Thank you for attending the 2017 Graduate Research and Creativity Expo!

Special Thanks

We would like to say a special thank you to
Dr. Franklin D. Gilliam, Chancellor
Dr. Dana Dunn, Provost
Dr. Terri Shelton, Vice Chancellor for Research and Economic Development
Council for the Advancement of Graduate Education
UNCG’s Office of Government Relations
Graduate Student Association
Faculty Mentors
Expo Participants
Judges and Event Volunteers

Graduate Research and Creativity Expo:
“SCHOLARSHIP THAT MATTERS”

Wednesday, April 5, 2017
12-3 p.m. — Expo
3-4 p.m. — Final Judging
Elliott University Center,
Cone Ballroom
Welcome!

Welcome to the UNC Greensboro Graduate Student Research and Creativity Expo: Scholarship that Matters. The purpose of the Expo is to showcase the accomplishments of UNCG’s graduate students to the Greater Greensboro community, and to provide a venue for students to communicate their research and creative activities to the public. More than 100 graduate students will present their work either through posters, short colloquies, or short videos. Students will be present, based on various schedules, to explain their work and interact with the broader community.

This Showcase of Talent is organized into competitions in the following broad categories: Arts; Natural, Physical, and Mathematical Sciences; Professional Programs; Humanities; Health Sciences; and Social Sciences. This program is arranged by the category, last name of the presenter (first presenter if it is a group) with the time they are presenting right next to their poster number.

Judges will be circulating throughout the event and will be evaluating presentations in each of the venues. Following the competition, a winner from each category will be chosen and provided with a $1000 award. Winners from the competition may be asked to participate in May at the Graduate Education Day in Raleigh at the State Legislature, and will be honored at the Student Honors Convocation later in the semester.

Attendees are invited to engage with the students and meet with staff from across the campus to identify ways to tap into UNCG’s talent and resources and build mutually beneficial partnerships.

I would like to personally thank our judges for giving their time and expertise in support of graduate education at UNC Greensboro.

Thank you for attending!

Dr. Kelly J. Burke
Vice Provost for Graduate Education

Congratulations to Our 2016 Winners!

Creative Arts – Sydney de Briel (Theatre) Costume Design: She Kills Monsters, Faculty Mentor: Ms. Deborah Bell

Health Sciences – Andrea Pluskota (Communication Sciences & Disorders) Black Lives, Literacy, and Language Skills Matter: A Summer Program for Culturally and Linguistically Diverse School-Aged Children, Faculty Mentor: Dr. Alan Kamhi

Humanities – Joseph Ross (History) Remembering Nuremberg: The Paradox of Human Rights in American History, Faculty Mentor: Dr. Mark E. Elliott

Natural, Physical, and Mathematical Sciences – Taylor Mabe (Nanoscience) Development and Fabrication of a Handheld Point-of-Care Sensor for Disease Diagnosis, Faculty Mentor: Dr. Jianjun Wei

Professional Programs – Tara Konya (Consumer, Apparel & Retail Studies) At the Intersection of Social Marketing and Public Policy: An Exploration of a Non-Profit from the Client Perspective, Faculty Mentor: Dr. Nancy Nelson Hodges

Social Sciences – Arwa Altaher (Geography) Residential Location Patterns of Immigrants in 21st Century: A Case Study of Atlanta MSA, Faculty Mentor: Dr. Selima Sultana
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Opening Remarks

Introduction

12:00  Brad Hayes, Chair of the Board of Trustees

Opening Remarks

12:05  Jeff Shafer, Associate Vice Chancellor and Chief Communications Officer

Judges

Thank you to our judges for your time and commitment to the 2017 Graduate Research & Creativity Expo!

Bill Allred   Janet McAuley-Blue
Meridith Berger Carole Meshot
Dennis Booth   David Parrish
Frances Bullock Diane Quillen
Sam Federico   Ward Russell
Joan "Pat" Finger Susan Safran
Brad Hayes     Karl Schleunes
Leigh Hesling   Ed Sharp
Frank Houston   David Sprinkle
George Hoyle    Jeff Thigpen
Scott Hudgins   Marsha Tice
Dan Lyons       Valerie Vickers
Beth Mannella   Joanne Williams

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## Willow Room

### Presentation Schedule

#### Professional Programs

**12:40-12:55**  
**Matthew James** (Specialized Education Services)  
*Increasing Shared Story Engagement and Comprehension via 3-D Printed Objects for Students with Severe Disabilities*

#### Social Sciences

**1:00-1:15**  
**Sabrina Teeter** (Psychology)  
*Unattractive and Unaware: Exploring the Accuracy of Self-Perceptions of Attractiveness*

**1:20-1:35**  
**Carmen Calhoun** (Languages, Literatures, and Cultures)  
*The Representation of the Revolutionary Dimension of Popular Music: Tropicáli in the Latin American Mass Media*

#### Arts

**1:40-1:55**  
**Marya Fancey** (Music)  
*Understanding Sacred Organ Music from a Sixteenth-Century Polish Source*
Dylan Bollinger (Theatre) Lighting Design of Antigone: Classic Greece in the Modern Era
Poster # 1, Time: 2-3pm
Sophocles's "Antigone" is regarded as one of the most memorable works of the Grecian Theatre. However, what happens when a classic piece is taken indoors, and expected to be recreated with Ancient Greek theatrical conventions in mind? Answers to this question will be provided by Dylan G. Bollinger's explanation of his lighting design, and how theatrical designers approach classic texts for a modern audience.
Faculty Mentor: Mr. Ken White

Neila K. Ettienne (Theatre) Caribbean Theatre - Traditional Folklore on Stage
Poster # 2, Time: 12-1pm
The Caribbean -- a place where the friendliest smile makes you feel warm inside and the music makes you want to dance in your sleep; where the spectacle of colorful costumes at carnival, cultural festivals and folklore come together as a collaboration of dreams. The Caribbean has been known to be one of the most dramatic and theatrical places on earth. This is evident in its rich cultural heritage coming to life through parades, festivals, in the spicy foods, contagious calypso and Soca music and through religious and social rituals, but especially through our Afro-Caribbean folklore. This research focuses largely on the construct of two iconic characters: Anansi and La Diableresse (the devil woman); how these characters are presented and influenced the validity and vision, in addition to the teaching of moral values in the construct of the Caribbean Theatre.
Faculty Mentor: Mr. James Fisher

Claire Wood & Carol Johnston (Human Development & Family Studies) Social Withdrawal and Loneliness Predicting Drug Abuse Symptoms into Adulthood
Poster # 86, Time: 2-3pm
Substance abuse is a serious issue associated with crime, health care expenses, and lost productivity at work. Substance abuse, loneliness, and social withdrawal can prompt lasting negative consequences, and are especially high among adolescents and emerging adults, but have seldom been assessed together. The current study fills this knowledge gap by (a) disentangling the unique role of social withdrawal and loneliness in the trajectories of drug abuse, and (b) focusing on the links with drug abuse (i.e., clinical symptomology) rather than drug use (e.g., frequency). Results indicated that drug abuse symptoms increase over time. Furthermore, social withdrawal, but not loneliness, was associated with the trajectory of drug abuse symptoms. Individuals who reported higher levels of social withdrawal increased their drug abuse symptoms more rapidly than their peers and decreased more slowly over time.
Faculty Mentor: Dr. Daniel Perlman
**Sabrina Teeter** (Psychology) Jason Strickhouser & Dr. Ethan Zell, IRB #: 16-0292, *Unattractive and Unaware: Exploring the Accuracy of Self-Perceptions of Attractiveness*

Presentation, Time: 1:00-1:15

Extending prior research on self-knowledge of abilities and personality, we investigated the accuracy of self-perceptions of attractiveness. Female undergraduates (N = 185) indicated the perceived attractiveness of their face in comparison to other students at their school and were then photographed. Later, expert female raters judged each photo for attractiveness by considering standard criteria such as symmetry, skin health, face shape, and averageness. Overall, self-ratings of attractiveness were only moderately associated with expert-ratings. Participants who received relatively low scores from expert raters (i.e., ranked in the bottom 25%) rated themselves much more favorably than did expert raters. However, participants who received relatively high scores from expert raters (i.e., ranked the top 25%) rated themselves somewhat less favorably than did expert observers. These data suggest that people may have somewhat inaccurate perceptions of their attractiveness. Future research will examine why people sometimes lack insight into their attractiveness.

