (MW) solar project in Hertford County.

To commemorate, Fifth Third is hosting a groundbreaking ceremony at 3 p.m. on Monday, March 26 at its future site, the Aulander Holloman solar facility, located at 208 Joe Holloman Road, Aulander, off NC 11 in the vicinity of Oak Grove Baptist Church. The public is invited to attend.

This project will be the largest in Hertford County, covering nearly 1,200 acres and may utilize approximately 390,000 panels. Rated at 80 MW, the local project ties it with three other solar farms as the largest in the state. The others are located near Conetoe, Morven, and Hope Mills.

The addition of Joe Holloman Road project brings the number of solar facilities in Hertford County to 13. Prior to Fifth Third Bancorp's recent announcement, the largest solar farm in Hertford County (a 27 MW facility covering nearly 260 acres) is located off Wisestore Road near Murfreesboro.

According to the Hertford County Planning & Zoning Department, of the 12 solar facilities currently in operation, three are located in the same area of the new project: 1216 B NC Hwy 11 South; 116 Hollowell Road; and 146 B West Brickmill Road. Each of those is rated at 5 MW and they combine to cover nearly 127 acres.

The Aulander Holloman solar project will be a ground-mounted solar photovoltaic facility. It will be designed, built and owned by SunEnergy1, based in Mooresville, NC. They will build a collector-station at this facility to interconnect it to the electrical grid. The facility will have a six-foot security fence that will encompass the property and 40-foot security gates for access to the site.

SunEnergy1 is also the service contractor for two other solar sites currently in operation in Hertford County: 951 River Road, Winton; and 146 B West Brickmill Road, Aulander.

In a press release from Fifth Third Bancorp, this new project in Hertford County will bring 1,000 jobs during the construction phase. Upon completion later this year, the facility will generate roughly 194,000 MWh per year of electricity and help avoid 144,000 metric tons of greenhouse gas emissions annually. This is equivalent to the annual emissions from more than 21,600 homes or 30,800 passenger vehicles.

"Fifth Third Bank is proud to break ground on the Aulander Holloman solar facility and celebrate our commitment to being an environmental sustainability leader," Tom Heiks, president of Fifth Third Bank in North Carolina, stated in a press release. "This innovative project will reduce Fifth Third's carbon footprint and benefit the communities we serve."



The new facility will use up to 400,000 solar panels, much like the ones now in place as shown here near Aulander Medical Practice on Hollowell Road.

Kenny Habul, SunEnergy1 CEO, said his company pioneered the concept of corporate and institutional power purchase agreements for solar power.

“This is the first time that we have seen a corporation move to 100 percent clean power by purchasing all of the output from one project,” Habul stated in the press release. “When complete later this year, the Hertford County Aulander Holloman facility will be one of the largest solar projects in the US; it will provide an important economic investment in North Carolina; and it will lead to a meaningful and measurable difference in carbon

emissions. The Earth is our vehicle through time so we congratulate Fifth Third for showing that companies can cut their emissions and improve the health of our environment today through solar power. We urge corporate America to stand up and join the 100 percent club.”

In celebration of their commitment to renewable power, Fifth Third Bank is providing grants to Hertford County Public Schools and Raleigh-based NC GreenPower to promote their sustainability initiatives and solar projects targeted to K-12 schools. Jewanna Gaither, a spokesperson for Fifth Third Bank, told the Roanoke-Chowan News-Herald that those \$1,500 grants (one to each entity) will be awarded within the next 30 days.

Additionally, Gaither said SunEnergy1 has formed a partnership with Roanoke-Chowan Community College to offer internships and jobs to electrical students and provide them an opportunity to be involved in the construction of the solar site.

Scott Hassell, Fifth Third’s vice president and director of environmental sustainability, said, “Fifth Third has worked for years to become more sustainable by using energy more efficiently and by lending to the solar energy industry. Today we take great pride in becoming the first Fortune 500 company and first bank to sign a long-term agreement to buy as much solar power as we use in a year. And we are thrilled to be on track to achieve our 100 percent goal in 2018, four years ahead of schedule.”

To emphasize Fifth Third’s commitment to renewable energy, the bank joined both RE100, a corporate leadership initiative led by The Climate Group in partnership with the Carbon Disclosure Project, and the Business Renewables Center.

“We applaud Fifth Third for joining RE100 and for becoming the first member company to contract for 100 percent solar power,” said Amy Davidsen, North America executive director, The Climate Group, which leads the RE100 initiative. “By achieving its 100 percent renewable energy goal four years early, Fifth Third is demonstrating that there is a strong business case for solar, that corporate leadership on renewables is accelerating, and that faster greenhouse gas emissions cuts are possible. This will inspire more companies to follow suit.”

Fifth Third Bancorp is a diversified financial services company headquartered in Cincinnati, Ohio. As of Dec. 31, 2017, the Company had \$142 billion in assets and operated 1,154 full-service Banking Centers and 2,469 ATMs with Fifth Third branding in Ohio, Kentucky, Indiana, Michigan, Illinois, Florida, Tennessee, West Virginia, Georgia and North Carolina.

According to the Solar Energy Industries Association, the U.S. solar market expanded in 2017, adding double-digit gigawatt solar photovoltaic (PV) additions for the second year in a row. The solar industry installed 10.6 gigawatts (GW) of new PV capacity in 2017, led by strong growth in the corporate and community solar segments.

California and North Carolina remain the two largest solar states after adding the most and second-most capacity in 2017, respectively.

While overall growth was down from the 15 GW installed in the record-shattering 2016, last year’s capacity addition still represents 40 percent growth over 2015’s installation total. Between 2011 and 2015, PV capacity grew steadily from 1.9 GW to 7.5 GW.

NC CHAMBER FOUNDATION NAMES HERTFORD COUNTY AS NC WORKS CERTIFIED WORK READY COMMUNITY



Members of the Hertford County Business and Industry Council are shown here receiving the county's designation as a NC Works Certified Work Ready Community as presented by Meaghan Lewis (third from right), Government Affairs Manager for the NC Chamber of Commerce. The presentation was held Sept. 29 at Roanoke-Chowan Community College. Photo by Cal Bryant.

AHOSKIE – The North Carolina Chamber Foundation, the policy center for the state's largest, broad-based business advocacy organization, announces that it has approved Hertford County as an NC Works Certified Work Ready Community.

The formal presentation came Sept. 29 during a ceremony held at Roanoke-Chowan Community College.

To be certified as an NC Works Certified Work Ready Community, a county must meet each of the following criteria:

- » A letter of commitment to workforce excellence from county leaders;
- » Progress in the high school graduation rate toward the goal of 94 percent;
- » Achieve the number of National Career Readiness; Certificates indicated in the Common Criteria; and
- » Gain commitment from employers to recognize the NCRC.

