2024 Research and Creative Achievement Week

Awards Luncheon
April 5, 2024
BUFFET LUNCHEON

Welcome & Opening Remarks
Dr. Kathleen Cox, Interim Dean, Graduate School

Distinguished Graduate Faculty Mentor Awards
Thesis and Dissertation Awards
Dr. Kathleen T. Cox, Interim Dean
The Graduate School

RCAW Graduate Student Awards
Dr. Michelle F. Eble, Faculty Fellow
The Graduate School

RCAW Undergraduate Student Awards
Dr. Tuan Tran, Director of Undergraduate Research
Division of Research, Economic Development, and Engagement

Capture 180 Awards
Dr. Tuan Tran, Director of Undergraduate Research
Division of Research, Economic Development, and Engagement

“Capturing the Art of Science”
Laser Technology Applications Group (TAG)
Dr. Robert Hughes and Dr. Karen Litwa, Co-Chairs, Laser TAG
DepartmentAnatomy and Cell Biology

Closing Remarks
Dr. Kathleen Cox, Interim Dean
The Graduate School
Thanks to the Mentors, Moderators, and Judges

Abdel-Rahman, Abdel A.
Ables, Elizabeth Tweedie
Agarwala, Ranjeet
Ahn, Sungwoo*
Aileru, Azeez
Akhnoukh, Amin Kamal
Alam, M. M. Lekhon
Allen, William E
Anderson, Eric Shawn
Anderson, Kimberly Leonard
Anllo, Lauren Maria
Asagbra, Oghale Elijah
Asch, Rebecca G
Aziz, Shahnaz
Baker, Courtney Lynn
Baker, Elizabeth*
Baker, Michael Drew
Balanay, Jo Anne Goot
Ballard, Sharon M
Barber, Dennis Hubert
Barton, Ian*
Bee, Beth Anne
Beltran-Huarac, Juan^*
Bikmohammadi, Mina*
Blakeslee, April
Blome, Meg*
Bodunrin, Aadam^*
Breeden, Roshaunda Lecole
Brewer, Michael Scott
Bright, Laura^*
Briley, Patrick Minton
Brimhall, Andrew S
Brisard, Benjamin*
Broskey, Nicholas Thomas
Burns, Colin Sanderson
Campbell, Lisa
Carruthers, Lucy*
Carter, Tricia
Cavanagh, John
Chalcraft, David R
Chambers, Crystal Renee
Chen, Jinbo
Chen, Runying
Cho, Jungmin*
Christian, John C
Clemens, Stefan
Clifford, James*
Cofie, Leslie E
Collins, John
Cooke Bailey, Jessica*
Culbertson, Brian*
Culver, Stephen J
Das, Bhibha Mayee
DeWitt, Regina
Dias, Nancy
Dickerson, Anne
Dolbier, Christyn
Domire, Zachary J
Drake, John Richard
Driscoll, Virginia Darnell
Dubis, Gabriel
Eagle, John Scott
Eble, Michelle F*
Eells, Jeffrey Brian
Eldridge, Lori Ann
Elliott, Daniel Wayne
Ellis, Jessica
Elmore, Cindy J
Lee, Tammy D
Lemasson, Isabelle
Levi Altstaedter, Laura
Lewis, Travis Earl
Lin, James*
Lin, Xi
Lin, Ziwei
Linder, Julie Michelle^*
Litwa, Karen Ann
Lookabaugh, Sandra Leigh
Loudon, James Ernest
Love, Brian
Loy, David P
Lucakovich, Joseph*
Luterbach, Ken*
Majewski, Diane J
Malkin, Michelle L
Mallinson, David J
Manda, Alex Kapolo
Manno, Francis Anthony
Michael
May, Linda Elizabeth
McCunney, Dennis^*
McIntyre, Amy Elizabeth
McKinnon, Jeffrey
McRae, Susan B
Millea, Meghan
Miller, Kirk*
Milton, Morgan Eilise^
Mizelle, Elizabeth
Mizelle, John Christopher
Moore, Erin Whitney Grandy
Morley, James Walter
Morris, Sandra Marlene
Mosier, Samantha L
Moysey, Stephen
Mruk, Karen
Murray, Nicholas P

