

ECU Graduate School

East Carolina University currently offers 71 master's degree programs, through our 11 colleges and schools. In addition, we offer 13 research/doctoral programs, 6 professional doctoral programs (AuD, DMD, DNP, DPT, EdD, MD) and hold the distinction of being classified among the Doctoral/Research Universities by the Carnegie Foundation. ECU is constantly striving to meet the evolving needs of our students, the people of North Carolina, the United States, and the world by providing educational, research, and outreach programs designed to address the challenges and opportunities of the 21st century.

<https://gradschool.ecu.edu>



Three Minute Thesis

November 16th, 2021

1:00 PM

Main Campus Student Center



About 3MT

The Three Minute Thesis (3MT) is a research communication competition that challenges masters and doctoral students to present a compelling oration on their research endeavors in just 3 minutes to a non-specialist audience. The first 3MT was held at the University of Queensland in 2008 with 160 graduate students competing. Enthusiasm for the 3MT concept has grown and its widespread implementation by universities has led to the development of an international competition. Today, the 3MT competition has grown to over 600 universities across more than 65 countries worldwide. East Carolina University (ECU) is excited to host its sixth annual 3MT event.

3MT Rules:

Each presentation will be judged on comprehension, content, engagement, and communication. Each presentation is limited to a 3-minute maximum and competitors exceeding 3 minutes will be disqualified. Presentations are considered to have commenced when a presenter starts their presentation through movement or speech. Although a presenter is allowed to have a single static PowerPoint slide (No slide transitions, animations or 'movement' of any description are allowed), no additional electronic media (e.g., sound and video files) or props (e.g., costumes, musical instruments, laboratory equipment) are permitted. All presentation are required to be spoken word (e.g., no poems, raps, or songs) and commence from the stage. The decision of the head judge and moderator is final.

3MT People's Choice:

Each member of the audience can vote for their favorite presenter by writing down their name. Voting ballots will be given out at the beginning of the Championship Round. We ask audience members to submit only one ballot per round.

3MT Departmental Cup:

The Department Cup is given to the Department that has the three highest scoring presenters during the first round of Heats. The Department Cup is sponsored by the North Carolina Biotechnology Center.

Program Sponsors

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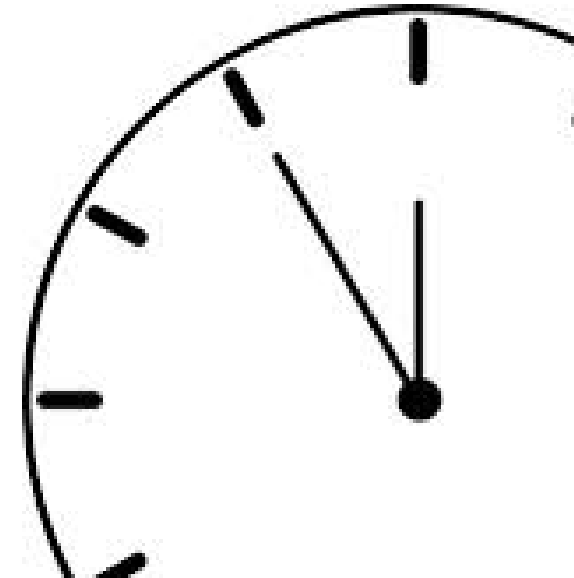


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Thank You

The 3MT Committee would like to extend a warm thank you to all who participated and attended the 2021 East Carolina University Three Minute Thesis Competition. Without your generosity and expertise, this event would not have been possible. We sincerely appreciate your time and effort in making this event a success!

Please do not forget to view our website for any information on this and future 3MT events at <https://gradschool.ecu.edu/awards/3mt/>



People's Choice Awards

Please use the provided ballot to select your choice for the best presentation today!
We will award a 1st and 2nd place winner!

We will collect the ballots after the final presentation just before our 15-minute break!

Department Cup

This award is presented to the department whose students submissions score the highest!

Grand Champion

Our judges scores will be used to select the Grand Champion and 2nd Place award winners today!