Faculty Mentor: Dr. Ethan Zell

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**Adrienne White** (Community & Therapeutic Recreation) Dr. Benjamin Hickerson IRB#: 37811 *Comparing the Psychological, Behavioral, and Social Impacts of Video Game Play on Children With and Without Autism*

Poster # 85, Time: 1-2pm

Autism Spectrum Disorder (ASD) is a neurodevelopmental disorder characterized by difficulty with social interaction and communication, sensory processing complications, and restrictive and repetitive behaviors (APA, 2013). A popular leisure activity for children both with and without ASD is playing video games. However, little is known about the similarities and differences in how these children interact with video games. The purpose of this study is to compare psychological attachment (i.e., Enduring Involvement; Kyle et al., 2007), behavioral patterns, and social uses of video game playing children with ASD to those without. Gaining an understanding of the relationship of psychological attachment domains to video games could provide information for parents, teachers, practitioners, and researchers. Discovering how children with and without ASD choose to play video games will inform our understanding of how their involvement in this leisure activity influences the development of their identity and social skills.

Faculty Mentor: Dr. Benjamin Hickerson

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**Marya Fancey** (Music) *Understanding Sacred Organ Music from a Sixteenth-Century Polish Source*

Presentation in Willow Room, Time: 1:40-1:55

Active preservation of music—studying and performing music from the past—helps us understand broader trends and gives us insight into ourselves and our culture today. My research investigates how sacred organ music was used in sixteenth-century Poland. As a performer and scholar, I am interested in how standard forms, like music for a Catholic mass, varied from one area to another and over time. The Jan of Lublin Tablature (1537-48), a Polish manuscript containing hundreds of sacred and secular organ compositions, has been largely ignored in the U.S. I am studying sacred music from the collection and its contemporaneous cultural and social worlds. Today I will share my preliminary findings and use pre-recorded video samples to demonstrate how the music may have been used in a Catholic mass. My work is in progress and will include research in Poland this coming year.

Faculty Mentors: Dr. André Lash, Dr. Elizabeth Keathley, Dr. Andrew Willis, Dr. Kimberly Marshall, & Dr. Adam Ricci

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**Sookwang Lee** (Interior Architecture) *The Chaircase: Modern Chair Design for Local Book Cafés*

Poster # 3, Time: 12-1pm

The Chaircase combines the function of a chair and a bookcase likely seen in bookstores and cafés. The local book café called Scuppernong located in Greensboro downtown was researched and observed to capture the aesthetic with its interior. The chair has curved lines flowing from the back and to the front legs of the chair. When the furnishing is viewed from the side, its back and the seating area forms a shape of an open book. In addition, the curved lines are stacked adjacent to create a negative space behind the back of the chair which is used for storing and displaying books. The dowel joints were a challenging step of the manufacture process since the constraints of the CNC process had to be considered. Ultimately, the moderate simplicity and organic, yet refined form creates a modern look, matching with the other modern furniture in the eclectic style interior.

Faculty Mentor: Ms. Felicia Dean
**Emily Loboda** (Music) IRB #: 16-0418, *Analysis and Compilation of Overtone Production Techniques in Saxophone Teaching Methods*
Poster # 4, Time: 2-3pm

Command of overtone production results in overall control of saxophone sounds, permitting proficiency in altissimo, tone quality, and intonation; therefore learning to produce overtones is a process that is essential to mastering saxophone performance. Many teaching approaches currently used in achieving overtone production are inconsistent and confusing. This lack of uniformity is a problem with teaching methods for advancing students’ overtone production abilities on saxophone. This proposed study is designed to address these issues in instruction with a descriptive analysis of overtone production techniques in saxophone teaching methods. The primary goal of this project is to discover the prevalent methods which exist for teaching overtone production techniques on the saxophone. This research will identify different approaches to teaching overtone production compiled from method books and in university studio instruction via interview techniques.

Faculty Mentors: Dr. Steven Stusek, Mr. Chad E. Eby, & Dr. Eric J. Willie

**Grace McKinnon** (Music) *Teaching Singing: Exploring the Unique Needs of Men and Women*
Poster # 5, Time: 2-3pm

Pedagogy for singing has not always taken the anatomical and acoustical differences of male and female voices into account. However, this research reveals the importance for developing singers to work with a voice teacher who can accommodate their specific needs. Voice teachers must be aware of the unique qualities in male and female voices so that they can tailor their teaching to improve the instrument of each individual singer. They must know how problems manifest themselves and how to express their instruction in a way the student understands. This study examines the rudimentary differences between male and female voices and offers basic information for teachers to find the healthiest vocal production for each student.

Faculty Mentors: Dr. Carla LeFevre, Dr. Nancy Walker, & Dr. Robert Wells

**Emma Sunnassee** (Educational Research Methodology) *Inferring Causation in Social Sciences - is it Possible?*
Poster # 83, Time: 1-2pm

In a perfect world, experimental designs are employed to make statements inferring causality. But is that always possible? No, experimental designs assume a controllable environment and objects with discrete characteristics. Interventions occur in complex social environments (i.e., community initiatives, complex organizational structures), are complex themselves (i.e., behavioral changes). So, can we truly infer causation (X caused Y) in this context? No, but we can provide a case of evidence to suggest the degree of contribution of the intervention (X) to the observed effect of change (Y) using a framework to corroborate evidence (triangulation of data). Contribution Analysis is a theory-based framework that uses a process of “logical argumentation.” We can examine the “how” - tracing pathways from inputs to outcomes - by linking evidence along each step of inference outlined by three key mechanisms: theory of change, the results chain, and the contribution story.

Faculty Mentor: Dr. Jill Anne Chouinard

**Paula Swindle** (Counseling & Educational Development) IRB #: 16-0281, *Religious Abuse: A Twisting of the Sacred*
Poster # 84, Time: 2-3pm

Counselors typically include an assessment of their client's religious or spiritual worldview, and are generally knowledgeable about how to include positive religious or spiritual experiences as a strength in the counseling process. However, there is a lack of guidance available when clients present with negative religious experiences, particularly that which falls on the end of the continuum known as "religious abuse." This presentation will include the results of a study in which interviewees shared their experiences of abuse with a Christian religious system, including themes of betrayal, stigma, powerlessness, and trauma. The researcher hopes that this information will empower and build confidence in counselors to assist in the healing process of clients with a history of religious abuse as well as educate the general public on the topic of religious abuse.

Faculty Mentor: Dr. Craig S. Cashwell
Emmett Storts (Economics) The Externalities of Open Space and A Recreational Bike Path in Muskego, Wisconsin

Poster # 81, Time: 1-2pm

In 2000, the city of Muskego, Wisconsin cleaned an abandoned railroad corridor and opened a recreational bike path. We study this change in environment using housing data from 1994 to 2014 and geospatial analysis to calculate the distance of each home from amenities throughout the city. We were able to determine this policy change resulted in an increase in the selling price of homes located directly adjusted to the path. Further analysis shows a non-linear, positive marginal impact of distance from the bike path on home values that increases beyond city limits. These results indicate the policy change benefited the entire city of Muskego.

Faculty Mentor: Dr. Kenneth A. Snowden

Jason Strickhouser (Psychology) Dr. Ethan Zell, IRB #: 16-0024, Domain Interdependence Beliefs: A Mechanism for Dimensional Comparison Effects

Poster # 82, Time: 1-2pm

Dimensional comparisons occur when people compare their performance in one domain to their performance in another domain. Dimensional comparisons typically result in either assimilation or contrast effects on relevant self-evaluations. We tested whether manipulating beliefs about the interdependence of performance domains can influence whether assimilation or contrast occurs. Participants (N = 80) were told that they ranked above average or below average on a test. Additionally, participants were told that performance in the tested domain was positively or negatively interdependent with performance in a second domain. Self-evaluations in the second domain were the dependent measure. An assimilation effect was obtained in the positive interdependence conditions (p = .003; d = 1.01) and a non-significant contrast effect was obtained in the negative interdependence conditions (p = .17; d = .47), interaction p = .003, np2 = .12. These data suggest that domain interdependence beliefs are a mechanism underlying dimensional comparison effects.

Faculty Mentor: Dr. Ethan Zell

Olivia Meeks (Dance) Geography and Choreography: How Place Influences Dance Making

Poster # 6, Time: 12-1pm

This research sets out to investigate how the past lived locations of choreographers influence or change their choreography. I am curious about how other choreographers have felt influenced by their geographical history and present location, and the choices they make toward or against artistic risk. It is interesting that when students are taught composition skills, they are usually told to take inspiration from literature, art, nature, their surroundings, or themes they are passionate about. I wonder though, what would happen if students were told to seek inspiration from a map? Their lived maps? Their geographical history? Would the cartography of choreography change? What if current choreographers were crediting their geographical history? How would this study change how we create dances, view dances, and see where we physically are as artistic inspiration? Through the interviews I conducted with renowned choreographers, I hope some of those questions are answered.