Myers, Kristen Anne
Nall, Clark*
Narayan, Siddharth
Nelson Harrow, Karson*
Nimmo, Mary Jo Bankhead*
Normoyle, Catherine Lucille
O'Driscoll, Michael A
Oakes, Lindsay*
Olabiyi, Ayodeji*
Offenbacher, Adam Richard^*
Opejin, Abdulahi^*
Osborne, Kim*
Pajski, Jason*
Pan, Xiaoping*
Pardi, Vanessa
Pasetto, Silvana*
Passwater, Chelsea Cannon
Pender, Jack Edward
Peralta, Ariane Legaspi
Perrucci, Daniel Victor
Perry, Jamie L
Perry, Megan A
Pestaner, Mitzi Caroline
Pokhrel, Lok R*
Polakowski, Nicholas
Popke, Emil Jeffrey
Popoviciu, Ciprian
Powell, Shannon B
Preston, Ron^*
Raedeke, Thomas D
Randriampiry, Njina*
Richards, Keith*
Richards, Stephanie Lynn
Richman, Alice Rose
Richter, Steven Michael
Roberson, Donna W
Roeder, Lynn Michele
Rogers, Rebekah
Roop, Roy M
Rothermich, Kathrin*
Roy, Sourav*
Ruffin, Jocelyn Simone
Rupp, Nick*
Russell, Kelli Strickland
Ryan, Teresa Jean
Sastre, Lauren Rogers
Scemama, Jean-Luc*
Schearman, Sachi*
Schmidt, Cameron Alan
Schultz, Brandon Kyle
Schwalbe, Ruth
Sharer, Wendy
Singh, Berwin*
Sirianni, Matthew J
Smith, Aimee
Sousan, Sinan
Speicher, James Edward
Speight, Chandra Lenelle
Spuches, Anne M
Stanley, Julia*
Stroud, Brandon*
Surkar, Swati Manoharrao
Sylcott, Brian
Szatmari, Erzsebet Maria*
Taylor, Alan
Thompson, Beth
Thompson, Brittany Myles
Wright
Thornton, Kendell C

^Moderator
*Judge

Tisnado, James R
Tran, Tuan D*
Tucker-McLaughlin, Mary*
Tulis, David Anthony
Tutor, Robin Parker
Vance Chalcraft, Heather D
Vermiglio, Andrew J
Vieira, Alexandre*
Wade, Eric
Walcott, Christy Mangione
Walenski, Matthew
Walfield, Scott
Watts, Mirian*
Weckesser, Gerald
Wedge, Ryan Douglas*
Wells, Angela Franks
White, Avian*
Willson, John David
Wilson-Okamura, David
Wolfe, Christopher Aaron
Woodlief, Tracey Leigh
Wu, Xian*
Xu, Lei
Yang, Li
Zeczycki, Tonya N
Zhang, Baohong
Zhang, Yan
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. 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

Dr. Angela Lamson
Human Development and Family Science
College of Health and Human Performance

Dr. Angela Lamson, PhD, LMFT, Nancy W. Darden Distinguished Professor in the Department of Human Development and Family Science currently serves as the Interim Assistant Vice Chancellor for Economic and Community Engagement. Dr. Lamson has served as the program director for the Medical Family Therapy (MedFT) doctoral program and Marriage and Family Therapy master's program. She also directed the ECU Family Therapy Clinic and served as the associate dean for research and graduate studies in the College of Health and Human Performance. In addition, she is on the Executive Committee for the Alliance of Military and Veteran Family Behavioral Health Providers at the national level. Dr. Lamson's teaching, funding, and publications have been devoted to Medical Family Therapy and integrated care, particularly in the areas of trauma, chronic illness, loss, and compassion fatigue in the lives of individuals, couples, families, and providers. Her training and research initiatives have been housed in community health, primary care, specialty care, schools, and military bases. Dr. Lamson was honored with the 2020 Outstanding Contribution to Marriage and Family Therapy Award by the American Association for Marriage and Family Therapy and the ECU 2022 Research and Creative Activity Lifetime Achievement Award.

Dr. Lamson is recognized for her long-term commitment to supporting, empowering, and collaborating with doctoral students in the Medical Family Therapy (MedFT) Program. One student wrote that Dr. Lamson’s “mentorship is defined by her deep investment in our growth and success. Her organized weekly writing groups, guidance in our career development, and steadfast support in our research and clinical endeavors demonstrate the significant and positive influence she has on our professional journey.” Faculty wrote that her advocacy for students includes “meaningful conversations” that “promote their own self-care” and “academic excellence in the classroom and the research lab.” Dr. Lamson ensures that students “build a research trajectory including publications, presentations, and grant proposals with community partners that promote mutually beneficial community engaged scholarship.” Dr. Lamson’s inclusionary mentoring practices clearly influence the success of the MedFT students and their work to transform the communities they serve.
ECU DISTINGUISHED GRADUATE FACULTY MENTOR AWARD
MASTER’S CATEGORY