The National Career Readiness Certificate demonstrates the foundational skills of job seekers in a community and serves as the basis for the Common Criteria.

This initiative provides a framework to empower counties with the data, processes and tools that drive economic growth. The framework aligns education, workforce development and industry while matching individuals' skills to job requirements.

Meaghan Lewis, Government Affairs Manager for the NC Chamber of Commerce, was at RCCC on Sept. 29 to present Hertford County with its official designation as a Certified Work Ready Community.

"All the work for this certification is done at the local level," Lewis remarked. "Today's presentation means Hertford County is prepared to meet the needs of its workforce.

"At our Chamber, I hear all too often that there is a skills gap in our state due to rapidly involving economy. Every employer asks the same question: how do find, secure and retain and train our new generation of talent," she added.

Lewis said in 2005, the North Carolina Community College System, in partnership with the state's Department of Commerce, began a pilot program to assist individuals in obtaining a national career readiness certificate.

"That laid the groundwork for the NC East Alliance to pilot a process that certified counties as Work Ready Communities beginning in 2011," Lewis noted. "To date, we have 13 counties designated as Work Ready Communities and I'm proud to be here today to formally announce Hertford County as number fourteen."

In short, being a Work Ready Community means a county's workforce stands ready to fill jobs that are in demand.

“It also helps counties drive economic growth,” Lewis stressed. “It signals to the businesses already here and possibly to come that workers have the foundational skills to make those businesses successful.” In Hertford County, 719 individuals have gained certification through the program. Lewis said that number far exceeded a goal of 300 individuals.

“And, 29 employers have signed on to support this initiative and that number is growing,” Lewis noted. Hertford County Economic Development Director Bill Early said he could use this newly gained certification as a recruiting tool.

“This is a big, big deal, one that makes my job much easier,” Early said. “Business and industry know that Hertford County has a certified work force they can tap into.” Dr. William Wright, Superintendent of Hertford County Public Schools, said this certification means that the county is “all in” when it comes to continuing education well beyond high school and college.

“I believe it’s our responsibility to encourage folks to learn, whether they’re in the second grade, a student here at the community college, or an adult in the workforce or looking for employment,” Wright maintained. “We need to keep the fire lit when it comes to high expectations, education, integrity, dignity, and respect for yourself and others. If we do that, the fire will never be extinguished.” Myra Poole, Senior Dean of Instruction and Student Success at RCCC, said the school was in the business of making sure there is a trained workforce for local employers.

“It’s very important to us to continue to meet the needs of businesses and industry here in Hertford County and all the counties we serve,” Poole said. “It’s important that we connect high school, to the community college, to our four-year institutions as we create those who will be the leading forces in our community as well as future business owners.” Amy Braswell, Executive Vice President of the Ahoskie Chamber of Commerce, said this day was well over a year in the making, starting with the formation of the Hertford County Business and Industry Council.

“We put some meaningful work together to create to design an economic development program in a way that we can measure success,” Braswell recalled. “The first thing we did was work towards the goal of obtaining certification as a Work Ready Community. We’re really excited to reach this day and we appreciate the collaboration from across the board...from the schools, to the chambers, to Bill Early.

“We knew that Hertford County needed a workforce in place that business and industry can count on,” Braswell continued. “It also impacts our quality of life. We can teach our young people the skills they need to secure a job, but when they overachieve we so often lose them as they leave our county in search of higher paying jobs. We want to give them a chance to come home and work, and you do that by making your workforce attractive, a skilled workforce, so that new business and industry wants to locate here.”

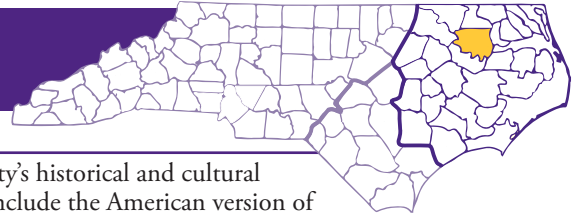
Braswell said when a person is certified as work ready, they present that certification upon applying for a job. In turn, the employer knows up front that this individual has the basic skills to work. “Employers need to know this, not just be told that this person is capable for the job,” she pointed out.

Braswell also praised the work of the Hertford County Business and Industry Council. That group consists of Directors of the Ahoskie and Murfreesboro Chambers of Commerce, the Hertford County Economic Development office, Hertford County Public School System, NCWorks Hertford County Career Center, Region Q Workforce Development Board, and Roanoke-Chowan Community College.

Braswell said Hertford County surpassed the stated goals for number of Career Readiness Certificates in the county and the four-year cohort high school graduation rate increased by 10 percent to 86 percent in 2015.

For their efforts, the Hertford County Business and Industry Council was recently honored to receive the annual Sam Carson Award for Excellence in the Promotion of Workforce Development. That award was created by the Region Q Workforce Development Board in December 2007 to recognize the outstanding efforts of the NCWorks Career Center, WIOA program operators, or Career Center partners in the counties of Beaufort, Bertie, Hertford, Martin, and Pitt which has demonstrated outstanding efforts in the marketing and promotion of the Workforce Development system.

BERTIE COUNTY



ABOUT


Established in 1722 from Chowan County, Bertie County was named in honor of two of the first Lord Proprietors of North Carolina, Henry and James Bertie. Windsor serves as the county seat.


Other communities located in Bertie County include Aulander, Colerain, Indian Woods, Lewiston Woodville, and Roxobel.


Bertie County includes the Chowan, Roanoke, and Cashie rivers, giving the area rich, fertile farmland. Early land was settled by the Tuscaroras before the 1711 Tuscarora War between the tribe and English settlers.

Bertie County's historical and cultural attractions include the American version of Windsor Castle, Hope Plantation, the Sans Souci Ferry, the King-Bazemore House, and a local zoo. The American version of Windsor Castle was at one time the home of George T. Winston, who later became president of the University of North Carolina at Chapel Hill, North Carolina State University, and the University of Texas.

The county hosts several events and festivals, including Chicken on the Cashie, a Fun Day in the Park at Windsor, and the Tee and Sea Festival.