Faculty Mentor: Dr. Jill Green

Craig Phillips (Music) The Song Arrangements of Ed Smalle and Frank J. Black: Preserving the Musical Legacy of The Revelers

Poster # 7, Time: 12-1pm

The Revelers were a musical quintet popular on radio and record in the 1920s and 1930s. Arguably the foremost vocal ensemble of their time, they were integral both to the mainstreaming of American jazz, and to the promotion of songwriters Kern, Rodgers and Gershwin, among others. Key to their wide appeal and influence were the ornate song arrangements composed by Ed Smalle and Frank J. Black. The Revelers’ original score library containing hundreds of unpublished, handwritten Smalle and Black arrangements was recently discovered and rescued from deteriorating conditions. My research endeavors to prepare performance editions of select songs using the original scores and extant audio media in order to preserve the legacy of one of the most significant radio and recording acts of the early 20th century.

Faculty Mentor: Dr. Carla LeFevre
Sherrill Roland (Art) Jumpsuit Project

Poster # 8, Time: 2-3pm

Sherrill Roland creates art that challenges ideas around controversial social and political constructs, and generate a safe space to process, question, and share. The Jumpsuit Project is a socially engaged art project being conducted at the University of North Carolina at Greensboro during the 2016 - 2017 academic year. The primary purpose of the project is to raise awareness around issues related to incarceration. This work grows out of his own personal history. In an effort to ignite the conversation around issues related to incarceration, Sherrill will wear an orange jumpsuit every day until his graduation in the spring of 2017. Introducing an orange jumpsuit, an outlier in an otherwise familiar setting, challenges those who encounter it by encouraging them to address their own prejudices towards those incarcerated. This visual representation of incarceration will shed light on these issues and how those closely connected are affected.

Faculty Mentor: Ms. Sheryl Oring & Dr. Omar Ali

Amanda Ross (Dance) Learning Styles in Higher Education

Poster # 9, Time: 1-2pm

I am examining how learning styles need to be taken into consideration and used when teaching higher education classes. During my research, I applied visual, verbal, aural, and physical learning styles on an Introduction to Dance class. Each week I would focus on a different learning style and teach a short combination across the floor applying the various learning styles. I would then video the participants doing the combinations. It became very clear in my findings that every student is different and needs different tools and strategies when learning a new skill. I believe many students are struggling in classes when they do not need to; if the professors would take these considerations into their teaching many students would become even more successful.

Faculty Mentor: Dr. Jill Green

Emily Miller (Interior Architecture) Biophilic Design in the Classroom

Poster # 79, Time: 2-3pm

Implementing biophilic design otherwise known as incorporating nature in the modern built environment can provide immense health benefits, specifically to inhabitants who spend the majority of their time indoors. Children's access to nature is limited by the modern urban environment, therefore, the need for schools to provide interaction with nature becomes necessary. The purpose of this research is to assess the biophilic quality of elementary school classrooms through the use of a checklist. Four fifth grade classrooms from two public schools in North Carolina were used in this study. The checklist was used to assess the amount and variety of biophilic attributes in each classroom. Field measurements and spatial observation of the classrooms were conducted. Findings showed that the classrooms had overlapping biophilic attributes, but were limited in the quantity of attributes that were present in the classrooms. Light, the most common attribute, provided natural light, views, and light pools.

Faculty Mentor: Dr. Amanda Gale

Sudheera Ranaweera (Psychology) IRB #: 16-0299 & 16-0272, The Nature of Borderline Personality Disorder

Poster # 80, Time: 2-3pm

One type of severe personality disorder is borderline personality disorder (BPD). BPD affects approximately 1.4% of the United States population. Some of its hallmark traits include frantic efforts to avoid real or imagined abandonment, unstable and intense interpersonal relationships, and dysregulated negative emotions that can result in self-harm and suicide attempts. Research done by our lab has shown that in the face of rejection, those higher in BPD experience depression and anger, engage in impulsive and usually unhealthy behavior, and even report more tolerant attitudes toward sexual coercion to avoid abandonment. Our current lab research focuses on other aspects of BPD, such as distress tolerance and the nature of relationships formed by those with higher BPD traits, both romantic and friendship relationships. Our research goals are to provide a better understanding of BPD to improve treatment outcomes.

Faculty Mentor: Dr. Rosemery Nelson Gray
Heather Mayton (Counseling & Educational Development) IRB#: 160168, Loss by Suicide: A Photovoice Research Study
Poster # 77, Time: 12-1pm
The loss of a loved one to suicide leaves survivors without an explanation of why the death occurred. This unanswered question not only complicates the grief process, but proves to be an obstacle when attempting to make meaning from the loss. It is this meaning-making process that is important in order for individuals to accept the loss and move forward with their new reality. This research study utilized photographs as an opportunity for survivors to share their experience with the community and to find some new meaning. These survivors of suicide want the community to understand what their experience is like and to bring awareness to the impact of suicide. Suicide is oftentimes difficult to talk about, but it is important that we begin the conversation so we can work towards preventing it.
Faculty Mentor: Dr. Kelly Wester

Tiffany Merritt (Sociology) What Influences if a Death Row Exoneree Receives Financial Redress?
Poster # 78, Time: 1-2pm
My thesis stems from my undergraduate research that revealed a disturbing truth, financial redress is given out randomly and scarcely to the innocent people who have been wrongfully incarcerated for years, sometimes decades. Although research in the area of wrongful convictions has grown exponentially, few scholars have sought to answer the question of why financial redress is lacking for exonerees. The following paper is an investigation of the extra-legal factors that may decrease the likelihood of a death row exoneree receiving financial redress based on the weight these same factors hold on discriminatory practices in the criminal justice system. In order to do address my research questions, I had to build my own database with information about the extra-legal factors and financial redress surrounding death row exonerees. Major findings in my data indicate that exonerees wrongfully convicted of killing a minority victim are more likely to receive financial redress.
Faculty Mentor: Dr. Saundra Westervelt Dr. Cindy Dollar, Dr. Shelly Brown-Jeffy

Todd Siff (Theatre) Theatre for Young Audiences Original Musical in Delhi, India - A Collaboration with The Color Bakery
Poster # 10, Time: 1-2pm
After attending the TIFLI festival in Delhi, India in December of 2016, Todd Siff, an MFA Theatre for Youth candidate, has teamed up with The Color Bakery, a feminist theatre for youth company based in India, to create a new musical that will be toured to schools throughout India in 2017 and 2018.
Faculty Mentor: Ms. Rachel Briley

Caresse Virnig (Music) Gender in the Brass Section: Why Women Choose the French Horn Over Other Brass Instruments
Poster # 11, Time: 1-2pm
Have you ever noticed how the brass section of an orchestra or band is usually male dominated? You might even notice that the only women in the section are playing the French horn. Whenever studies are done about gender stereotyping among young musicians and their instrument selections, the data shows that girls are more likely to select, or be assigned, to the French horn than another brass instrument. But why is this? This presentation will look at the correlation between gender and instrument selection, in the specific area of French horn playing, by looking at studies and data, and discussing some reasons given as to why girls either choose the French horn, or have it recommended to them by a parent or teacher.
Faculty Mentor: Dr. Abigail L. Pack & Dr. Elizabeth L. Keathley
**Natural, Physical, and Mathematical Sciences**

**Sydney Adams** (Biochemistry) *Comparison of the Stereochemistry of the Methylcitric Acid Cycle in Escherichia Coli and Bacillus Subtilis*

Poster # 12, Time: 1-2pm

*Bacillus subtilis* is used by industry, and an improved understanding of its metabolic pathways would contribute to the genomic annotation of this model bacterial organism. A long-term goal of our research is to characterize the biochemical pathways that are encoded by the mother cell metabolic gene *(mmg)* operon within *B. subtilis*. Our lab demonstrated that two of these *mmg* enzymes had stereochemical outcomes that conflicted with reports in the literature for similar enzymes from *Escherichia coli*. The overall objective of this project is to directly compare the stereochemistry of products from 2-methycitrate synthase and 2-methylcitrate dehydratase within the methylcitric acid cycle of *E. coli* to those observed in *B. subtilis*. We have purified the *E. coli* enzymes and so far we have shown that *E. coli* and *B. subtilis* produce the same 2-methylcitrate stereoisomer, and experiments with 2-methylcitrate dehydratase are ongoing and will be reported as well.