Dr. Christy Howard
Department of Literacy Studies,
English Education, and History Education
College of Education

Dr. Christy Howard, PhD, Associate Professor in the Department of Literacy Studies, English Education, and History Education (LEHE) in the College of Education serves as the Director of LEHE Graduate programs and MAEd Reading/Literacy program coordinator. She teaches undergraduate and graduate literacy courses. Her research interests focus on culturally responsive literacy instruction, content area literacy, and the experiences of students and faculty of color. Her research has been published in several journals including Language Arts, Journal of Literacy Research, and Literacy Research and Instruction. Her book, It’s not “one more thing”: Culturally responsive and affirming strategies in K-12 literacy classrooms, was published in 2021.

Dr. Howard is recognized for her dedication and commitment to mentoring students to become reading and literacy specialists and leaders. One student wrote that Dr. Howard’s “passion, dedication and knowledge radiate in all that she does” and “she has been a profound influence on my life and particularly in my career.” Her faculty colleagues noted “her innovative practices, and her commitment to social transformation through education.” They recognized that this award would honor and acknowledge “the transformative power of our colleague who has magnified her social justice work by sustaining the hearts and minds of those who will continue her legacy.” Dr. Howard fosters a “community of belonging and learning” that recognizes and affirms “the brilliance, cultural wealth and funds of knowledge students bring into our programs.” Dr. Howard’s commitment to educating and inspiring future leaders in reading and literacy education ensures her students’ success but also their own students and communities.
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 one category for the 2024 Master’s Theses Award: (1) Mathematics, Physical Sciences, and Engineering and (2) are presented in two categories for the 2024 Doctoral Dissertation Award: (1) Social Sciences, Business, and Education and (2) Life Sciences

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.
Dr. Todd Mendenhall  
Dissertation Title: “Semianalytical and Numerical Studies of Relativistic Heavy Ion Collisions”  
Department of Physics  
Thomas Harriot College of Arts and Sciences  
Dissertation Director: Dr. Zi-Wei Lin  
https://thescholarship.ecu.edu/handle/10342/13148

Abstract  
The quark-gluon plasma (QGP) has been produced by relativistic heavy ion collisions, and understanding its properties is a primary goal in the field of nuclear physics. This research first elucidates recent semianalytical developments that improve the estimates of the initial energy and net conserved-charge densities and enable the calculation of trajectories in the quantum chromodynamics (QCD) phase diagram for the matter produced by nuclear collisions. A semianalytical model of the initial densities is developed by including the finite nuclear thickness for parton production. The new maximum energy density is found to have an analytical upper bound and satisfy an approximate scaling relation. QCD phase diagram trajectories are extracted from the semianalytical densities using several nuclear equations of state, and the calculated QGP lifetimes are found to depend significantly on the values of the model's parameters. The study next presents a comparison between two solutions of the relativistic Boltzmann equation (RBE): one, a numerical solution using parton transport; the other, a theoretical solution for a homogeneous gas of massless particles. Parton transport in Zhang’s parton cascade (ZPC) is found to reproduce the results of a recent exact analytical solution of the RBE with an unexpected effectiveness at high densities when using new generalized collision schemes. Finally, the work discusses some open questions related to parton transport in ZPC and suggests some possible directions to uncover their answers. These future research goals include discovering the cause of an unexpected problem arising in simulations with three-dimensional (3D) expansion, understanding the theoretical distribution of the total center-of-mass (CM) energy squared for two-parton collisions, and studying curved parton motion in the presence of strong electromagnetic fields. Overall, the results presented in this dissertation improve the theoretical and numerical descriptions of the QGP and should be useful for future studies.
DOCTORAL DISSERTATION AWARD:
SOCIAL SCIENCES, BUSINESS, &
EDUCATION

Dr. Corin E. Davis
Dissertation Title: “Recruitment, Retention, and Intersectionality: Recognizing the Voice of Historically Marginalized and Systemically Oppressed Medical Residents”
Department of Human Development and Family Science
College of Health and Human Performance
Dissertation Director: Dr. Angela Lamson
https://thescholarship.ecu.edu/handle/10342/10673