		COUNTY	NC AVG	US AVG
 <p>DEMOGRAPHICS ^{1,2,4}</p> <p>POPULATION: 19,224 NC RANKING: 84th <small>*ranked HIGH to LOW out of 100 counties</small></p>	BLACK	61%	22%	13%
	WHITE	35%	63%	77%
	HISPANIC	2%	10%	17%
	MEDIAN AGE	44	38	38
	RENT ≥ 30% INCOME	42%	44%	47%
	FAMILIES HEADED BY A FEMALE	18%	13%	19%
	PROJECTED 2025 POPULATION	23,361	9.4M	335M

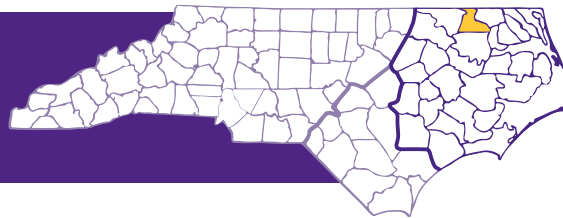
		COUNTY	NC AVG	US AVG
 <p>EDUCATION ^{1,2,3}</p> <p>HIGH SCHOOL GRADUATION RATE: 85% NC: 87% US: 83%</p>	STUDENT EXPENDITURE K-12	\$12,362	\$8,898	\$11,800
	STUDENTS RECEIVING FREE OR REDUCED LUNCH	78%	50%	48%
	THIRD GRADERS READING AT GRADE LEVEL: 48% NC: 58% US: 68%	COMMUNITY COLLEGES & 4-YEAR UNIVERSITIES: None		

		COUNTY	NC AVG	US AVG
 <p>HEALTH ^{1,2}</p> <p>PRIMARY CARE PHYSICIANS PER 10,000: 3 NC: 25 US: 28</p>	DENTISTS PER 10,000	1	5	6
	GROCERY STORES PER 10,000	3	15	13
	CANCER INCIDENCE PER 10,000	45	47	45
	HEART DISEASE DEATHS PER 10,000	17	16	16
	UNINSURED ADULTS	16%	15%	9%
	OBESITY	35%	32%	37%

		COUNTY	NC AVG	US AVG
 <p>ECONOMY ^{1,2}</p> <p>MEDIAN HOUSEHOLD INCOME: \$29,388 NC RANKING: 99th <small>*ranked HIGHEST to LOWEST out of 100 counties</small></p>	UNEMPLOYED	6%	5%	4%
	LIVE IN POVERTY	24%	15%	13%
	LARGEST EMPLOYER: Perdue Products Incorporated			

SOURCES: ¹ NC Health Data Explorer ² NCIOM ³ NC School Report Cards ⁴ NC Office of State Budget and Management ⁵ NC DPI Statistical Profile State Per Pupil Expenditure 2016-17 | "About" information provided by the North Carolina History Project

BERTIE COUNTY SPEAKERS



Keith Wheeler | wheelerch18@ecu.edu

Ret. U.S. Navy Capt. Keith Wheeler serves as ECU's Executive Director of National Security and Industry Initiatives. The Manteo native has held numerous leadership positions in the Navy, including commanding officer of U.S.S. McInerney where he led the Navy's first at-sea autonomous flight tests of the Fire Scout unmanned aerial vehicle, as well as a daring night capture of a self-propelled semi-submersible drug sub off the coast of Central America. Wheeler plays a critical role in supporting REDE's mission to actively grow ECU's research enterprise with federal agencies and industry partners.



Mary Farwell | farwellm@ecu.edu

Dr. Mary Farwell serves as the Assistant Vice Chancellor for Academic Affairs, Director of Undergraduate Research, and Professor of Biology at ECU. Farwell received her doctorate in biochemistry from the University of California, Berkeley. Farwell's research interests include mitochondrial regulation of cell death in cancer cells and student success in STEM.



Kathryn Verbanac | verbanack@ecu.edu

Dr. Kathryn Verbanac serves as the Assistant Vice Chancellor for Health Sciences Research, Director of Postdoctoral Affairs, and Professor of Surgery at ECU. Verbanac received her doctorate in biochemistry from the University of Iowa. Verbanac's current breast cancer research focuses on the tissue microenvironment and immune signatures at metastatic sites.



Billy Perry | wjpfarms@gmail.com

Mr. Perry has raised poultry under contract with Perdue since 2015 on land that has been in his family for generations in Perrytown, NC. His farm produces over 100,000 chickens over a seven week period and does so four or five times per year. He has broken ground adjacent to his current property to build four new houses which will place his yearly production at nearly one million chickens. Prior to 2015 he worked for Churches by Daniels Construction, an Oklahoma-based company specializing in planning, designing, financing and building large church facilities across the U.S. He was the Site Superintendent for a 580 seat church in Naples, FL, a 45,000 sqft church in Flowood, MS, a 38,000 sqft church in Laurel, MS and a 500 seat facility in Madison, AL.



**DIVISION OF RESEARCH,
ECONOMIC DEVELOPMENT
& ENGAGEMENT**

Office of Research Development



Dr. Jay S. Golden, Vice Chancellor

ECU Mission and Strategic Plans for Research Overview of REDE Resources for Research Development

**Mary Farwell, PhD
Assistant Vice Chancellor for Academic Affairs Research**

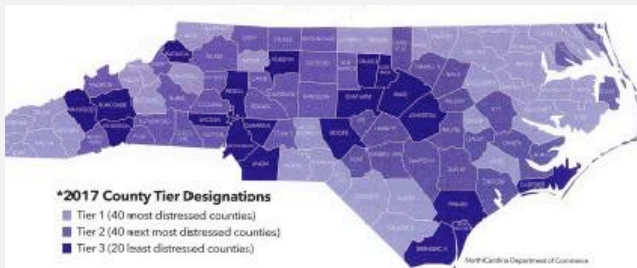
**Kathryn Verbanac, PhD
Assistant Vice Chancellor for Health Sciences Research**

ECU Mission

To be a national model for student success, public service and regional transformation



Shared Goals of 17 constituent universities of UNC system



METRICS

Low-income enrollments: Increase enrollment of low-income students to reduce the existing participation gap

Rural enrollments: Increase enrollment of students from Tier 1* and Tier 2 counties to reduce the participation gap

Low-income completions: Encourage natural growth rate projections by increasing the number of low-income graduates

Rural completions: Increase the number of graduates from Tier 1 and Tier 2 counties

Five-year graduation rate: Increase the proportion of first-time, full-time freshmen who graduate with a bachelor's degree from any accredited institution within five years

Undergraduate degree efficiency: Increase the number of undergraduate degrees awarded per 100 students

Achievement gaps in undergraduate degree efficiency: Improve timely degree completion for all and be a national leader in degree completion by groups with disproportionate achievement gaps

Critical workforces: Increase the number of high-quality credentials awarded in health sciences, STEM, K-12 education, and other emerging regional workforce needs

Research productivity: Strive for continuous improvement in research and scholarship, collaboration with UNC institutions and outside entities, and effective commercialization of technologies

Information and definitions from University of North Carolina Strategic Plan Definitions, Goals, Metrics, and Targets, January 2017.