Faculty Mentor: Dr. Jason Reddick

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**Rodell Barrientos** (Chemistry & Biochemistry) Ngoc Vu & Dr. Qibin Zhang, *Ozone-Induced Dissociation as a Straightforward Technique for Identification of Glycolipid Molecular Species*

Poster # 13, Time: 12-1pm

Glycolipids are important molecules composed of carbohydrate (glycan) and lipid chains predominantly located on the cell surface. A significant number of studies have identified glycolipids as potential markers of human diseases. As such, comprehensive identification of its chemical structure is necessary. However, methods for characterization of these molecules are limited, most of them involve intricate steps, and often involve complicated data for interpretation. In this study, we applied ozone-induced dissociation on a high resolution mass spectrometer for structural elucidation of glycolipid molecular species. In this approach, the glycolipids are directly infused, ionized in electrospay (ESI) source and the resulting ions are reacted with ozone gas inside the reaction cell of the mass spectrometer. Specific signature masses are used to determine the structure of both the lipid and the glycan chains. This technique was applied to the major classes of glycolipids in mammalian system.

Faculty Mentor: Dr. Qibin Zhang

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**Manju Mathew** (Women’s & Gender Studies) *Social Justice: Understanding Intersectionality and Assemblages*

Poster # 75, Time: 1-2pm

Equality and bringing social justice to all communities have been an important part of policy making in every country. However, although we have been successful in eliminating some forms of oppression, the aspect of social justice and equality still seems distant. A part of the problem is that discrimination also evolves and adapts to contemporary societal values and culture. Through the poster I am explaining the aspect of social justice through intersectionality and assemblages, which enables us to look at social issues from a comprehensive perspective.

Faculty Mentor: Dr. Catheryn Schmitz

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**Casey May** (Psychology) Dr. Blair E. Wisco, Daniel Lee, Sunny Dutra, Raymond Rosen, Terence Keane, & Brian Marx, *Emotional Numbing Symptoms as a Predictor of Functioning Impairment in PTSD*

Poster # 76, Time: 2-3pm

Posttraumatic stress disorder (PTSD), especially emotional numbing, is associated with impairment in interpersonal, occupational, and physical health functioning. However, prior research has been limited by not controlling for potential confounds and the use of outdated PTSD definitions. In this study, we analyzed data from 1347 U.S. veterans assessing PTSD symptoms and several functioning domains. PTSD symptom clusters included intrusions, avoidance, arousal, emotional numbing, and other negative mood and cognitions. In multivariable analyses controlling for the effects of other symptoms, EN and arousal predicted all impairment domains, with larger effect sizes for EN. Other negative alterations in cognition and mood predicted social, occupational, and self-care impairment; intrusions predicted both physical and mental health; and avoidance predicted mental health. EN and arousal symptoms were associated with all functional outcomes, even after controlling for other PTSD symptoms, indicating that these PTSD symptoms are particularly important to target in clinical treatment.

Faculty Mentor: Dr. Blair E. Wisco

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**Kelly King** (Counseling & Educational Development) **Counselor Trainee**  
*Emotions and Emotion Related Skills throughout a Cultural Immersion Activity*  
Poster # 73, Time: 12-1pm

Counselor educators have a commitment to prepare trainees for effective cross-cultural counseling. Often this task begins in multicultural counseling courses and engenders strong emotional reactions from students (Parker, Freytes, Kaufman, Woodruff, & Hord, 2004). Previous researchers have discussed the presence of emotions, their variability by race/ethnicity, and instructors’ difficulty in managing them (Pieterse, Lee, & Fetzer, 2015; Sue et al., 2011); however there is not an empirical study to date focused on emotions themselves. In the current study, I surveyed trainees with respect to the range of emotions they felt throughout a cultural immersion project and their emotion regulation and mindfulness skills. In this presentation, I will describe trainees’ reported emotions and identify their relationship with trainees’ emotion regulation, mindfulness, and reactance towards multiculturalism. Understanding these relationships can provide direction for counselor educators interested in engaging trainees’ emotions in cultural education.

Faculty Mentor: Dr. DiAnne Borders

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**Jaimie Lunsford** (Psychology) Dr. Kari Eddington, IRB #: 14-0408, *Emotion Differentiation in Daily Life*  
Poster # 74, Time: 2-3pm

We all experience a variety of emotions every day, some pleasant and some challenging. Research suggests that the way we label our emotions is related to our mental health and quality of life. Differentiating between very specific emotions (e.g., frustrated, disappointed, or nervous) instead of only noticing feeling "bad" or "good", has been associated with lower incidence of depression, anxiety and other difficulties. This poster will present the results of a recent study that tracked the daily experiences, thoughts, and emotions of over 100 participants for two weeks. We will discuss how emotion differentiation may be linked to other patterns of thinking and responding, and test a theory about why differentiation may be useful.

Faculty Mentor: Dr. Kari M. Eddington

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**Patricia Boyd** (Chemistry & Biochemistry) Joseph Mwangi, *Secondary Structures of Isomeric Human MicroRNA Biomarkers*  
Poster # 14, Time: 12-1pm

On-coding microRNA (miR) are a group of small non-coding RNA molecules that are found in plants, animals and some viruses. MicroRNAs typically contain about 22 nucleotides. MicroRNA were first reported in mammalian systems in 2001 and since, there have been more than 14,000 miR reported. This project focuses on the study of secondary structures of small non-coding human miR. The RNA sequence of structural isomers of miR (SimiR) was placed in an online program called mFold and the thermodynamic characteristics of any secondary RNA structure were calculated and recorded. Through the screening of 600+ SimiR, we have found a number of SimiR to have dissimilar secondary structures and stabilities despite of their small molecular sizes. This information is essential to our ongoing efforts on the development of a novel method for analyzing SimiR.

Faculty Mentor: Dr. Norman H. L. Chiu

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**Rima Goswami** (Chemistry & Biochemistry) *Determining Cell Viability of UV Treated Bacterial Cells Using Fluorescent Microscopy*  
Poster # 15, Time: 12-1pm

Ultraviolet (UV) radiation has been extensively utilized for various applications. Depending on the wavelength and intensity of UV radiation, it can be used as a bactericide. UV causes destruction of genetic information in cells and may eventually lead to cell death. In this project, we intend to study the responses of probiotic gram-positive *Lactobacillus reuteri* cells at the molecular level after the cells have been exposed to UV light at 254nm for different time periods. As the first step of this study, the cell viability of UV treated bacterial cells was determined. To achieve this goal, a method for staining dead cells with propidium iodide dye was used. Following the penetration of the dye, fluorescent images of the treated and untreated cell cultures were acquired using an EVOS imaging system. By comparing to the non-fluorescent images of both living and dead cells, the percentage of cell viability was determined.

Faculty Mentor: Dr. Norman H. L. Chiu
Amber Kelley (Chemistry & Biochemistry) Dr. Kimberly Petersen,
Desymmetrizations of Diesters to Synthesize Novel Enantioenriched Molecules
Poster # 16, Time: 2-3pm

Synthetic methods that form enantioenriched molecules are significant because many biologically active molecules have only one active enantiomer. This project involves an enantioselective method called a desymmetrization. Here, a prochiral starting material is transformed into an enantioenriched product in the presence of chiral catalyst. In this project, the desymmetrization yields enantioenriched dioxanones. It involves reacting prochiral disubstituted malonate diesters with a chiral Bronsted phosphoric acid catalyst that favors cyclization to only one enantiomer of the product. These enantioenriched dioxanones can serve as building blocks to biologically active molecules or could be used in the formation of chiral polymers.

Faculty Mentor: Dr. Kimberly Petersen

Brittany Kiel (Biochemistry) Investigating the Biosynthesis of the β-Branch Found in the Polyketide Difficidin Isolated from Bacillus Amyloliquefaciens
Poster # 17, Time: 2-3pm

Difficidin has been studied for over a decade but the primary knowledge about its synthesis is limited to the genes which code for its construction. Although difficidin follows polyketide synthesis (PKS) production, it displays chemistry that has previously been unexplored. This novel chemistry involves a β-branch olefin which is almost never seen in polyketide synthesis. This uncharacterized β-branching is generated by genes found in the Bacillus amyloliquefaciens (dfn) genome. Our hypothesis is that the dfn genes catalyze β-branching synthesis with steps similar to the pksX cluster found in Bacillus subtilis, but use a different pathway to achieve the thermodynamically less stable β-branch. Our objective is to reconstitute the β-branching activity of the dfn genes on a model system by cloning, overexpressing, purifying the proteins, and then through the use of a specialized tandem mass spectrometry technique to determine if the six dfn genes reproduce the unprecedented β-branch exhibited in difficidin.

