

2022 Research and Creative Achievement Week Awards Luncheon April 11, 2022

BUFFET LUNCHEON

Opening Remarks and Introduction

Distinguished Graduate Faculty Mentor Awards Thesis and Dissertation Awards RCAW Graduate, Master's and Doctoral Awards

Dr. Paul J. Gemperline, Dean The Graduate School

RCAW Postdoctoral Scholar Awards

Dr. Kathryn Verbanac, Assistant Vice Chancellor Division of Research, Economic Development, and Engagement Director of Postdoctoral Affairs

RCAW Undergraduate Awards

Dr. Mary Farwell, Assistant Vice Chancellor Division of Research, Economic Development, and Engagement & Director of Undergraduate Research

Closing Remarks

Dr. Mary Farwell, Assistant Vice Chancellor Division of Research, Economic Development, and Engagement & Director of Undergraduate Research

Thank You to Our Mentors!

Abdel-Rahman, Abdel-Rahman DeWitt, Regina Hudson, Nathan E Abdel-Salam, Tarek M Dickerson, Anne Hughes, Robert Murray Ables, Elizabeth Tweedie Dickerson, Daniel Lee Hur, Misun Aileru, Azeez Donica, Denise Irons, Paige Latham Akpan, Uduak Stella Driscoll, Virginia Darnell Jubran, Hanna Allen, William E Eagle, John Scott Jung, Jae Won Anderson, Eric Shawn Eamon, Thomas Floyd Kane, Melinda D Asch, Rebecca G Egan, Kathleen Louise Kearney, Gregory Dale Aziz, Shahnaz Elmore, Cindy J Keiper, Brett Baker, Michael Drew Eppler, Marion A Kipp, Aaron Marshall Balanay, Jo Anne Goot Etheridge, James Randall Knox, David H Banerjee, Sambuddha Ewen, Charles R Kovar, Cheryl L Bee, Beth Anne Feder, Helena M Lagomasino, David Bell, Natasha Lynn Filho, Faete Lamb, Richard Lawrence Beltran-Huarac, Juan Fisher-Wellman, Kelsey Howard Larson, Kim L Black, Kristin Zenee Forbes, Thompson Hollingsworth Lazorick, Suzanne Blake, Beth A Fraley, Todd A Lazure, Timothy Blakeslee, April Monica Houghton Garcia, Brandon L Lee, Jinkun Bolin, Linda Prior Gardner, Catherine M Lee, Joseph G Bowman, Josie Martin George, Stephanie Lee, Mi Hwa Brewer, Kori Louise Geraldeli, Saulo Lee, Myon Hee Brewer, Michael Scott Geyer, Christopher Lee, Tammy D Lewis, Travis Earl Bright, Kawanna Michelle Gittman, Rachel Kelley Briley, Patrick Minton Golden, Jean Ann Li, Yong-Qing Bryson, Sara Graber, Theodore G Lin, Chia-Cheng Burch, Ashley Green, Erick Y Lin, Ziwei Burns, Colin Sanderson Habeeb, Christine Liu, Haiyong Campbell, Lisa Hall, Tana Louise Liu, Yang Cavanagh, John Hallberg, Christy Alexander Lu, Qun

Chambers, Crystal Renee Hand, Mark Charles Maher, Derek F Hannan, Johanna Manda, Alex Kapolo Christensen, Timothy W Clark, Patricia A Hart, Stephanie Mansfield, Kyle David Clemens, Stefan Hegde, Archana Massarra, Carol Herndon, Nic McCarlie, Van Wallace Collins, John Corbett, Robin Hodge, Elizabeth Baker McClung, Joseph Matthew Corns, Robert Horn, Patrick Jacob McKinnon, Jeffrey

Daneri, Juan Jose Howard, Gregory Edward McRae, Susan B
Das, Bhibha Mayee Hu, Xin-Hua Medina, Almitra
DeWitt, Jamie C Huang, Yilei Militello, Matthew