 **ECU** CAPTURE YOUR HORIZON

PRIORITIZE

- Research productivity (top-tier priority)
- Five-year graduation rate (top-tier priority)
- Rural enrollments
- Low-income enrollments
- Low-income completions

IMPROVE

- Rural completions
- Critical workforces
- Achievement gaps in undergraduate degree-efficiency

SUSTAIN

- Undergraduate degree efficiency

 **ECU** CAPTURE YOUR HORIZON
Strategic Plan 2017-2022

[Introduction](#) [Our Commitments](#) [Our Responsibilities](#) [Areas of Distinction](#) [Metrics and Framework](#) [Unit Plans](#)

Unit Plans

<http://www.ecu.edu/cs-acad/strategicplan/Unit-Plans.cfm>

Colleges/Schools

- Brody School of Medicine
- College of Allied Health Sciences
- College of Business
- College of Education
- College of Engineering and Technology
- College of Fine Arts and Communication
- College of Health and Human Performance
- College of Human Ecology
- College of Nursing
- Harriot College of Arts and Sciences
- Honors College
- School of Dental Medicine



Research, Economic Development and Engagement Strategic Plan

REDE 5-Year Divisional Goals

1. Have university research and service awards total \$100M by end of 2022
2. See university research expenditures total \$50M by end of 2022
3. Have no major research conduct or compliance infractions
4. Develop ECU's planned Millennial Campus building and secure an occupancy mark greater than 90 percent
5. Raise at least \$3M to support micro-business initiatives which results in at least 15 new student-lead micro-businesses per year in eastern North Carolina
6. Secure a top-3 ranking among all UNC system institutions for NSF HERD research expenditures
7. Have all ECU colleges and schools achieve their 5-year research award and expenditure targets
8. Have annual clinical trials total \$10M
9. Increase undergraduate student engagement in research from 2016-17 baseline by 100 percent
10. Maintain 15 active start-up license agreements, including eight revenue-producing agreements, doubling ECU's current license agreement total

7

ECU Academic and Research Division Structure

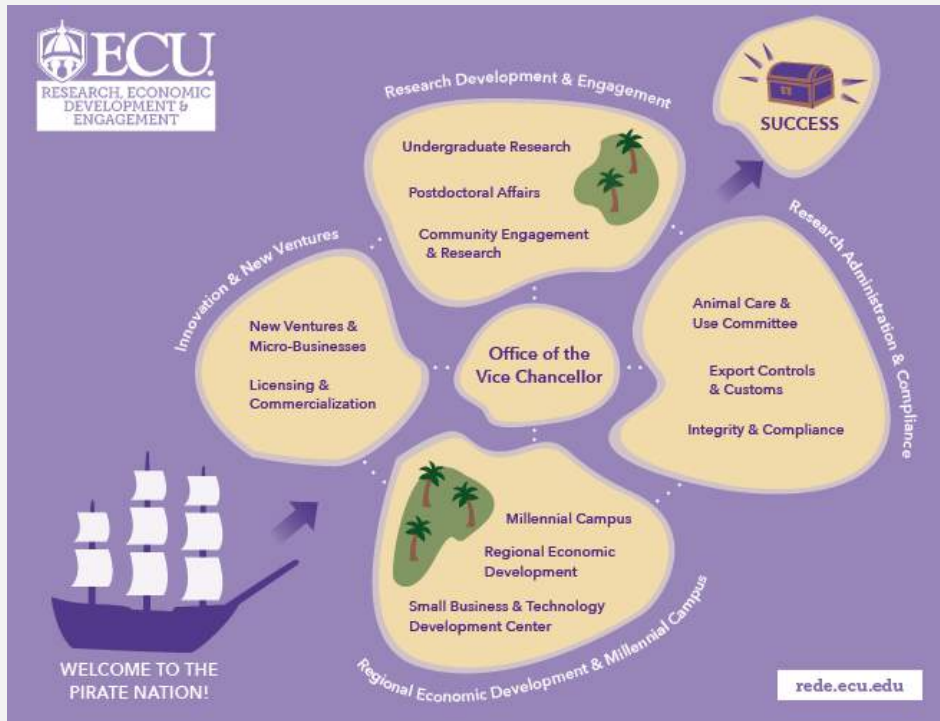
- Academic Affairs
- Health Sciences
- Research, Economic Development & Engagement

Academic Council = Provost & Vice Chancellors

University Research Council

- REDE Leadership
- Associate Deans of Research

8



Research Development: Research Project Life Cycle



REDE-supported intramural funding

- Faculty Startup Awards and Program
- Faculty Reassignment Awards in the Arts and Humanities
 - Provides one course buyout for faculty members to prepare proposals to support fellowships or residencies
- Faculty Senate Research Creative Activity Awards
 - Small grants provided in all areas of research
- Research Cluster Funding
 - Course buyouts, seed grants, student and postdoctoral stipends for pilot studies to support competitive extramural grant applications

Natural Resources and the Environment

Burrell Montz, montzb@ecu.edu
Alex Manda, mandaa@ecu.edu

Focuses on discovering new ways to support and optimize sustainable uses of our natural resources and the environment. The cluster places an emphasis on studying biogas, water quality and water quantity issues in eastern North Carolina and beyond.

Health Behavior

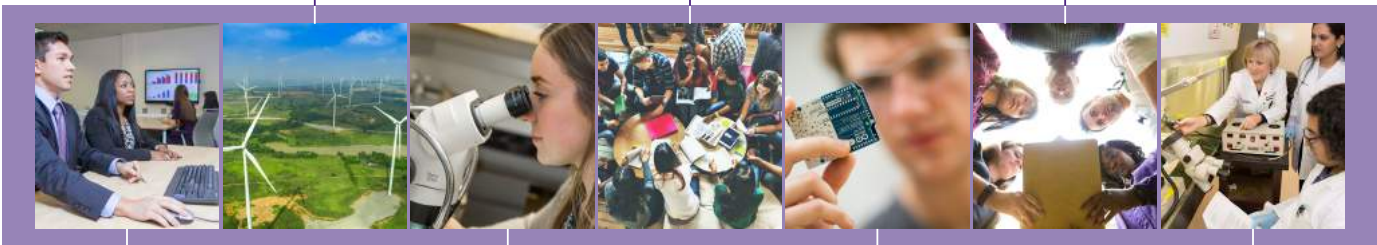
Kim Larson, larsonk@ecu.edu
Lisa Campbell, campbelll@ecu.edu

Focuses on serving as a liaison between multiple research and clinical faculty to improve population health and wellness through health behavior change and reduction of risk behaviors across the lifespan.

Precision Health

Keith Keene, keenek@ecu.edu

Focuses on tailoring medical treatment to the individual characteristics of a patient by taking into consideration the complex interplay between an individual's genetics, environment, socioeconomic, and health status.



Big Data and Analytics

Huigang Liang, liangh@ecu.edu
Bill Irish, irishw17@ecu.edu

Focuses on the challenge of making sense of the vast amount of data generated by the diverse information technology systems of our society. The cluster develops university-wide data analytics capabilities by leveraging state-of-the-art data analytics and visualization technologies.