Faculty Mentor: Dr. Jason Reddick

Sarah Hamrick, Laura O’Neal & Kathryn Murray (Social Work)
Operationalizing Culturally Competent Social Work with the Latino Community: The Supporting Thriving Families Project
Poster # 71, Time: 2-3pm

Clinical social workers must be cognizant of pervasive, systemic power imbalances as they truly define our national culture and shape the daily experiences of the people with which we work. These inequities contribute to anxiety, depression and other mental and physical health symptomatology. In this research, the mental health needs of the Latino community will be examined to identify culturally relevant clinical services. The topic is explored through a literature review of Latino practices as they relate to the delivery of culturally competent social work services. Analysis of data from a culturally responsive community-based mental health project is presented. This project, focusing on providing mental health services to Latino immigrants living in North Greensboro, was conducted under “real world” circumstances. An examination of the project’s outcomes illustrates that positive changes did occur for the participants and suggests best practices for social work intervention in working with the Latino community.

Faculty Mentor: Dr. Maura Nsonwu

Anahita Kalianivala (Psychology) IRB #: 16-0240, Discrepancies between One’s Ideal and Actual Self and the Role of Self-Compassion
Poster # 72, Time: 12-1pm

Self-compassion is a construct that has increased in empirical study over the last 10 years. Several studies have shown that self-compassion, both as a trait-like characteristic and adapted skill, is associated with improved wellbeing, e.g., lower depression and buffering the negative effects of perfectionism and self-criticism. Distinct from the broader concept of compassion, related to feeling empathy for and desire to relieve the suffering of others, self-compassion focuses on recognizing our worth and providing kind and loving care to ourselves no matter our current state of success or failure. However, very limited research exists to connect self-compassion to the decades-long history in social and clinical psychology of the study of the self. The current project serves to expand our knowledge of how self-compassion relates to social functioning and other constructs of the self, including self-esteem, self-criticism, and discrepancies in perception of the ideal and actual self.

Faculty Mentor: Dr. Kari M. Eddington
Delaney Collyer (Psychology) IRB #: 15-0477, Reframing Social and Academic Experiences to Improve Minority Outcomes

Poster # 69, Time: 1-2pm

At UNCG, as at other US universities, there is a significant GPA achievement gap between White (majority) students and African American (minority) students. Previous research has shown that lower minority student performance may be due in part to higher stress about common difficulties in college transition, because minority students are more likely to interpret these difficulties as indicative that they do not belong or cannot succeed in the college setting. The present intervention for UNCG first-time freshmen reframed difficulties in their social and academic transitions as being common and temporary experiences. Students internalized this message by reading materials about other students' experiences and then creating a similar message from their own experience. Students then responded to daily surveys about their social and academic experiences for one week, and follow-up GPA information was collected. This intervention is expected to improve academic performance and perceptions of belonging for minority students.

Faculty Mentor: Dr. Ethan Zell & Dr. Stuart Marcovitch

Wendasha Hall (Public Health Education) Dr. Sharon D. Morrison, Building Sustainable Livelihoods from Within: The Montagnard Women's Learning Group

Poster # 70, Time: 12-1pm

Integration into US society has presented great challenges for Montagnard women, as issues of illiteracy and cultural competency serve as impediments to healthcare, education, housing and food. Lack of access places this group at risk for social isolation, hunger, homelessness, chronic disease, and chronic poverty. In an effort to ameliorate the social and economic conditions facing Montagnard women in Greensboro, the Women’s Learning Group (WLG) was formed in 2012 by two community health workers and a Montagnard physician. For nearly five years the WLG has provided newly immigrated and refugee women and families with social and economic support through weekly English literacy classes and group-run community and neighborhood gardens. To date, over 25 women and 33 families have experienced increased English and health literacy, stronger neighborhood and cultural ties, and increased food and economic security. This poster highlights the finds of an ethnographic study of the WLG community building efforts.

Faculty Mentor: Dr. Sharon D. Morrison

Alla Letfullina (Nanoscience) Hybrid Polymer Electrolyte for High Energy Lithium Batteries

Poster # 18, Time: 1-2pm

The goal of this project is to fabricate the optimal hybrid polymer electrolyte for a flexible solid state lithium ion battery. This is the next generation energy storage device because it is much safer and it has a wider range of applications, including safer and more powerful electric vehicles. Solid polymer electrolytes have many attractive qualities including thermal stability, flexibility and good contact with the electrode. They generally consist of a host polymer matrix for mechanical support and alkali metal salts for ionic conductivity. The biggest issue with the current solid polymer electrolytes is their low ionic conductivity (~10^-5 S/cm) at ambient temperature. We are currently investigating the best combination of polymer and inorganic particles in order to produce a stable electrolyte with high ionic conductivity.

Faculty Mentors: Dr. Sungjin Cho & Dr. Dennis LaJeunesse

Taylor Mabe (Nanoscience) A Point-of-Care Biosensor for Disease Diagnostics

Poster # 19, Time: 2-3pm

Shrinking chemical instrumentation can show the same improvements that have revolutionized the computer industry. Faster, cheaper, and portable are some of these benefits. With the world’s analytical instrumentation market at $12 billion and only 0.1% using small biosensors there is a vast market growth potential and need, as the shortcomings with large instruments can be solved. Imagine the benefits to mankind from the ability to do an analysis anywhere in the world at anytime! Examining a soldier’s blood on the battlefield, disease screening in the home, or bedside analysis for patients in remote regions, all become possibilities. My research focuses on fabricating such a device for any disease. Simply changing the capture molecule on the sensor surface dictates which disease is being tested for. Fabricated at UNCG, these sensors fit in the palm of the hand. The biosensors work on the nanoscale by detecting biological molecules in very small amounts.

Faculty Mentor: Dr. Jianjun Wei
Errors in disease diagnoses affect >12 million US adults every year and cost ~US $40 billion over the last 3 decades. The needs for higher specificity and accuracy in measuring disease biomarkers is thus paramount. MicroRNAs are small non-coding RNA biomarkers for various diseases including cancer. Over 55% of human microRNA are isomeric and poses analytical challenges. To ensure high accuracy on the detection of microRNA, the focus of this study is to determine the level of cooling on precursor ions before or after the collision induced dissociation (CID) process during the traveling wave ion mobility mass spectrometry (IM-MS). The results indicated the energy of selected precursor ions could be lowered as much as 12eV. This information is critical for completing our ongoing efforts on the development of a novel method for differentiating isomeric human microRNA biomarkers by using the IM-MS technique.

Faculty Mentor: Dr. Norman H. L. Chiu

Cassandra Naphen (Chemistry & Biochemistry) Development of Novel Antibiotics via Anti-Virulence Targeting

Poster # 21, Time: 1-2pm

There is an urgency for the development of new leads to combat the threatening antibiotic resistance of pathogenic bacteria. One strategy is to shut down pathogenesis mechanisms of the invading bacteria, which in turn gives the host organism's immune system the ability to clear the infection without the use of antibiotics. My research is focused on identification of new anti-virulence compounds effective against methicillin-resistant *Staphylococcus aureus* (MRSA), an organism that is responsible for 80,461 severe infections and 11,285 deaths per year (CDC, 2016). In particular, we are focused on a compound produced by fungi known as ambuic acid, which targets virulence in MRSA via a unique mechanism. My work involves isolating this compound from the fungus *Pestalotiopsis microspora*, and seeking to understand how it functions to inhibit virulence in MRSA. We are working to identify structural characteristics that make it particularly effective, and ultimately to modify the compound to improve its efficacy.

Faculty Mentor: Dr. Nadja B. Cech

Carmen Calhoun (Languages, Literatures, & Cultures) The Representation of the Revolutionary Dimension of Popular Music: Tropicália in the Latin American Mass Media

Presentation, Time: 1:20-1:35

My thesis is about how the relationship between popular music artists and the revolutionary social and political change of the late 1960's and early 1970's is represented Brazilian and other Latin American mass media outlets. For example, I focus on a report published by a popular magazine—Crisis—from Brazil, and use Theodor Adorno’s views of the cultural industry as my main theoretical framework. I deconstruct how this intersection of the counterculture, youth, socio-political commentary, and protest songs is portrayed in Latin American mass media and analyze the phenomenon as part of a global phenomenon of music and social revolution of the late 60’s and early 70’s, enabled in large part due to the new era of globalization and mass communication. These artists’ exposure enabled them to reach a mass audience and allowed their socio-political commentary, even if in many ways distorted, to be broadcasted worldwide.