Miller, James Kirk

Mizelle, John Christopher

Murata, Ramiro Mendonca

Murray, Nicholas P Narayan, Siddharth

Nassehzadeh-Tabrizi, Moha

Neufer, Peter D

Normoyle, Catherine Lucille

Oakley, Christopher A O'Driscoll, Michael A

Offenbacher, Adam Richard

Pajski, Jason John Pan, Xiaoping

Peralta, Ariane Legaspi

Perry, Jamie L

Perry, Megan A

Pokhrel, Lok R

Powell, Shannon Baker Prokopowicz, Gerald J

Puckett, Heidi Leigh Quick, Linda Ann

Rasdorf, Mark Edward

Raupp, Jason Thomas Reed, Jonathan Mark

Reid, Jonathan A

Reis, Pamela Jones

Richards, Stephanie Lynn

Richardson, Mark Douglas Rider, Patrick Michael

Roberson, Donna W

Roberson, Evan Michael

Rocha, Edson R

Roop, Roy M

Roper, Rachel L

Rothermich, Kathrin

Rowe, William Jason

Rulifson, Roger

Ryan, Teresa Jean

Sartore, Melanie L

Sastre, Lauren Rogers

Schacht, Ryan Nicholas

Schwartz, Abby

Schwartz, Catherine Stein

Siegel, David J

Smith, Aimee West

Soule, Eric Kendall

Sousan, Sinan

Spangenburg, Espen Eric

Spuches, Anne M

Sriramula, Srinivas

Stage, Virginia Carraway

Surkar, Swati Manoharrao

Swift, Alison D Sylcott, Brian

Szatmari, Erzsebet Maria

Thomas, Amber F

Thompson, Brittany Myles Wright

Tillman, Janet D Tisnado, James R

Tran, Tuan D Turbeville, Lauren Shuler

Vahdati, Ali

Vance Chalcraft, Heather D

Vermiglio, Andrew J

Virag, Jitka Amira Ismail

Vohra, Nasreen A

Walcott, Christy Mangione

Walker, Marianna M

Weckesser, Gerald

Wells, Angela Franks

Wheeler, Michael D

Yang, Li

Yeager, Emily Pauline

Yun, Joonkoo

Zhu, Yong

2022 ECU DISTINGUISHED GRADUATE FACULTY MENTOR AWARDS

This award is given annually to recognize East Carolina University faculty members who exemplify outstanding commitments to academic, professional, and personal development of graduate students through mentoring and advising. One award for mentoring master's students and one award for mentoring doctoral students is given each year. Each recipient receives \$1,000 for professional expenses and is recognized during Research and Creative Achievement Week. The selection committee of faculty and graduate students considers traditional and innovative ways in which faculty members mentor graduate students. The selection committee considers evidence of success as an outstanding mentor; guiding students in their intellectual growth; helping them develop independent research interests; and fostering their development of communication, interpersonal, research, and professional skills.

ECU DISTINGUISHED GRADUATE FACULTY MENTOR AWARD DOCTORAL CATEGORY

Robert Carels
Department of Psychology
Thomas Harriot College of Arts and Sciences



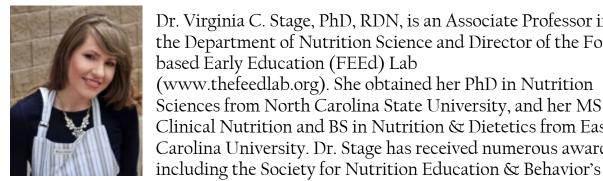
Dr. Carels is a professor and a board-certified clinical health psychologist whose research focuses on developing more effective behavioral weight loss treatments through the application of theory-driven innovation and aims to better understand and combat weight stigma in its many forms. He is the Principal Investigator for a Health Resource Service Administration Graduate Psychology Education (HRSA GPE) training grant designed to train students in providing primary

integrated care to the rural and underserved.

Dr. Carels is recognized for his ability to adapt his mentoring style to the specific doctoral students he mentors. One student wrote, "Dr. Carels is currently mentoring five graduate students...rather than requiring us to comply with his own style, Dr. Carels will adapt to our own individual preferences, becoming an ideal mentor for five different people." The faculty who nominated Dr. Carels indicated he consistently puts his students first and does all he can to maintain the high academic caliber of ECU's doctoral program in clinical health psychology.