Human Health and Disease

Mark Mannie, mannie@ecu.edu

Focuses on facilitating advancements in scientific knowledge that can be used to develop novel and impactful interventions for major diseases that afflict eastern North Carolinians. The cluster focuses on pathogenic mechanisms underlying diabetes, cardiovascular disease, neurodegenerative disease, infectious disease, and cancer, among others.

STEAM Education

Shawn Moore, mooresha@ecu.edu
Daniel Dickerson, dickersond15@ecu.edu

Focuses on the teaching and learning of science, technology, engineering, arts, and mathematics content and pedagogy. The cluster places an emphasis on research-based innovative technologies and tools, authentic interdisciplinary engagement, and the creation of educational materials for the global marketplace.

Biomedical Sciences and Engineering

LAUNCHING 2019

Funding Opportunities

The following funding opportunities are broken down by major funding source and discipline.

Major Funding Sources



Additional External Funding Sources



13

[Clear](#)
[Locate Funding](#)

You have no additional filters active. [Click here to edit them.](#)

Results Found: 194

[Reset Filters](#)
[Export](#)

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<input type="checkbox"/>	SPIN ID	Opportunity Title	Sponsor Name	Sponsor Number	Deadline Date	Funding Amount	
<input type="checkbox"/>	056324	NSW Rural Allied Health Undergraduate Scholarships	Health Education & Training Institute (HETI)		05-Apr-2019	7,000.00 USD	<input type="checkbox"/>
<input type="checkbox"/>	080118	Small Health Care Provider Quality Improvement Program	Health Resources and Services Administration/DHHS	HRSA-19-018 <i>[Limited Submission]</i>	22-Apr-2019	600,000.00 USD	<input type="checkbox"/>
<input type="checkbox"/>	058786	Rural LAP	Rural LAP		<i>Continuous Submission</i>	<i>Not Specified</i>	<input type="checkbox"/>
<input type="checkbox"/>	078776	Rural Residency Planning and Development Program	Office of Rural Health Policy/HRSA/DHHS	HRSA-19-088 <i>[Limited Submission]</i>	04-Mar-2019	750,000.00 USD	<input type="checkbox"/>
<input type="checkbox"/>	056323	NSW Rural Allied Health Clinical Placement Grants	Health Education & Training Institute (HETI)		05-Apr-2019	700.00 USD	<input type="checkbox"/>
<input type="checkbox"/>	001684	NSW Rural Allied Health Postgraduate Scholarships	Health Education & Training Institute (HETI)		05-Apr-2019	7,000.00 USD	<input type="checkbox"/>
<input type="checkbox"/>	079979	Distance Learning and Telemedicine Grant Program	Rural Utilities Service/Department of Agriculture	RUS-19-02-DLT	15-May-2019	500,000.00 USD	<input type="checkbox"/>
<input type="checkbox"/>	067669	Research and Explore Awesome Careers in Healthcare (REACH) Program	Wyoming Department of Health		<i>Continuous Submission</i>	1,490.00 USD	<input type="checkbox"/>
<input type="checkbox"/>	079984	Distance Learning and Telemedicine Grants—Opioid	Rural Utilities Service/Department of Agriculture	RUS-19-01-DLT	15-May-2019	500,000.00 USD	<input type="checkbox"/>

Research Administration Hubs: Pre- and Post-award grant management

CON-CAHS Research Administration Hub

College of Nursing Research | College of Allied Health Sciences Research

About the Hub

The purpose of the College of Nursing - College of Allied Health Sciences Research Administration Hub is to provide expertise and support in pre-award and post-award activities for faculty in CON and CAHS. Our colleges have diverse and growing grant portfolios. The Hub oversees a variety of research and research-related accounts including: internal grants, extramural grants, institutional start-up funds, grant/contract reassignment (line re-OCRT), funds, and indirect cost accounts. The Hub also provides support for budget development, application support, and faculty development.

Meet the Staff

- Susan Howard, MEd**
Post-Award Grant Manager
TDW915@ecu.edu | 252.744.6225
4205A Health Sciences Bldg
- Latoya Saldana, MPH**
Post-Award Grant Manager
ISS916@ecu.edu | 252.744.8453
4205B Health Sciences Bldg
- Jessica Miller, BS**
Pre-Award Grant Manager
JML915@ecu.edu | 252.744.6452
4205C Health Sciences Bldg

THOMAS HARRIOT COLLEGE OF ARTS AND SCIENCES

About Us | Departments | Academic Programs | Advising | Research & Discovery | Centers & Research | Connections

Office of Research & Discovery

RAMSes

- Funding Opportunities
- Proposal Development
- Budget Development
- Events
- Award Data
- Procedures
- Info for New Faculty
- Post-Award Management
- IRB Compliance
- FAQ

AA West Hub

Serving as the interface between faculty and administrators in the central grant offices at ECU, the AA West Hub is responsible for pre award budget and proposal development, and post award management of your grant awards. The West Hub enjoys oversight by associate deans in the Colleges of Arts & Sciences, Business, Engineering, and Fine Arts & Communication.

Meet the staff:

- Gina Betcher, MFA**
- Scott Jamieson**

Important Links

- List of Deans, ADs & Chairs
- Office of Research Administration
- Research Clusters

Extramural Funding: Office of Research Administration (ORA)

ORA provides support to the ECU research community through:

- Extramural proposal review and processing
- Submission to external sponsors
- Review and Acceptance of awards
- Establishment of Banner accounts for funded projects
- Assistance in financial management of funded projects
- Development of helpful management tools
- Assistance in resolving questions and issues throughout the project life cycle
- Closeout and final financial reporting



ACCESS TO HEALTH CARE IN RURAL AREAS



For many living in eastern North Carolina, access to health care can be challenging. Whether it's due to the lack of primary care physicians in the region – just 12 percent of medical students nationwide are entering primary care – or the long distance between where a patient lives and where their medical provider is located, receiving necessary health care in rural areas can be difficult. Built to help ease some of this burden, Vidant Bertie Hospital, located in Windsor, provides medical services in eastern North Carolina. The facility offers critical access health care including women's health, pain management, radiology, surgery, heart, vascular health, and emergency and trauma care. The hospital also serves as a primary care clinic for many residents in Bertie County and the surrounding area.

The original hospital opened in 1952 under funding from the Hill-Burton Act, which provided hospital facility funding for facilities that did not discriminate based on race, color, and nationality; provided a reasonable volume of free care; and were economically viable. Bertie Memorial Hospital provided care until it temporarily closed in 1985. The hospital underwent several management changes until Vidant Health acquired the property. Vidant Bertie Hospital was built in 2001 after Vidant Health took over management of Bertie Memorial Hospital in 1998.