Faculty Mentor: Dr. Claudia Cabello

Ramsey Cardwell (Educational Research Methodology) Individual Vocabulary Size and Speech Rate in a Language Without (Many) Native Speakers - A Case Study of an Esperanto Podcast

Poster # 68, Time: 12-1pm

Esperanto is the world’s most widely spoken constructed language, learned and used by millions as a second language. With a negligible number of native speakers and little to no use in public education and broadcasting, Esperanto is learned through books and interactions with other learners. This raises the question of whether it is possible to attain a level of fluency comparable to a highly proficient speaker of a natural language (e.g., English). To partially address this question, I will analyze speech samples from ten episodes of an Esperanto podcast kern.punkto to estimate the productive oral vocabulary size and average speech rate of each speaker (two recurring hosts and one or more guests per episode). These measures will then be compared to reported values of non-native speakers of natural languages. This study has potential implications for the teaching and learning of foreign languages exclusively from non-native speakers and language revitalization.

Faculty Mentor: Dr. Bob Henson
Social Sciences

Valerie Auber (Human Development & Family Studies) IRB #: 13-0327, Parent-Child Relationships in Same-Sex Families
Poster # 66, Time: 12-1pm

Who has a closer relationship with the children, Mom or Dad? What about when there are two moms or two dads? I studied families with two mothers or two fathers to see if primary caregivers have closer relationships with their children than secondary caregivers. I also wanted to see if women have closer relationships with their children than men. Lastly, I wanted to know if couples that parent equally have equal closeness with the same child. Previous studies have found that mothers have closer relationships with children than fathers, and that mothers are most often the primary caregiver. We don't know whether mothers have closer relationships with their children because they're female or because they're primary caregivers. This study uses a sample of same-sex parents to separate sex from parenting role. The answers to these questions may give us important information about same-sex parenting and indeed all parent-child relationships.

Faculty Mentor: Dr. W. Roger Mills-Koonce

Mitchell Byers (Geography) Dr. Stephen J. Sills, Finding Gaps in Health Indicators Using GIS: A Comparison of Greensboro and High Point
Poster # 67, Time: 2-3pm

Every city has health problems, but each city has distinct gaps as to which health problems receives the most attention and funding. Greensboro and High Point are sister cities in Guilford county, but both have distinct geographic differences when looking into aspects of health. Through the use of GIS Health data has been acquired on block group and census tract levels which aid to distinguish gaps within each city. Using Geographic Information Systems is crucial in accurate data exploration, data analysis, and data mapping. From this project, researchers will be able to use this analyzed data to continue further research and promote awareness or action to bridge the health gaps in each city.

Faculty Mentor: Dr. Stephen J. Sills

Agbo-oma Uwakweh (Chemistry & Biochemistry) Dr. Daniel A. Todd, Dr. Zhenquan Jia, & Dr. Norman H. L. Chiu, Differentiation of Cellular Responses Using Nanospray Desorption Electrospray Ionization Mass Spectrometry
Poster # 22, Time: 2-3pm

Mass spectrometry has proven to be a useful tool in microbiology research, especially for rapid bacterial identification, which relies on matching the mass spectral pattern obtained from a sample with a control pattern obtained from a known bacterial culture. Traditionally, matrix-assisted laser desorption/ionization (MALDI) mass spectrometry is used for bacterial identification, however, in recent years, the use of desorption electrospray ionization (DESI) has been reported. Recently, we have demonstrated a new application of MALDI mass spectrometry in distinguishing cellular responses to various toxic conditions. In this project, a variant of DESI ion source named nanospray DESI is explored as an alternative ion source to support the use of mass spectrometry in directly differentiating cellular responses. Initial results indicate that the mass spectral patterns obtained from probiotic gram-positive Lactobacillus reuteri cells with or without any UV treatment were different.

Faculty Mentor: Dr. Norman H. L. Chiu

Keith Watkins (Geography) The Dendroclimatological and Aesthetic Value of Old-growth Trees on Southeastern College Campuses
Poster # 23, Time: 12-1pm

Many college campuses established during the 19th century were developed on abandoned agricultural land. On some campuses, old-growth shortleaf pines remain and represent a valuable resource with aesthetic, historic and scientific value. This study documents the dendroclimatological potential and aesthetic value for mature shortleaf pine on UNCG’s campus. Old-growth shortleaf pine trees (n = 27) were sampled using standard tree-ring methods, revealing 11 trees exceeding 125 years, five exceeding 150 years and the oldest dating to 1837. Further analysis of the tree-rings revealed a strong sensitivity to drought in the northern piedmont region (r = .488). Despite the urban setting, the UNCG chronology had strong agreement among extracted cores and with a control sample (n = 19) gathered from nearby (< 2 km) Green Hill cemetery and were merged to increase sample depth. These results suggest trees collected in urban environments have utility for dendrochronological studies and are easily accessible.

Faculty Mentor: Dr. Paul Knapp
Professional Programs

**Whitney Akers** (Counseling & Educational Development) IRB #: 15-0454, *Individuals in Same-Gender Couples' Experiences of Outness in Romantic Relationships: The Impact of the "Closet" on Connection*

Poster # 24, Time: 1-2pm

Living in an inherently heterosexist and cisgenderist society, lesbian, gay, bisexual, trans, or queer (LGBTQ) individuals confront outness, the disclosure of sexuality or gender identity unique to those who do not identify as heterosexual or cisgender, respectively. Levels of outness often shift based on environment, social location, legal structures, and matters of safety (Klein et al., 2015). Additionally, visibility often increases upon entering a same-gender romantic relationship, but little is known about the influence of outness on same-gender relationship satisfaction (Knoble & Linville, 2012). Thus, examining outness, a construct defined by visibility, evokes a need for exploration through visual images. Implementing a photovoice methodology, the researcher aims to (a) clarify the experience of outness as it relates to relationship satisfaction; (b) understand meanings ascribed to visual depictions of outness in various settings (i.e., familial, social, work, etc.); and (c) support participants in engaging policymakers through participant-led community advocacy efforts.

Faculty Mentors: Dr. Craig S. Cashwell, Dr. Christine Murray, Dr. Diane Gill, & Dr. J. Scott Young

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**Megan Bennett** (Library & Information Studies) *The Curation of a Special Collection of Historical Photographs*

Poster # 25, Time: 2-3pm

The purpose of this project is to identify, describe, preserve, and archive various items in a historical photograph archive. These photographs span slightly over one-hundred years of history, from the late 1800s until the early 2000s, and show the lives of first- and second-generation Irish and Polish immigrants in the suburbs of Pittsburgh, Pennsylvania. These photographs showcase births, deaths, weddings, and children growing up during the boom period of the steel industry.

Faculty Mentor: Dr. Nora J. Bird & Dr. Fatih Oguz

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**Masahiro Yamada** (Kinesiology) Amanda Barclift, Jed A. Diekfuss, & Dr. Louisa Raisbeck, IRB #: 16-0365, *Attentional Focus Instructions may be Beneficial with Mental Practice in a Fine Motor Skill Performance*

Poster # 64, Time: 1-2pm

The benefits of mental practice and an external focus of attention (FOA) relative to an internal FOA in learning motor skills are well documented. However, the effects of FOA during mental practice are unknown. The purpose of the study was to investigate if using an external FOA during mental practice has an additive effect on motor performance and learning. Participants completed a series of mental practice trials during a fine motor skill task using either an internal, external, or neutral instruction. The results did not show difference between groups; however, performance improved from the pretest to post test. These results suggest that attentional focus instructions during mental practice can improve performance in the absence of physical performance. These findings may help create a more effective and efficient strategy to improve motor performance and learning.

Faculty Mentor: Dr. Louisa Raisbeck

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**Sydney Zester** (Public Health Education) Dr. Erica Payton, *Impact of Place and Space: Living in a Violent Community and its Effect on Cardiovascular Health Outcomes*

Poster # 65, Time: 1-2pm

Chronic illnesses disproportionately plague members of the most marginalized communities. These communities often bear the burden of resource dry environments and experience an elevated proportion of social disruption and violence, increasing member’s risk of developing chronic disease. Several studies have documented the relationship between violence exposure and cardiovascular disease (CVD), yet there are few interventions that address their intersection. While cardiovascular health is important, acute community issues such as maintained safety while living in violent areas may take precedence over personal health; illustrating the impact of place and space on communities' health. Objectives of this review include: (1) provide a comprehensive overview of peer-reviewed publications that investigate exposure to community violence and its impact on CVD and (2) identify current CVD interventions targeted for individuals who are chronically exposed to community violence. Recommendations on how to develop partnerships with community stakeholders and academic professionals to address this disparity are discussed.