ECU DISTINGUISHED GRADUATE FACULTY MENTOR AWARD MASTER'S CATEGORY

Virginia C. Stage Department of Nutrition Science College of Allied Health Sciences



Dr. Virginia C. Stage, PhD, RDN, is an Associate Professor in the Department of Nutrition Science and Director of the Foodbased Early Education (FEEd) Lab (www.thefeedlab.org). She obtained her PhD in Nutrition Sciences from North Carolina State University, and her MS in Clinical Nutrition and BS in Nutrition & Dietetics from East Carolina University. Dr. Stage has received numerous awards

Early Career Award and most recently, NC State's Outstanding Young Alumna Award. Dr. Stage's research is housed under the FEEd Lab. From kitchen to classroom, her mission is to empower early childhood teachers' and families with evidence-based strategies to improve children's (3-5 year) dietary quality through early education, exposure, and access to healthy foods. After gaining a clear understanding of students' background, past experiences, and personal interests, Dr. Stage puts them to work in the community. She strives to help students identify their professional purpose, recognize their strengths, and refine the skills they need to be successful in graduate school and their future career. Dr. Stage is recognized for her "selfless, persevering, committed" mentoring style. One student nominator wrote, "Dr. Stage's mentorship turns mentees, like me, into future mentors. I know that if I had to count on one hand the most influential people in my life, she would be one of them. And I'm just one person, one story, one example of the powerful and life-changing result of Dr. Stage's mentorship." The faculty nominator noted that her mentoring always includes advocacy for important issues in nutrition science and her engagement with service-learning helps her students in immeasurable ways.

ANNUAL THESIS AND DISSERTATION AWARDS

The Graduate School and the Division of Research, Economic Development, and Engagement at East Carolina University sponsor thesis and dissertation awards to recognize and honor outstanding research and scholarship at the graduate level. Each recipient is recognized during Research and Creative Achievement Week. During the fall semester, each college is invited to nominate students for these awards.

Eligibility and Criteria for Selection

Awards are presented in two categories for the 2022 Master's Theses Award: (1) Mathematics, Physical Sciences & Engineering, and (2) Humanities & Fine Arts Awards are presented in two categories for the 2022 Doctoral Dissertation Award: (1) Mathematics, Physical Sciences & Engineering, and (2) Social Sciences, Business & Education.

Thesis and dissertations are selected from specific previous years to meet requirements for nomination to regional and national competitions.

A selection committee composed of ECU Graduate Faculty reviewed nomination materials and considered the methodological and substantive quality of theses and dissertations, as well as their contributions to the student's chosen discipline and field of research. We thank the college-level and university-level committee members for their work in determining today's awardees.

MASTER'S THESIS AWARD: MATHEMATICS, PHYSICAL SCIENCES & ENGINEERING

Brian J. Diefenbach

College of Health and Human Performance, Department of Kinesiology

Thesis title: "Gene Expression in Response to Mechanical Loading on the Anterior

Cruciate Ligament"

Thesis Director: Zachary J. Domire

Many tissues in the body, especially bone, have exhibited adaptive responses to low magnitude, high frequency mechanical loading. However, the response of ligament to these types of mechanical loads is not well understood. Therefore, the purpose of this study was to identify the mechanisms by which ligaments respond in vivo to high-frequency, low-magnitude mechanical loading by identifying (1) if there is a response to this mechanical loading, and (2) what genes are altered in response to this mechanical loading on the ligament. The left ACL of seven rabbits were subjected to in vivo, low-magnitude, high-frequency mechanical loading for twenty minutes, in a novel mechanical loading device, the RACL loader. Three rabbits served as external controls and received no loading. Following four hours to allow for genetic response, the ACLs were harvested, and the RNA extracted to determine which genes were altered in expression in response to the loading. In response to mechanical loading, the loaded ACL had three genes differentially expressed compared to the internal control ACL. None of these three genes had annotations within the rabbit genome. The loaded ACL had 121 genes differentially regulated compared to the external control ACL (including 1 regulating collagen synthesis, and 15 with links to mechanotransductive pathways). This shows that there is a systemic response to mechanical loading in the ligament. Additionally, the genetic results shed light on the possible mechanotransduction response pathway in ligament. This study provides evidence that ligaments can be adapted through mechanical loading and may be used one day to strengthen a ligament for to reduce injury rates. https://thescholarship.ecu.edu/handle/10342/8778

DOCTORAL DISSERTATON AWARD: MATHEMATICS, PHYSICAL SCIENCES & ENGINEERING

Erica A. Bell

College of Health and Human Performance, Department of Kinesiology
Thesis title: "Stiffness of Intrinsic Foot Structures in Diabetic Individuals and the
Effect of Stiffness on Plantar Pressures During Gait"