Under Vidant's management, the new hospital was developed using Critical Access Hospital standards. Critical Access Hospitals are designed to reduce the financial vulnerability of rural hospitals while improving access to health care by keeping essential services in rural communities. This mission is achieved by partnering with Medicare, with the hospital receiving cost-based reimbursements for certain services. Critical Access Hospitals must meet four basic requirements including: having 25 or fewer acute care inpatient beds; be located more than 35 miles from another hospital; maintain an average length of stay of 96 hours or less; and provide 24/7 emergency care services. North Carolina is home to 20 Critical Access Hospitals. In 2001, Vidant Bertie Hospital was recognized by the Office of Rural Health Policy as a national model for Critical Access Hospital construction.

In 2016, the latest data available from Vidant Bertie Hospital, visits included 10,311 emergency visits, along with 14,045 outpatient visits. The hospital performed 726 surgeries that same year, admitting 414 patients for overnight care. In total, the hospital added \$2.4 million into the community, providing a combined \$2 million in unreimbursed and charity care. The hospital's parent company, Vidant Health, awarded \$2 million in grants in 17 counties, while providing 93,000 volunteer hours and more than 63,000 home health care visits.

In addition to Vidant Bertie Hospital's in-person care services, the hospital also offers telemedicine, telepsychiatry, and teleradiology services. Services are often performed at Vidant Bertie Hospital, with second readings and interpretations often happening 40 miles away at Vidant Medical Center in Greenville. The hospital's telemedicine link with the Brody School of Medicine at ECU allows it to address a full range of health care needs, without the need of tools and staff physically being at the facility. These telemedicine tools provide faster, cheaper, and more efficient ways to treat patients during traditional medical appointments, allowing access to a specialist's opinion without the need to travel a long distance for additional appointments.

SOURCES: ¹2016 Vidant Annual Report

²<http://businessnc.com/critical-carecategory/>

³<https://www.ruralhealthinfo.org/topics/critical-access-hospitals>

⁴<https://www.vidanthealth.com/Locations/Hospitals/Vidant-Bertie-Hospital>

WJP FARM



A bird in the hand is worth two in the bush, especially if you're a chicken producer in North Carolina. Chicken and turkey products are on track to overtake pork as the world's most consumed meat by 2020. In North Carolina alone, poultry makes up 40 percent of the state's farm income, as 822 million chickens were raised for consumption in 2015.

Eastern North Carolina is well represented in the state's top poultry producer rankings, as three of the state's top five chicken-producing counties — Duplin, Robeson, and Sampson — are east of Interstate 95. Bertie County is home to one of these many chicken farms. WJP Farm, operated by Billy Perry in Perrytown, N.C., has been in the Perry family for generations. The farm produces more than 100,000 chickens over a seven-week period up to five times a year.

WJP Farm contracts with Perdue Farms, the parent company of Perdue Foods and Perdue AgriBusiness. Perdue Foods is one of the largest chicken, turkey, and pork processing companies in the United States with revenues nearing \$7 billion annually.

As a Perdue contractor, WJP Farm receives support which may include a flock supervisor to help maximize flock performance; a dedicated regional veterinarian; technological service support; and research support for animal care. Purdue contractors are incorporated into the company's integrated supply chain, providing assistance with breeder operations, feed sourcing, harvesting and processing, and marketing and sales.

Perry has plans to expand WJP farm. He has broken ground adjacent to its current property to build four new houses which will place its yearly production at nearly 1 million chickens.

SOURCE:

¹"North Carolina's Top Industry: Poultry" <https://www.farmflavor.com/north-carolina/north-carolinas-top-industry-poultry/>

CLARY SAGE'S SMELL OF SUCCESS

Tough to grow, stressful to harvest, and ignored for centuries, clary sage is making a comeback in a tiny corner of northeastern North Carolina, where farmers can't wait to plant more.



In June, Bertie County is full of familiar sounds. The hum of diesel tractor engines. The chirps of songbirds. The buzzing of Tim Smith's mobile phone.

"You ever count at the end of the day how many calls you get?" asks Lyman Harrell, a farmer in his 30s.

"Naw," Smith says.

Smith works at Avoca, a botanical extracting company in Merry Hill, as its agronomic manager, where he's in charge of monitoring the clary sage production. On a still, blazing, 91-degree summer day, he watches a tractor with a rotating cylinder of long blades chop through one of Harrell's farm fields, just a few miles from the Albemarle Sound. The reedy shoots are waist-high, and the small, pointy flowers are white and purple. Some leaves are starting to turn brown. This stuff has to be harvested. Quickly. The clary sage harvest is all about hustle.

"Man, he can really knock some acres out driving like that," Smith says.

"Oh yeah," Harrell says.

The rotating knives in front of the tractor chop the sage into one-inch chunks and deposit them into a neat, long row. The machine, a forage chopper, steadily moves back and forth across the field, turning the brilliant, pastel-colored acreage into a dark green. The driver will take five or six hours to finish here. Then he'll head to the next field and do the same thing. Then on to the next one. And the next one.

Smith gets into his truck and drives a few miles down the road, past sparse trees and small houses, to another open field, where the next stage of the harvest is underway. A large machine called a forage harvester sucks up the long rows of sun-dried sage and shoots it out of a spout into the trailer of a semitruck, which rolls slowly alongside the harvester. About five acres' worth of sage will fill the rig. Then the next truck will drive up and fill up. Over and over. Those trucks will rumble out of the fields and down the road to the Avoca processing plant in Merry Hill, where workers test and then dump the sage into long, white tubes the length of football fields. During the six-week harvest, as many as 400 trucks a day roll into the plant, causing a pop-up traffic jam on the rural two-lane roads nearby.

"Everybody's been going as hard as they can go," Smith says.



Thousands of acres of clary sage grow in northeastern North Carolina – the only place in the United States where the crop is grown on this scale. PHOTOS BY CHARLES HARRIS

They have to hurry. A rain shower might put them behind. A thunderstorm might ruin most of the crop. A tropical storm might make it all worthless. A lot of livelihoods are riding on this harvest, because there's no backup plan. Which means Tim Smith gets a lot of calls from anxious farmers this time of year. Everything has to go just right.

The planting of clary sage, 10 months before, can be even harder. Sow the tiny seeds more than a half-inch under the soil, and they might not come up. They won't come up without the precise amount of moisture, either. Clary sage won't flower in its first year, so farmers have to plant in the fall, so that the winter cold tricks the seeds into thinking the spring is actually year two.

Clary sage is a finicky crop.

The farmers who plant it love it.

They talk about it a lot: on the phone with Smith, over lunch at the cash-only White's Cross Grocery in Colerain, and with friends in Edenton and Windsor. But you don't have to get too far outside Bertie and Chowan counties before the white-and-purple fields become sparser. Before long, clary sage, as well as the conversation about it, disappears completely.

"If you get away from this area," Harrell says, "nobody knows what you're talking about."