Faculty Mentor: Dr. Erica D. Payton
Healthy adult gait is characterized by predictable stride timing, termed fractal gait. Fractal patterns deteriorate with aging and illness, and these changes are associated with a higher fall risk. Our lab has developed fractal gait cues for patients to synchronize with during training in order to re-develop healthy gait. Nine adults (N=9, 59.9 ± 5.5 years) who were 6 or more months post-stroke (37.9 ± 29.6 months) walked on a treadmill in a safety harness in three conditions: (1) walk at self-selected pace with no cue for 10 minutes, (2) walk 10 minutes while synchronizing their stride timing to our fractal gait cue, (3) walk 10 minutes at self-selected pace with no cue to measure retention. A main effect was observed, F(1,8) = 20.176, p=.002, η^2 = .716, showing that Fractal training was successful in re-developing healthy gait patterns in adults who survived a stroke.

Faculty Mentor: Dr. Christopher K. Rhea

Yuki Sugimoto (Kinesiology) Dr. Christopher K. Rhea & Dr. Scott Ross, IRB#: 16-0124, Smartphone Technology for Assessing Thigh Motion Deficits in Participants with a History of Ankle Sprains

Poster # 63, Time: 2-3pm

Ligamentous laxity and self-reported ankle “giving way” resulting in modified proximal joint movement patterns have been noted in individuals with recurrent ankle sprains and instability. Very few clinical evaluation tools are used to assess potentially pathological thigh movement patterns. Identifying and correcting altered motion, particularly at the thigh, may be critical for preventing recurrent sprains. Thus, the purpose of the study was to assess sagittal thigh angular motion deficits during a stepping-in-place task between healthy controls and participants with a history of recurrent ankle sprains. We propose using a smartphone technology to detect sagittal thigh motion deficiencies. The results revealed that the smartphone App identifies thigh motion deficits of the unaffected limb of participants with a history of recurrent sprains. This novel finding suggests the need to examine the role that the unaffected proximal extremity might have in recurrent sprains of the contralateral ankle.

Faculty Mentor: Dr. Scott Ross
Maria Gil (Consumer, Apparel, & Retail Studies) *What Do Consumers Look for in Online Reviews? An Investigation of the User Perspective*

Poster # 28, Time: 12-1pm

Online consumer reviews (OCRs) are frequently used by consumers in decision making and researchers agree that OC Rs have an impact in purchase behavior. The purpose of the present study was to identify top attributes considered by consumers when making online purchase decisions. An online questionnaire consisting of open-ended questions was completed by 90 consumers recruited using a snowball sampling approach. The top 7 most mentioned attributes represent 55% of the responses. Predominantly, respondents look at negative and positive reviews (valence). Interestingly, consumers are interested in not only product related attributes and source related attributes, but also in seller related attributes. This last category might be underrepresented in research and seems to be of great importance to online shoppers. Although this study offers insight into what consumers look for in online reviews, further research using a larger, more diverse sample would likely reveal additional OCR attributes important to the decision-making process.

Faculty Mentor: Dr. Nancy J. Hodges

Chase Hanes (Library & Information Studies) IRB #: 16-0256, *Literature for Healing: A Librarian’s Role in Writing and Offering Bibliotherapy for the Sexually Abused Body*

Poster # 29, Time: 1-2pm

Bibliotherapy, an individual’s process of finding healing and resilience through reading, is an essential facet of this project. The study excavated why particular books are helpful for readers who have survived sexual abuse and how librarians can create/promote these resources. Research involved contacting recovery organizations and compiling lists of literary materials they recommended. The study evolved into virtual interactions with survivors via web-forums and surveys, even personal interviews. Participants, above age 18, explained through their own perspectives why certain books have been conducive to healing. As a creative application of the project, I allowed the research knowledge to guide me in editing my fictional novel, The Boy and His Toy Room. The bibliotherapeutic text traces a young male’s coming-of-age after years of incest from his father, but also his construction of artistic autonomy separate from the abuse. The book aims to offer healing to diverse readers recovering from sexual trauma.

Faculty Mentor: Dr. Julia Hersberger

Priyanka Ruparelia (Nanoscience) *Biomimetic Polysaccharide Material as a Scaffold for Tissue Engineering Application*

Poster # 60, Time: 1-2pm

Tissue engineering has the aim to restore, replace or regenerate damaged tissue. The only solution to treat degenerated tissue or organ failure is a tissue transplant either from one individual to another or from one site to another in the same patient. This need has resulted in the health care cost to exceed 400 billion dollars. The application of biomaterials as scaffolds for Tissue Engineering offers a solution to this problem. Biocompatible materials mimic the native tissue environment and promotes new tissue formation. Our aim is to use a natural Biomimetic Self-Mineralizing Polysaccharide (BSMP) material as a scaffold for bone growth and replacement. Work demonstrating the potential of BSMP as a scaffold for NIH/3T3 fibroblasts and mesenchymal stem cells will be shown. BSMP is a biocompatible and bone mimicking material that enables proper cell adhesion, proliferation, and extracellular matrix deposition.

Faculty Mentor: Dr. Dennis LaJeunesse Dr. Shyam Aravamudhan, Dr. Sang Jin Lee

Alexis Slutsky (Kinesiology) Chia-Hao Shih, Jed A. Diekfuss, Dr. William Karper, Dr. Se Yun Park, Dr. Aaron Piepmeier, Dr. Vincent C. Henrich, Dr. Laurie Wideman, Dr. William N. Dudley, Dr. Jeffrey D. Labban, Dr. Kelly L. Rulison, & Dr. Jennifer L. Etnier, IRB #: 12-0122, *Brain Connectivity Differences in Alzheimer’s Disease Risk: Effects of an 8-Month Exercise Intervention*

Poster # 61, Time: 1-2pm

Apolipoprotein E (APOE) ε4 allele carriers are at high risk for Alzheimer’s Disease (AD). Evidence suggests that carriers have altered resting-state brain connectivity (rs-conn), which may be a precursor to cognitive decline. Exercise, however, has been shown to be beneficial for cognitive function and is capable of changing rs-conn. Our purpose was to assess differences in rs-conn (utilizing resting-state functional magnetic resonance imaging) between carriers and non-carriers before and after an 8 month, 3 day/wk, moderate intensity exercise intervention. We found significantly more rs-conn in various motor and attention regions before the exercise intervention in the carriers suggesting a compensatory mechanism. These differences were no longer evident after an 8-month exercise intervention suggesting that exercise may reorganize carriers’ brain connectivity towards that of non-carriers. Since alterations in rs-conn have been suggested as a precursor to AD, exercise interventions may be especially beneficial for APOE ε4 carriers.

Faculty Mentors: Dr. Jennifer L. Etnier & Laurie Wideman
Monique McLeary & Kelley Massengale (Public Health Education) Michelle Old, IRB #: 14-0185, Process Evaluation of a Community-Based Diaper Bank: Diaper Recipient Experiences

Poster # 58, Time: 2-3pm

The Diaper Bank of North Carolina provides supplemental diapers and other hygiene products to low-income families in need. The mission of the Diaper Bank is to alleviate the stress and health concerns that families often face in trying to maintain an adequate supply of diapers and other nonfood essentials for living. The current study was a process evaluation of the Diaper Bank of North Carolina that documented outcomes families experienced as a result of receiving diapers as well as families' suggestions for program improvement. Diaper recipient families (n=15) were interviewed about their experiences receiving diapers from the diaper bank. Interviews were coded for themes about the efficacy and impact of the diaper bank's efforts to increase access to nonfood basic needs. Families described suggestions for improving service delivery including: distribution of additional hygiene items, reducing waiting times, and increasing the number of diapers provided.

Faculty Mentor: Dr. Jennifer L. Erausquin

Elizabeth Mizerik (Genetic Counseling) Rachel Mills, Randi Stewart, & Michelle Baric, IRB #: 16-0229, Hereditary Diabetes Referral and Counseling Practices in a Prenatal Setting

Poster # 59, Time: 2-3pm

Monogenic diabetes is a form of diabetes caused by a single gene change in the genetic code. Up to 5% of type 2 diabetes diagnoses are actually cases of monogenic diabetes, supporting current literature that monogenic diabetes is often misdiagnosed. Research on the practices of prenatal genetic counselors regarding monogenic diabetes has been limited. A survey of prenatal genetic counselors was created and conducted to assess clinical awareness of monogenic diabetes and determine associated counseling practices. The main topics discussed in clinic by prenatal genetic counselors regarding diabetes were multifactorial inheritance and pregnancy complications. Over 40% of respondents chose “unsure” to 11 of the 12 knowledge-based questions related to monogenic diabetes but did show a high interest (94.5%) in learning more about monogenic diabetes. Since a low level of knowledge was found among prenatal genetic counselors, creation of educational materials could be beneficial for the future.