Dissertation Director: Zachary J. Domire

Plantar foot ulcers are a severe and common complication associated with diabetes that overwhelmingly lead to non-traumatic major amputations among diabetic individuals. There are several known factors that contribute to the development of these ulcers; however, it is possible that stiffening of foot structures (i.e., muscles, tendons, ligaments) is another important factor that has yet to be fully investigated. Increased soft tissue stiffness on the plantar surface of the foot has been found in diabetic individuals, but stiffness of individual foot structures has yet to be investigated. It has been proposed in literature that stiffening of muscles and tendons in diabetic feet cause increased plantar pressures, which often precede development of ulcers. However, to date, no study has comprehensively examined stiffness of individual foot structures in diabetic individuals and the effect of stiffness on plantar pressures during gait. Therefore, the ultimate purpose of the following work was to investigate the relationship between foot structure stiffness and plantar pressures during gait in diabetic individuals. Firstly, it was hypothesized that stiffness of foot structures would be directly and linearly related to plantar pressures during gait. Secondly, it was hypothesized that diabetics would exhibit higher stiffness and higher plantar pressures than controls. There is also evidence of structural changes in the diabetic foot compared to controls, including thickening of the plantar fascia (PF) and Achilles tendon. Plantar fasciitis is a common musculoskeletal disorder that, like diabetes, is associated with thickening of the PF. To date, few studies have investigated material properties of the PF, and there are currently no studies that have assessed material properties of other arch supporting structures (i.e., muscles, tendons). It is possible that, in addition to thickening of the PF, plantar fasciitis populations exhibit material property changes of the PF and other arch supporting structures that contribute to the plantar fasciitis injury mechanism. Investigating material properties of the PF and arch supporting structures and how these properties relate to plantar pressures in individuals with plantar fasciitis may help provide relevant information to injury development in the foot in plantar fasciitis and diabetic populations. results support the idea of foot structure stiffness relating to plantar pressures and more specifically, are suggestive of damage occurring to the plantar fascia that is directly influencing plantar pressure distributions and foot function in diabetic individuals and individuals with plantar fasciitis. Thus, stiffness may still be an important factor to consider in understanding alterations of foot function and potentially in the ulcer injury mechanism in diabetic individuals. Complete abstract available at: https://thescholarship.ecu.edu/handle/10342/7598

DOCTORAL DISSERTATON AWARD: SOCIAL SCIENCES, BUSINESS & EDUCATION

Natalie M. Richardson

College of Health and Human Performance, Department of Human Development and Family Science

Dissertation title: "Injuries of the Mind, Body, and Soul: An Exploration of Moral Injury Among Military Service Members and Veterans"

Dissertation Director: Angela L. Lamson

Military service often requires engaging in activities, witnessing acts, or immediate decision-making that may violate the moral codes and personal values to which most individuals ascribe. If unacknowledged, these factors can lead to injuries that can affect the physical, psychological, social, and spiritual health of military men and women. The term moral injury has been assigned to these soul-ceasing experiences. Although researchers have attempted to define moral injury and what leads to such experiences, inconsistencies across definitions exist. In addition, nearly all existing definitions have lacked empirical support. Thus, an in-depth literature review, systematic review, and phenomenological qualitative study were completed to explore how moral injury has been conceptualized and defined across the literature and to respond to the need for an empirically-based, veteran-informed definitional understanding of such injuries. Findings from a qualitative study with United States veterans revealed that moral injuries can be conceptualized by chronic, deep-rooted experiences of (a) betrayal, (b) moral ambivalence, (c) soul injuries, and (d) lack of reconciliation. Recommendations for future research and clinical practice with moral injury must consider the systemic roots and implications for these injuries of the soul. Rather than viewing moral injury as a construct distinct to the field of psychology, trauma, or theology, applying a more systemic framework may be most appropriate for capturing the multi-level implications. For instance, a biopsychosocial-spiritual lens may support the cellular to society and spiritual implications of moral injuries. Additionally, Bronfenbrenner's ecological theory was proposed as a potentially influential theory in grounding future assessments and interventions for the constructs by emphasizing the interplay between context, personal characteristics/values, and multi-level systemic influences on the development of moral injury. http://hdl.handle.net/10342/8795

2022 RESEARCH & CREATIVE ACHIEVEMENT WEEK AWARDS

ECU Research and Creative Achievement Week provides students with an excellent opportunity to practice their presentation skills and meet other creative scholars at ECU with similar interests.