Think about the smells in your house. Dryer sheets and fabric softener. Febreze and hand lotion. You expect your freshly washed hair to smell like shampoo. You expect your clean laundry to smell like Moonlight Breeze or Island Fresh. When you shave in the morning, the smell of your Aqua Velva should last until your 5 o'clock shadow shows up. If you can't smell your perfume after an hour, you probably won't buy it again.

Cheap scents dissipate. Good ones linger. That's where clary sage comes in.

Come harvest time, flowering clary sage plants ooze a little bit of a chemical compound called sclareol. An entire acre of clary sage typically yields only about 50 pounds of the stuff. Sclareol is rare, valuable, and powerful. Avoca's job is to separate sclareol from piles of browning clary sage. After the sage is plucked from the fields, workers and scientists at Avoca spend the rest of the year putting it through a huge metal cylinder called an extractor. It's a dizzyingly complex process, but to use a simple analogy, the extractor works like a coffee percolator, and the result is a refined version of sclareol, called sclareolide.

Dr. David Peele, Avoca's president, points at a glass vial that sits on a table. The yellowed paper label, written by hand, reads, "June 20, 1963, 7:15 p.m. Avoca Farm." At the bottom sits a yellowish-white granular substance. Sclareol. After it's refined (into sclareolide), just a tiny amount of this stuff, as little as 0.1 percent of detergent, perfume, or aftershave, will make your favorite smells go from lasting for mere minutes to hours, even days. The vial, which is the oldest sample Avoca has, has only been opened a handful of times. But even after more than 53 years, scientists find the same thing every time they test it, Peele says: "It's still as potent as it ever was."

Sclareolide is the key to making the world's smells last. And there's really only one place in the country where you can get it: here.

For centuries, hardly anybody wanted clary sage (which is not the same kind of sage you find at the grocery store). Its essential oil was a medieval treatment for sties, but the demand was so small that, aside from some gardens here and there, nobody really grew it on a large scale.

Then, three things happened.

First: Back in the early 1960s, the R.J. Reynolds Tobacco Company (RJR) was worried about a shortage of Oriental tobacco. The burley and flue-cured varieties were plentiful, but concern about there being enough of the overseas variety convinced RJR to look for something different to blend into its cigarettes.

They sent botanists around the world to find a stand-in; the botanists discovered what they were looking for in clary sage. The company grew a few acres in North Carolina, harvested the plant, extracted the sclareolide, and put it into a cigarette. It worked. In the 1960s, RJR bought the Avoca farm on the shores of Albemarle Sound near Merry Hill, planted hundreds of acres of clary sage, and built a factory to extract what they needed from the plant. Problem solved.

Except, as it turned out, the problem didn't need solving. The shortage and the high prices never materialized like RJR thought, so, within a few years, the factory shut down.

Second: The smell-sustaining substance that perfumers had long used before sclareolide — ambergris — became much harder to get. Why? Ambergris comes from the digestive system of sperm whales, floats upon the sea, clumps up, and eventually washes ashore years later, where the people lucky enough to find it are able to sell it for \$20 a gram, if they can do so in a place where the trade of the substance isn't explicitly banned, like it is in, say, the United States, which barred its use in 1972. With ambergris off the table, scientists looked to sclareolide. In 1978, a German company asked RJR if they'd get back into the clary sage business. Quickly, the Avoca factory sprang back to life, and a few hundred acres nearby were once again covered with white and purple flowers.

Third: Phosphates became the enemy. The chemical, once heavily used in laundry and dishwasher detergents, is an amazing cleaner. But it can also choke waterways with fish-killing algae. Slowly, makers of laundry detergent, like Procter & Gamble, voluntarily removed phosphates from Tide and other products in the United States. They switched to an enzyme-based solution, which came with an unfortunate side effect: It made clean laundry smell like dirty socks. So companies started scenting detergents. They also set what they called the two-week standard: When the clothes come out of the dryer and go into the closet, you should be able to smell the freshly laundered scent for 14 days. All of a sudden, some of the world's largest fragrance companies wanted a lot more sclareolide.

Peele says the increased demand is recession-proof. In fact, when the economy took a hit, people stopped buying as many new clothes and washed the ones they had more often, making demand for his product go up

Gorgeous in the ground, stinky in your hands, fresh in your detergent: What gives?
PHOTOS BY CHARLES HARRIS



even more. And because Avoca is the only place in the world that will buy clary sage from local farmers, Peele and his company hand-pick the growers, all of them local, and set the price. While other crops like soybeans, corn, and tobacco have lost value, the price Avoca pays for clary sage has stayed the same. It's as profitable as tobacco, farmers say, and you don't need nearly the number of workers to grow it. Over the past five years, the amount of sage grown nearby has more than tripled, to 24,000 acres, and even though that's a tiny amount compared to traditional crops, the amount is expected to keep going up.

Avoca doesn't advertise. Every year, Smith sends out a text message or an email to growers, saying how much clary sage Avoca needs. Sometimes he'll ask them if they know anyone who might want to grow it. That's how the area went from five or 10 growers to more than 100 today. "It's all been word of mouth and neighbor talking to neighbor," Peele says.

Which means the sight of clary sage is becoming increasingly common in the coastal fields around Windsor, Edenton, Merry Hill, and Plymouth. Clary sage is gorgeous. People stop their cars to take pictures. Some of them pick one of the spindly plants and put it in the trunk.

They'll throw it out of the car shortly after.

One farmer says clary sage smells like a room where a cat keeps missing the litter box. Or dirty socks. The sclareol itself doesn't smell, but the essential oil has an aroma that one website calls a "bracing herbaceous scent that smells like lavender with leathery and amber nuances." Most people say it stinks.

Lyman Harrell and Tim Smith laugh about this. So do the truck drivers who haul it, and the other farmers who grow it. Every person in Bertie County knows the same joke. What does clary sage really smell like? Money. Which makes those white-and-purple fields look even better.

NC FERRY FROM 'BYGONE ERA' IS BACK AT WORK; ANOTHER HAS GONE IN FOR REPAIRS



RALEIGH —LOCAL NC ferry from ‘bygone era’ is back at work; another has gone in for repairs. After an overhaul that kept it out of the water for more than a year, the Sans Souci Ferry is once again taking drivers across the Cashie River in Bertie County two cars at a time.

The ferry is one of three that cross North Carolina rivers guided by cables fixed to each shore. They are vestiges of a time when most people crossed the slow-moving rivers of Eastern North Carolina by boat and cable ferries were much more plentiful.

Like the other two, in Hertford and Bladen counties, the Sans Souci Ferry isn’t something most drivers encounter by chance. It connects Sans Souci Road with Woodard Road, saving residents on a remote neck of land between the Cashie and the Roanoke River a 20-minute drive to the closest bridge in Windsor.

But the ferries also attract tourists because of their novelty, said Tim Hass, a spokesman for the N.C. Department of Transportation, which has operated the Sans Souci Ferry since the 1930s.