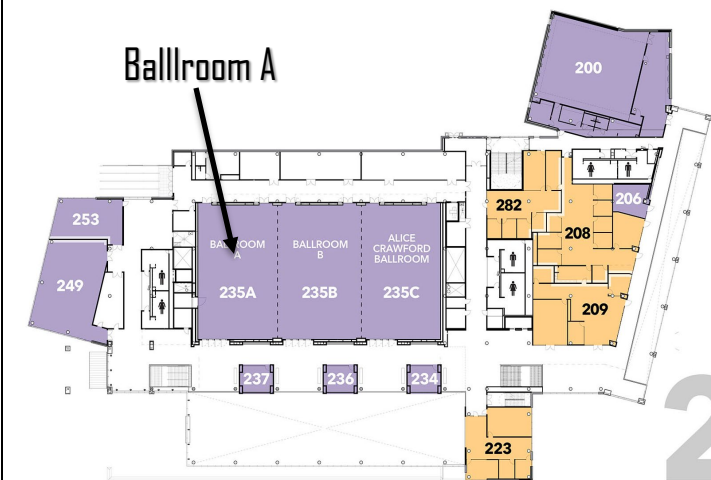
Order of Events

1:00 pm | Opening Ceremony | Ballroom A

1:15 pm – 2:30 pm | 3MT Heats

2:30 pm – 2:45 pm | Networking & Snack Break

2:45 pm | Award Ceremony | Ballroom A



Personnel

Judges

Susan Bucci

Owner, Painted Peacock

PJ Connelly

Mayor, City of Greenville

Willie Ehling

Director, East Carolina University Campus Recreation & Wellness

Cheri Hodges

Director of Compliance, ECU Division of Athletics

Pam Hopkins

*Director, Speech Communication Center
School of Communication*

Richard O'Dor

Director, College of Business Communications Center

Stephanie Whaley

Associate Vice Chancellor and Director of Undergraduate Admissions

Troy Dreyfus

Owner, Pirate Radio

Additional Support

Marquerite Bond

Anja Burcak

The Graduate School

First Concern about Infants with Cleft Lip and Plate: Feeding

Student: Neda Tahmasebifard, MS

Department: Rehabilitation Sciences

Mentor: Dr. Jamie Perry

Abstract: The purpose of this study was to compare intrinsic and extrinsic factors among infants admitted to a neonatal intensive care unit (NICU) with cleft lip and palate (CLP), as a function of human milk feeding status at discharge. Method: Data collected of mothers and their infants admitted to the NICU with CLP from the 2018 National Vital Statistics System were used for this study. Chi-square tests of independence were used to compare categorical variables among two groups of infants admitted to the NICU with CLP – those who did and did not receive human milk feeding at discharge. Independent samples t tests were used to compare continuous variables. Results: The sample included 660 infants admitted to the NICU with CLP, of which 353 were infants who had human milk feeding at discharge. Significant differences were found for marital status, mother's education, maternal smoking record, total numbers of prenatal care visits, multiparity (having more than one baby at birth) record, gestational age, gestational weight, and using assisted ventilation for more than six hours. Conclusion: Results indicated that as a function of human milk feeding at discharge, mothers and their infants admitted to the NICU with CLP exhibit differences across a variety of intrinsic and extrinsic factors. These findings further our understanding of this sample of mothers and infants with CLP, while potentially identifying determinants to human milk feeding. This study provides insight into mother and infant characteristics that are most vulnerable to not breastfeeding.

Reducing Opioid Overdose Deaths, Dopaminergics and Opioids: Combine and Conquer

Student: Mandee Schaub
Department: Physiology
Mentor: Dr. Stefan Clemens

Abstract: Chronic neuropathic pain (CNP) is a nervous system disorder that affects 12-15% of Americans. There is a lack of effective long-term treatments for CNP, and opioids serve as a last resort. We have shown recently that in an animal model of centrally induced CNP (spinal cord injury), morphine can achieve and maintain analgesic relief if administered with the dopamine (DA) D3 receptor agonist pramipexole (PPX). We here wanted to explore if this novel drug combination would lead to similar positive outcomes in a peripherally-induced model of chronic pain. Male mice (C57BL/6, 10 weeks old) were subjected to a unilateral sciatic nerve ligation (SNL), with the contralateral side serving as control. A Hargreaves system was used to measure thermal pain withdrawal reflex latencies on both sides, under control and drug treatment conditions (i.p. injections of PPX and/or morphine). Following behavior testing, sciatic nerves were harvested to assess nerve conduction velocities (NCVs) and compound action potentials (CAPs), and spinal cords were harvested and probed for protein expressions of dopamine and mu-opioid receptor. We found that, when applied to this peripheral model, neither morphine (2 mg/kg) nor PPX (0.5 mg/kg) led to recovery of thermal pain withdrawal reflex latencies, while application of the drugs in combination (morphine 2mg/kg + PPX 0.5mg/kg) completely restored reflex latencies to control levels. In addition, a reduction of morphine to 1 mg/kg in the presence of 0.5 mg/kg PPX also restored normal reflex latencies. In vitro, NCVs were unaltered in SNL animals while CAPs were significantly reduced.