Abstract
The health and wellbeing of healthcare professionals has become a significant concern for the function of the healthcare system in the United States (U.S.). With a catastrophic physician shortage in healthcare and cumulative social injustices across the nation, medical schools and residency programs must prioritize the recruitment, wellbeing, diversification, and retention of physicians. The purpose of this dissertation is to increase the body of literature related to burnout and compassion fatigue related to historically marginalized and systemically oppressed residents. The six chapters in this dissertation, include a/an: (a) conceptual model of how MedFTs can influence the recruitment and retention of diverse physicians, (b) scoping review of LGBTQ+ patient and provider experiences in primary care, (c) systematic review of intersectional data related to burnout and compassion fatigue in residency, (d) methodology chapter describing the original study, (e) original research study that reports the results from a quantitative survey and phenomenological interview guide with historically marginalized/systemically oppressed residents related to burnout, compassion fatigue, discrimination, and harassment throughout their residency experience, and (f) conclusion chapter that offers a review of the previous chapters and recommendations for residency programs in the form of a fact sheet.
Amanda Ohler
Thesis title: “Defining Protein Motions that Comprise the Reaction Barrier in Human Epithelial 15-Lipoxygenase-2”
Department of Chemistry
Thomas Harriot College of Arts and Sciences
Thesis Director, Dr. Adam R. Offenbacher
https://thescholarship.ecu.edu/handle/10342/10682

Abstract
Proteins are dynamic in nature, with these motions playing a role in substrate binding and product release. Protein thermal motions have emerged as participating in the bond making/breaking steps of catalysis and by extension the rate enhancement observed in enzymes. A family of enzymes, known as lipoxygenases (LOXs), play a large role in growth and pathogenic defense in plants and homeostasis, cell signaling, and inflammation in humans. The regulation of LOX pro- and anti-inflammatory properties is thought to be controlled through allosteric interactions with small molecules, proteins, and membranes. For all organisms, LOXs oxidize polyunsaturated fatty acids through an often rate-limiting C-H activation step that proceeds through a tunneling mechanism. The activation energy barrier for this LOX reaction is expected to be related to the thermal fluctuations of the protein-substrate complex. How protein motions transfer heat from the surface to buried active sites remains an open question. Furthermore, the connection between thermal motions mediating allostery and the chemical step(s) are not well resolved. Recent studies on the model plant LOX, soybean lipoxygenase (SLO), have identified a solvent-exposed loop that is linked to the origins of a defined network for thermal activation that is distinct from the defined allosteric network. The human counterpart, human epithelial 15-lipoxygenase-2 (15-LOX-2), exhibits similar function but lacks some of these structural features found in SLO, thereby raising the question as to the evolution of structure and protein motions in these enzymes. In this thesis, biophysical methods, including temperature-dependent hydrogen deuterium exchange-mass spectrometry, X-ray crystallography, and differential scanning calorimetry, as well as enzyme kinetics are used to regionally define catalytically linked dynamics related to both allostery and chemical bond breaking step(s) of 15-LOX-2 to further understand how thermal motions regulate lipoxygenase function.
ECU Research and Creative Achievement Week provides students with an excellent opportunity to practice their presentation skills and meet other innovative 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, Technology, & Computer Science
- Fine Arts, Visual Art, and Design
- Human Health
- Humanities
- Interdisciplinary Innovation
- Natural Sciences
- Social Sciences
GRADUATE STUDENT AWARDS

Podium Presentation Awards

Biomedical Sciences & Human Health
Lauren Jung
Mentor: Dr. Elizabeth Ables
“Ecdysone signaling in the Drosophila germline regulates a stem cell transcriptional program”

Education & Social Sciences
Daniel Stickel
Mentor: Dr. Jeannie Golden
“Adverse Childhood Experiences, Risk Taking, and Protective Factors”

Engineering, Technology, and Computer Sciences
Colby Sawyer
Mentor: Dr. David Hart
“Evolving PITON: AI-Driven Simplification of IoT Data Access”

Fine Arts, Visual Arts, and Design
Katelyn Brewer
Mentor: Dr. Angela Wells
“Exploring Tourette Syndrome with Analog Photography”

Natural Sciences
Elnaz Pezeshki
Mentor: Dr. Stephen Moysey
“Using electrical resistivity tomography (ERT) to investigate the role of artificial channels on saltwater transport, Hyde County, NC”
GRADUATE STUDENT AWARDS

Poster Awards

Biomedical Sciences
 Connor B. Cribb
 Mentor: Dr. Roy Roop
 “Investigating the role the polar autotransporter adhesin genes encoded by Brucella have on crossing mucosal barriers and virulence”

Education
 Stephanie Wood
 Mentor: Dr. Kristen Gregory
 “Parents’ and Teachers’ Perceptions of the Effectiveness of Preschool in Terms of Mathematical Kindergarten Readiness”