“People come from out of state just to ride them,” Hass said. “It’s a bygone-era kind of thing.”

The ferry is such a tourist attraction that The Windsor-Bertie Chamber of Commerce has created a separate brochure for it, said Lewis Hoggard, the director. He said bicycle touring groups design their routes through the region just to cross the river at Sans Souci, which takes its name from an early plantation known by the French phrase for “without care or worry.”

“We’re very proud of the ferry,” Hoggard said.

As it went back into service, another cable ferry, Parker’s Ferry across the Meherrin River in Hertford County, was taken to the state shipyard in Manns Harbor for a complete overhaul. It is expected to be out of service through November 2019.

North Carolina’s cable ferries were privately owned in the 19th and early 20th centuries before the state began building bridges that made many of them obsolete. The remaining ones that the NCDOT took over are in places where the traffic and the location wouldn’t justify the expense of building a bridge, Hass said. In August 2017, before it was pulled from the water, the Sans Souci Ferry carried 302 cars and 508 people, he said.

The ferries are free to ride. If you come to the ferry landing and the boat is across the river, you simply honk or wave and the ferry tender will come get you. There’s a limit of two cars and no more than six passengers at a time.

The Sans Souci and Parker’s ferries operate during daylight only. The official winter hours, between Nov. 2 and March 7, are from 15 minutes before sunrise or 6:45 a.m. to 5:15 p.m., including all holidays. The rest of the year, the hours are 15 minutes before sunrise or 6:15 a.m. to 6:15 p.m.

The Sans Souci boat had been in the water since the mid-1970s before it was hauled out in October 2017, Hass said. The full overhaul cost about \$100,000.

COASTAL LAND TRUST SAYS IT MAY HAVE EVIDENCE OF THE LOST COLONY OF ROANOKE



WILMINGTON — The story of one of the nation’s longest running mysteries, that of the so-called “Lost Colony,” may be getting a new chapter, thanks to the efforts of the Wilmington-based North Carolina Coastal Land Trust.

Last month, the conservation organization announced it had acquired a 1,000-acre tract of land, known as “Site X,” in Bertie County, along the Albemarle Sound.

According to Executive Director Camilla Herlevich, this is an area the organization has had its eye on for a while.

“So, the cool thing about Site X, is it was slated for development. It was syndicated by a group of investors in the Midwest, who had permits for 2,800 units, and who knows how many boat slips,” Herlevich said. “Fortunately for us, not fortunately for the investors, the recession hit before they had a chance to put their plans in place. So, the land is virtually untouched.”

Site X features bottom land hardwood forests, considered by the North Carolina Heritage Program to be “nationally significant,” old farm fields, and frontage on Salmon Creek, an important environmental area that hosts cypress-gum swamp and freshwater marshes.

The area was a prime location for the Land Trust, which looks to preserve areas of natural, cultural, or historical value. After some “difficult negotiations,” the group was able to secure a \$4.85 million loan, making Site X theirs.

Remnants of the Lost Colony?

According to Herlevich, early surveys found a variety of Native American artifacts, as well pre-Colonial American pottery. Could these have been left behind by some of North America’s earliest colonists, who mysteriously vanished without a trace from the Roanoke Colony in the late 1500s?

“About 4 or 5 years ago, this group that started looking into places where the Lost Colony might have relocated, or remnants of the Lost Colony might have relocated, and they started looking at the history related to John White’s map,” she said.

According to the National Parks Service, White was a cartographer, who served with Sir Walter Raleigh on his explorations of the Carolina Coast. Later, he would go on to become Governor of the first permanent English foothold in America, the Roanoke Colony, aka the Lost Colony.

After establishing the colony, White returned to England for supplies, leaving 117 people behind to live in the New World. On his eventual return, White found the colony had disappeared, leaving a mystery that has spanned more than 400 years.

However, during the recent investigations into the map, known as the “Virginea Pars Map,” researchers came across a clue.

“John White had prepared a map of the area that was in the British Museum, and the story goes that he had told them that if they had to leave, to write where they were going, and to go 50 miles into the ‘maine,’ that is inland,” Herlevich said. “This site happens to be 50 miles inland from the original colony. And when they looked at the map, there was a spot with a patch ‘X’ on it.

“They didn’t take the patch off before, because apparently maps were patched a lot in the old days, for fear of spies and things. Anyway, they did a sort of spectroscopy analysis from the back of the map, and found that underneath the patch for ‘X,’ on the original map, there was a fort.”



'Site X,' located in Bertie County in the northern part of the state, was recently acquired by the Wilmington based North Carolina Coastal Land Trust. In addition to being a pristine natural area, the preserve has recently been pin pointed as a likely location of the remnants of the Lost Colony. (Port City Daily photo / COURTESY NORTH CAROLINA COASTAL LAND TRUST)

Around the same time, she said, state archaeologists, working with the First Colony Foundation, had begun a survey, turning over pottery shards from a specific 20-year period in the late 1500s, right around the same time the colonists went missing.

"The artifact assemblage from the limited area that has been excavated so far, particularly the relatively large amount of Surrey-Hampshire Border ware, as well as shards of North Devon plain baluster jar, which were provisioning jars for sea voyages, leads us to postulate that these finds are the result of Roanoke colonist activity at the site and are not related to later English settlement in the area," a news release from the First Colony Foundation states.

The First Colony Foundation is a non-profit group, made up of veteran archaeologists and historians, dedicated to the Roanoke voyages.

"Additionally, we submit that this evidence is more likely the result of the 1587 colony's stated plan to relocate from Roanoke Island rather than possible brief visits in previous years by exploratory parties under Philip Amadas or Ralph Lane," the organization stated.

Salmon Creek Natural Area

In an effort to protect the location, the organization brought in members of the North Carolina State Parks Department, who were immediately interested in the potential of the area.

"We thought State Parks would be a natural fit, and they loved it too. We took a whole group of people out on a pontoon boat, and they were just as excited as we were," Herlevich said. "So, legislation was passed this summer, for a new Salmon Park State Natural area, which sailed through the House and the Senate.

"The new state legislation is authorized, and our project ranked number one this year for the Clean Water Management Trust Fund, which was approved this week as a \$1.2 million grant. We have a commitment of a \$1 million grant from the Fish and Wildlife Service, so we are well on our way to raising that money, and that's our number one priority right now."

Once the loan is paid off, which the Herlevich expects to have done by 2018, Site X will be handed over to the state, to be permanently utilized as the Salmon Creek Natural Area. This will allow the land to remain undeveloped, while investigations can continue into the whereabouts of the Lost Colony.



John White had prepared a map of the area that was in the British Museum, and the story goes that he had told them that if they had to leave, to write where they were going, and to go 50 miles into the "maine," that is inland,' Herlevich said. (Port City Daily photo / COURTESY NCDCCR)