These data indicate that a combination treatment of morphine and PPX can restore normal reflex function in a peripherally-induced CNP model that is morphine tolerant, similar to the findings obtained from the centrally induced CNP model. Thus, we propose that this new pharmacological approach that combines an opioid with a dopaminergic may be a novel tool to treat CNP regardless of its origin. The proposed treatment would reduce opioid doses clinically, reducing negative outcomes due to opioid use.

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Implementation of Bert Based Machine Learning Model to Extract Cancer –miRNA Relationship from Research Literature

Student: Arunprasad Sundharam
Major Department: Computer Science
Director of Thesis: Qin Ding, PhD

Abstract: In the world today, text mining is a widely popular and growing branch of Information technology, in which we extract useful information out of the given pile of text data. There are thousands of research papers in medical science pertaining to the study of how microRNAs (miRNAs) can assist or impede the development of various types of cancers. mirCancer is a repository which provides the details of this cancer-miRNA association by analyzing 6500+ research papers using text mining techniques. It would be helpful to create a machine learning model which can analyze the title and abstract content of the research papers and extract the cancer-miRNA association details if it is available in the given text. In this thesis work, we are proposing a solution for creating a machine learning model using the open-source NLP framework – BERT, provided by Google which can extract the cancer-miRNA relationship in the given abstract text content. As part of this work, we have designed and implemented a machine learning model using Bert framework along with preparation of the dataset required to train the model in the task of identifying cancer-miRNA relationship from the given text. The machine learning model developed in this thesis work performed with an overall accuracy of 90.39% in retrieving the required information from the research papers of the test dataset.

The Lived Experience of Nursing Staff in Skilled Nursing Facilities: Identification of Urinary Tract Infection in Residents

Student: Kimberly Delgado
Department: Nursing
Mentor: Dr. Donna Roberson

Abstract: Annually, 50-70% of skilled nursing facility (SNF) residents receive at least one antibiotic, with up to 75% of those prescribed inappropriately. One-third of the antibiotic prescriptions are ordered to treat urinary tract infections (UTI). Inappropriate antibiotic use may result in avoidable adverse outcomes. The structure of the SNF and the condition of residents present a unique challenge with health care providers (HCPs) typically off-site. HCPs in SNFs rely on nursing staff to make observations, recognize changes, communicate, and make recommendations, mostly via telephone. With less than 12% of registered nurses (RNs) choosing to work in SNFs, and licensed practical nurses (LPNs) and certified nursing assistants (CNAs) accounting for 86% of frontline staff, there is a greater likelihood that the licensed nurse manages a health need will be an LPN. The SNF role of CNAs and LPNs in identification of UTI and decision-making nursing staff have been vastly understudied. The nursing staff have a unique culture of care that requires study to understand. The purpose of this study is to use a phenomenological approach to describe the lived experience of nursing staff as they identify changes in SNF residents that may be indicative of a UTI. The outcomes of this study will provide insight into SNF nursing staff experiences and give them the opportunity to have their voices heard.

Health and Sickness in the 19th-20th Century

Student: Bridget Cone
Department: Anthropology
Mentor: Dr. Megan Perry

Abstract: The urban northeastern and mid-Atlantic U.S. in the 18th and 19th centuries often is characterized by poor childhood health due to high population density, poor sanitary conditions, and high levels of pollution, in addition to extractive childhood labor practices. While bioarcheological investigations have identified the poor nutrition and high activity levels of enslaved populations in the Southeast, the impact of urban environments in this predominantly agricultural, non-industrialized region remains relatively understudied. This investigation focuses on how early childhood environments impacted morbidity and mortality of one family from the urban southeastern U.S. from the 1850s through the 1970s. Evidence for early life stress in the form of growth disruption and skeletal and dental lesions associated with disease and malnutrition were documented in a minimum of 29 individuals from the Rhem family vault, located in New Bern, North Carolina. These variables were compared to two contemporary samples from land-owning families in rural eastern North Carolina to identify rural and urban differences in non-adult health, and its impact on health and disease later in the life course. No rural-urban differences in growth and development and their impacts on morbidity and mortality were identified through logistic regression and correlation analysis. One possible explanation for this homogeneity stems from the high economic status of the individuals included in this analysis, which could have buffered potential detrimental effects of urban living. This evidence highlights the complexity of urban and rural health and the necessity of parsing out impacts of economic status on health.