East Carolina University undergraduate, graduate, and postdoctoral scholars are invited to present their research to fellow students, scholars, colleagues, faculty, and the local community in a professional, conference-style setting. We define research as an original systematic investigation and/or original creative activity designed to develop or contribute to general knowledge or culture.

Students and scholars may present their research in any one of the following categories.

Biomedical Sciences
Business
Community Engagement
Education
Engineering
Humanities
Fine & Performing Arts
Social Sciences
Human Health
Natural Sciences
Sustainability & Innovation
Technology & Computer Science

MASTER'S STUDENT AWARDS

Oral Awards

Natural Sciences

Nina Woodard Mentor: Dr. Rachel Kelley Gittman "Borrowing ecological principles: Influence of Substrate Orientation on Free-Living and Parasite Diversity"

Fine Arts

John Cannon Rhodes-Pruitt Mentor: Dr. John Scott Eagle "Information-Media the Transference of Information"

GRADUATE STUDENT AWARDS

Graduate Category Includes both Master's and Doctoral Students

Oral Awards

Biomedical Sciences

Mohammed G. Dorgham Mentor: Dr. Kyle David Mansfield "The Effects of m6A RNA Modifications on Breast Cancer Progression and EMT"

Education

Jocelyn Bayles Dixon
Mentor: Dr. Virginia Carraway Stage
"Connecting Kindergarten Readiness and Food-based Learning in the Head Start Preschool Classroom"

Human Health

Kimberly F. Delgado Mentor: Dr. Donna W. Roberson "Nursing Staff's Role in Detecting Urinary Tract Infection in Nursing Homes: An Integrative Review"

Engineering

Matthew James Carroll Mentor: Dr. Jinkun Lee

"Simulation of Traffic Network Performance with Human driving and Autonomous Vehicles"

Social Sciences

Lindsay Myers Wentzel Mentor: Dr. Jason Thomas Raupp

"Plum Pudding in Provincetown: Investigation of Historic Whaling Operations of E.E.K. Cook Co. (1837-1879)"

GRADUATE STUDENT AWARDS

Graduate Category Includes both Master's and Doctoral Students

Poster

Biomedical Sciences

Mclane Montgomery

Mentor: Dr. Kelsey Fisher-Wellman

"Optimized protocol for the isolation and bioenergetic phenotyping of mouse colon mitochrondria"

Education

Christina McCray Mentor: Dr. Tammy Lee "African American Students in Honors Level Sciences Classes"

Engineering

Mackenzie Wheeler

Mentor: Dr. Theresa Jean Ryan

"Mechanical Failure of Human Fetal Membrane Tissues in Premature Birth"

Human Health

Kenneth Michaud

Mentor: Dr. Stephanie Lynn Richards

"Risk Assessment for Japanese Encephalitis Virus in Hog Farms in North Carolina"

Natural Sciences

Haley Hagemeier

Mentor: Dr. April Blakeslee

"Parasite Diversity in the Invasive Asian Shorecrab, Hemigrapsus Sanguineus on the Eastern Coast of the United States"

Social Sciences

Marianne Congema

Mentor: Dr. Kim Larson

"Hydrotherapy Use and Maternal-Infant Outcomes"

Computer Science

Alicia Abrams

Mentor: Dr. Nic Herndon

"Expanding the Galaxy University of CartograPlant" Awards"

DOCTORAL STUDENT AWARDS

Oral

Natural Sciences

Todd Michael Mendenhall Mentor: Dr. Ziwei Lin

"A semi-analytical method for calculating the QCD phase diagram trajectories of relativistic nuclear collisions"

Poster

Education

Dusk Stroud

Mentor: Dr. Heidi Puckett

"Face the Facts: Identifying Potential Socioeconomic Barriers that Impact Success for Students Enrolled at Lenoir Community College"

POSTDOCTORAL SCHOLAR AWARD

Poster

Biomedical Sciences

Berwin Singh Swami Vetha Mentor: Dr. Azeez Aileru

"Functional Significance of Angiotensin Receptors in the Neuroplasticity of (mRen2)27 Transgenic Model of Hypertension"