Engineering, Technology, and Computer Science
 Gabrielle Stein
 Mentor: Dr. Nic Herndon
 “The Perils of Generative Model Inbreeding: Evaluating the Consequences of Cross-Model Training in Large Language Models”

Human Health
 Ben Brisard
 Mentor: Dr. Cameron Schmidt
 “Unveiling Sperm Capacitation Dynamics: A Novel Spectral Flow Cytometry and Stochastic Modeling Approach”
Social Sciences
Emilia N. Rose
Mentor: Dr. James E. Loudon
“Using stable carbon and nitrogen isotope values to estimate exposure to agricultural chemicals among green monkeys (Chlorocebus sabaeus) in St. Kitts”

Natural Sciences
Jahiem Hill
Mentor: Dr. Robert Hughes
“OptoProfilin: A Single Component Biosensor of Cellular Stress”

UNDERGRADUATE STUDENT AWARDS

Podium Presentation Awards

Biomedical Sciences
Nandini Vishwakarma
Mentors: Dr. Laxmansa Katwa and Dr. Srinivas Srimulula
“Discovering the Mysterious Effects of Intracardiac Dopamine Receptor Signaling”

Engineering, Technology, and Computer Sciences
Heath Faircloth
Mentor: Dr. Teresa Ryan
“Material Property Investigation of Common 3D Printer Filaments”
Multidisciplines
Jade McNeill
Mentor: Dr. Roshaunda Breeden
“Amplifying Our Voices: Exploring Black Women Student Leaders Experiences at East Carolina University”

Natural Sciences
Victoria Gonzalez Mundarain
Mentor: Dr. Nathan Hudson
“Examining Human Fibrinogen's Molecular Structure Using Electron Microscopy”

Social Sciences
Cassidy Fitz-Randolph
Mentor: Dr. Scott Walfield
“Rape Myth Adherence Among University Students”

UNDERGRADUATE STUDENT AWARDS

Poster Awards

Biomedical Sciences
Lucas Boldt
Mentor: Dr. Li Yang
“MADCAM-1 and TNF-α Expression Reduced in GPR4 Knockout Mice Given Immune Checkpoint Inhibitor Immunotherapy”
Education
Dhwani Hada
Co-Presenters: Kailee Ann Grubbs, Jameson Johnson Gerdts, Aliah Mikelle Spencer, Stephanie Marie Stewart
Mentor: Dr. Yilei Huang
“Enhancing Electrical Systems Technology Education: A Study on Virtual and Augmented Reality Integration in Community Colleges”

Engineering
Josey Wilson
Mentor: Dr. Daniel Perrucci
“Using the Critical Path Method (CPM) for Evaluating Allocation Potential of Temporary Housing Unit Design”

Human Health
Daniel Walker
Co-Presenter: Amelia Tart
Mentor: Dr. Sinan Sousan
“The Effects of Commercial Grade E-Cigarette Chemical Ratios and Nicotine Strength on the Gravimetric Filter Correction Factors and Real-Time Measurements”

Interdisciplinary Innovation
Joanna Mathew
Co-Presenter: Yanni Pavlikianidis
Mentor: Dr. William Godwin
“Innovation in Medical Education: Crafting a 3D Printed Female Pelvic Model”

Multidisciplines
Jack Meltsner
Mentor: Dr. Glenn Hubbard
“Eternal Light: Two Holocaust Survivors' Stories Of Perseverance”
Natural Sciences
Soham Patel
Mentor: Dr. Adam Offenbacher

Social Sciences
Katelynn Teli
Mentor: Dr. Aimee W. Smith
“Predictors of Cognitive Functioning in Infants Visiting the NICU Follow-Up Clinic”

CAPTURE 180 RESEARCH CHALLENGE

Grand Finalist
Rachana Charla
Mentor: Dr. Kristen Myers
“Emotional Laboring Through Birth: Insights From Doula Volunteers”

People’s Choice Awards
Sophie Arruza
Mentor: Dr. Teresa Ryan
“Tracking Cloud Coverage in Matlab”

Madison Nay
Mentor: Dr. Jon Kirchoff
“Sustainable Transformation of Fast Fashion Supply Chains: Challenges, Innovations, and Ethical Imperatives”
Capturing the Art of Science
ECU LaserTAG

Laren Jung (First Place)

Victoria Gonzalez Mundarain (Second Place)

Hannah Croy (Third Place)
SPECIAL THANKS

SPONSORS

Academic Affairs
The Graduate School
Office of Undergraduate Research
Research, Economic Development and Engagement

View our website for the online version of our program.
http://go.ecu.edu/RCAW

We look forward to seeing you again next year for RCAW 2025!

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