Wounds You Can't See: Adverse Childhood Experiences

Student: Lesha Rouse
Department: College of Nursing
Mentor: Dr. Shannon Powell

Abstract: Purpose: To explore the knowledge, experiences, and role of the school nurse in trauma-informed care (TIC) in school health practice. Significance: In 2016, 34 million children ages 0–17, nearly half of all US children had at least one of nine Adverse Childhood Experiences (ACEs), and more than 20 percent had two or more. ACEs can include but are not limited to experiencing violence, abuse, or neglect. Studies have shown that childhood adversity contributes to most major chronic health, mental health, economic health, and social health issues, even being a root cause of most violence. School nurses are ideally positioned to provide trauma-informed care to students that have been exposed to ACEs. However, there is a clear lack of research that explores the school nurse's knowledge, experiences, and role when providing TIC to students exposed to ACEs. Methods: This study will be conducted in North Carolina using a quantitative, descriptive, design which will use data collected from a purposive sample of 235 school nurses, attained from the School Nurses Association of North Carolina (SNANC) website and snowball sampling. Participants will take a 62-item online survey measuring TIC in school health practice. The study is currently in the data collection phase. Nursing Implications: Findings from this study will aid school nurses in the characterization of their role when providing TIC to students who have been exposed to ACEs. These findings will also illuminate the value of the school nurse as an integral part of the school-based trauma-informed interdisciplinary team.

Death on Display: Mortuary Archaeology of the Rhem Vault

Student: Jaylynn Stewart
Department: Anthropology
Mentor: Dr. Megan Perry

Abstract: The excavation and study of 19th and 20th century cemeteries in North America have not only illuminated shifts in mortuary behavior but also highlighted the lives of those invisible in the documentary sources, particularly women and children. However, unlike neighboring regions to the north and south, very few archaeological explorations of 19th and 20th century cemeteries in eastern North Carolina exist. A gradual picture of life in this relatively rural segment of the east coast is emerging through explorations of family vaults and cemeteries, largely initiated by their descendants. In 2019, the Anthropology department at East Carolina University was asked by descendants of the Rhem family in New Bern to clear the ca. 1853 above-ground structure in preparation for restoration. This created the opportunity to study the material evidence for 19th and 20th century burial practices as well as the human remains within the vault during the 2021 field season. This presentation focuses on the material evidence for mortuary behavior during a rapidly-changing period of funerary history in the U.S. in order to document how these trends were practiced in a population center within a relatively rural context.

Archaeology Under the Microscope

Student: Victoria Elizabeth Schwarz
Department: Anthropology
Mentor: Dr. Heidi M. Luchsinger

Abstract: Based on a US-Argentine geoarchaeological study conducted in the Middle Río Negro Valley, northern Patagonia, during the Middle to Late Holocene the main river channel abruptly shifted its course across the valley three times. Stratigraphic analysis revealed that the channels were occupied by prehistoric groups in two phases. The first phase occurred when the channel served as the principal/main channel of the Río Negro, pre-avulsion, and the second phase was post-avulsion, after the river shifted course. The reason why these abandoned channels were revisited was not immediately clear although this study suggested that these channels contained deposits of high quality lithic raw materials for making stone tools as well as a diversity of renewable food sources found at these locations. Evaluation of the depositional context of archaeological sites can be challenging on the macroscale and sometimes it is necessary to conduct analyses at a higher resolution, especially when there is evidence of landscape use that initially appears so unusual for this region. Micromorphological analysis of eolian and alluvial sediments will be used to determine the depositional context of archaeological sites in greater detail; therefore, archaeological sites can be conclusively identified as either pre-avulsion or post-avulsion. If this hypothesis is correct, then this contributes additional evidence that these abandoned channels were occupied both before and after each channel shifted its course during the mid-late Holocene. Therefore, future archaeological investigations within such river valleys that undergo channel avulsion, should include such abandoned channels as potential locations for locating well-preserved archaeological sites.