UNDERGRADUATE STUDENT AWARDS

Oral Awards

Biomedical Sciences

Jennifer Painter

Mentor: Dr. John Christopher Mizelle

"Differences in Neurological Connectivity Between Right and Left Limb Dominant Individuals in Implicit Motor Sequence Learning"

Engineering

Zachary Pakulniewicz Mentor: Dr. Yang Liu

"An Experimental Study on the Dynamics of Binder Drops Impacting on a Powder Surface in Binder Jetting Additive Manufacturing"

Social Sciences

Holly Batt

Mentor: Dr. Virginia Carraway Stage

"COVID-19's Impact on Head Start Teachers' Relationships, Health Behaviors, and Stress Levels"

Humanities

Alexander Teodorescu

Mentor: Dr. Cindy J. Elmore

"Teotography - A photo collection of North Carolina's wilderness, wildlife and culture surrounding coastal areas"

Natural Sciences

Jessica Long

Mentor: Dr. Susan B. McRae

"Refining artificial incubation of chicken eggs: laying season and not size affects incubation period of eggs laid by multi-generational crossbred chickens"

Fine Arts

Evan Martschenko

Mentor: Dr. Mark Douglas Richardson

"Hexatonic Collections and Thematic Development in Frederic Rzewski's Four Pieces for Piano"

Human Health

Luke Fogarty

Mentor: Dr. Van Wallace McCarlie

"Caregiver Oral Health Literacy, Pediatric Oral Health: A Systematic Review"

UNDERGRADUATE STUDENT AWARDS

Poster Awards

Biomedical Sciences

Hannah Coalson

Mentor: Dr. Kelsey Fisher-Wellman

"Mitochondrial alterations accompany forced differentiation in acute promyelocytic leukemia cells"

Community Engagement

Hannah Haynes

Mentor: Dr. Kim Larson

"Leadership and technology use among adolescents at a Boys & Girls Club in Eastern North Carolina

Education

Hannah Dixon

Mentor: Dr. Timothy Christensen

"The Advantages of Executive Processing in Bilingual Students"

Engineering

Avery Vose

Mentor: Dr. Chia-Cheng Lin

"Next Generation Balance Test for Vestibular Hypofunction"

Fine Arts

Skyler Hall

Mentor: Dr. Gerald Weckesser

"A Look Inside Different Cultures Through Art"

Human Health

Sarah March

Mentor: Dr. Linda Bolin

"Exploring the Use of Heart Rate Variability in Coronavirus Disease 2019"

UNDERGRADUATE STUDENT AWARDS

Poster Awards Continued

Humanities

Imani Riddick-Cherry and Leah Beth Warren Mentors: Dr. Bhibha Mayee Das and Chad Carwin "UterUS: Changing the Perception of Menstrual Health on College Campuses"

Interdisciplinary Innovation

Hunter Pigg
Mentor: Dr. Tarek Abdel-Salam
"Numerical Analysis of Oscillating Wave Surge Converters Under Extreme Sea Conditions"

Natural Sciences

Ivan Martinez-Santoyo and Scott Siebor Mentor: Dr. Ariane Legaspi Peralta "Long-term nutrient enrichment effects on greenhouse gas production in a coastal plain wetland"

Social Sciences

Shae Malham Mentor: Dr. Kristin Zenee Black "The Mental Health Effects of Assisted Reproductive Technology"

THANK YOU TO EVERYONE WHO HELPED TO MAKE THIS WEEK POSSIBLE!!

Mary Farwell
Donna Kain
KT Harcourt-Medina
Kathy Cox
Yvonne Kao
Anja Burcak
Marquerite Bond
Margaret Macready
Heather Mahany Futrell
Paul Gemperline
Marti Van Scott
Seo Eo
Nehad Elsawaf
Carrie Lee Wilkerson

Annette Kariko & Continuing and Professional Education
Jennifer Harrell & Central Reservations Office
All our undergraduate & graduate student presenters
All our postdoctoral scholar presenters
All the mentors who support their students
The many judges and moderators who generously volunteered their time

And Especially To our 2022 RCAW Artist RENO STRICKLAND for creating the outstanding RCAW "REVEAL" artwork

And

Dan Elliot, Faculty, School of Art and Design for allowing his art students to create RCAW designs each year as a class assignment

WE HOPE TO SEE YOU NEXT YEAR FOR 2023 RCAW – April 2023

https://gradschool.ecu.edu/research-creative-achievement-week/