Faculty Mentor: Ms. Randi Stewart

Emily-Kate Hannapel & Christopher Scott Vann (Interior Architecture) Getting Your Cash Registers to Ring: Best Practices in Retail Design with the NC Main Street Project

Poster # 30, Time: 12-1pm

In 2016, the NC Department of Commerce and the UNCG Department of Interior Architecture formed a collaboration with the objective of stimulating economic development within the context of historic preservation. Increasingly, North Carolina retailers and entrepreneurs join a national trend in the adaptive reuse of existing buildings; as design consultants for the Main Street Program's revitalization of our historic resources, we have been tasked with researching the means by which design in the historic built environment, best retail practices and social psychology can increase sales potential. A simple, experiential matrix emerged from this research and was presented at the NC Main Street Conference in Sylva in September 2016 and for an audience at the Goldsboro Chamber of Commerce in November 2016. Subsequent demand from town managers, business organizations, and retailers to present this strategy to a wider audience reveals an urgent need for access to design-driven solutions in a diverse and rapidly evolving marketplace.

Faculty Mentor: Ms. Jo Ramsey Leimenstoll

Kimberly F. Hutter (Specialized Education Services) Dr. Claudia M. Pagliaro, Are Sign Language Interpreters Prepared to Work with Deaf and Hard of Hearing Students?

Poster # 31, Time: 12-1pm

In the U.S. there are 120 interpreter training programs (ITPs) preparing individuals to become sign language interpreters for deaf/hard-of-hearing (DHH) individuals (University and College Programs for Personnel in Deafness, 2016). Graduates interpret in a variety of settings including medical, legal, and educational. Interpreters in educational settings need specific preparation to work with DHH students, k-12. Quality educational interpreters (EIs) should possess proficiency in the following areas: English, linguistics, literacy, and language and child development (Johnson et al., 2014). Over 25 years ago, Dahl and Wilcox (1990) conducted a study of ITPs revealing that 69% of the 45 ITPs available at the time did not offer any courses in educational interpreting. The current study aims to help us better understand today's ITP curricula and whether EIs are prepared to work with the 85% of DHH students spending a full or partial day in a general education setting (Marschark et al., 2015).

Faculty Mentor: Dr. Claudia M. Pagliaro
Matthew James (Specialized Education Services) Jessica McAllister, IRB #: 16-0065, Increasing Shared Story Engagement and Comprehension via 3-D Printed Objects for Students with Severe Disabilities

Poster # 32, Time: 2-3pm

Providing access to grade-level curriculum content to students with moderate to severe disabilities can be a challenge for teachers working on tight schedules and often with limited resources. Increasingly, the evidence-base for instructing students with moderate to severe disabilities in literacy content is growing to include the use of shared story reading, text adaptation, and incorporating objects to facilitate student comprehension and engagement. Literary instruction for students with moderate to severe disabilities can be enhanced through the use of objects to access the curriculum. Current technology can be used to support student's understanding of fantasy literary content. For example, 3-D printed objects can support access to grade-level literature, specifically improving accessibility to hard-to-come-by objects and maximizing resources (time and money) via 3-D printed technology supports.

Faculty Mentor: Dr. Bree Jimenez

Jeongae Kang & Hanna Townsend (Specialized Education Services) IRB #: 16-0444, Effects of Teacher Led Dialogic Reading on Oral Language Skills and Comprehension of Students with Autism

Poster # 32, Time: 2-3pm

Special education teachers need to know how to use effective instructional strategies in accurate ways. Dialogic reading has demonstrated positive effects on improving oral language skills and listening comprehension of typically developing children or children with specific language disorders. Given that communication and comprehension has been known as challenges to students with autism spectrum disorders (ASD), the dialogic reading seems to be a promising strategy for them. However, there exist only four related studies. This single case study examined two levels of outcomes: a) the effects of teacher professional development on the teacher’s use of the dialogic reading, and b) the effects of teacher’s accurate use of the dialogic reading on oral language skills and listening comprehension of students with ASD.

Faculty Mentor: Dr. Pamela Williamson

Safeera Khan & Jessica Chavez (Biology) Dr. Norman H. L. Chiu, Dr. Jianjun Wei, Hong Zhu, Robert Y. Li, & Dr. Zhenquan Jia, Modulating Redox Status of Carbon Nanodots in EA.hy926 Endothelial Cells

Poster # 56, Time: 2-3pm

Carbon Nanodots (CNDs) are a new class of carbon nanomaterials at the forefront of research for inherent therapeutic and biological applications. Their fluorescence and stability permit biological labeling, bioimaging, and drug delivery. This study will examine the role of CNDs in oxidative stress, which induces cardiovascular disease. The activity of essential detoxifying enzymes was analyzed in human endothelial (EA.hy926) cells, which are modulators of oxidative stress. The intracellular concentrations of Glutathione (GSH), NAD(P)H:quinone oxidoreductase-1 (NQO1), Glutathione S-Transferase (GST) and glutathione reductase (GR) were measured. Our data indicates that CNDs at concentrations of 0.003, 0.03, and 0.3 mg/mL had no toxic effects on EA.hy926 cells over a 24-hr treatment. However, this exposure showed significant differences in cellular GSH, NQO1, and GST levels. Collectively, these results assist in our aim to determine the suitability of CNDs as drug-delivery systems for treating oxidative atherosclerosis.

Faculty Mentor: Dr. Zhenquan Jia

Ho Young Lee (Biology) Halley Shah, Hong Zhu, Robert Y. Li, & Dr. Zhenquan Jia, Doxorubicin-Induced Cytotoxicity in Rat Myocardial H9c2 Cells: The Roles of Reactive Oxygen Species and Redox Balance

Poster # 57, Time: 2-3pm

Doxorubicin (DOX) is one of the most effective anticancer drugs. The downside associated with the use of DOX in the clinic is the high risk of irreversible cardiomyopathy and cardiotoxicity. However, the precise mechanisms remain to be defined. Following treatment of rat H9c2 cardiomyocytes with clinically-relevant concentrations of DOX, we examined the expressions of various genes involved in anti-oxidant response (NQO1, GCLC, GST) as well as detected the presence of reactive oxygen species (H2O2). Our results showed that DOX, at clinically relevant plasma concentrations, brought significant change in the expression of genes relevant in anti-oxidant response in rat H9c2 cardiomyoblasts. Further, DOX treatment significantly decreased ROS presence, while stimulating ROS detoxifying mechanisms resulting in an imbalance in redox state of H9c2 cardiomyoblasts. These results provide the direct evidence that the expression of adhesion molecules and redox imbalance could be critical modulators of DOX-induced cardiotoxicity and cardiomyopathy.

Faculty Mentor: Dr. Zhenquan Jia
Sydeena Isaacs (Nutrition) Dr. Lenka H. Shriver, IRB #: 15-0072, Sugar Sweetened Beverage Consumption in Preschool Years: The Primer for Greater Consumption in Later Childhood?

Poster # 54, Time: 12-1pm

Sugar sweetened beverage (SSB) consumption is associated with increased obesity among children and adults. This study examined patterns and correlates of SSB intake in a diverse sample of young low-income children. Child SSB consumption and feeding practices were assessed by a parent-reported food frequency questionnaire and survey. Children (n=281) were 4.4 ± 0.70 years old (38% African American [AA], 35% Hispanic White [HW], and 27% non-Hispanic White [NHW]). Frequency of SSB intake was correlated with greater taste preference for sweetened drinks (p<0.001), earlier sold food introduction (p<0.05), and not being breastfed (p<0.001), but not with child weight. Analysis of Variance (ANOVA) indicated that AA children consumed SSB more frequently (p<0.001) and in a larger portion (p<0.05) compared to HW children, but not compared to NHW children. Further investigation of the correlates in relation to SSB intake is warranted to identify target foci for future nutrition education programs for low-income preschoolers.

Faculty Mentors: Dr Lenka H. Shriver & Dr. Cheryl A. Buehler

Derick D. Jones, Jr. (Chemistry & Biochemistry) In Vitro Biological Evaluation of Photosensitizers for Photodynamic Therapy

Poster # 55, Time: 1-2pm

Photodynamic therapy, also known as PDT, is a means of selectively destroying cancer by using light to activate an otherwise nontoxic compound (photosensitizer). Characteristically, this process involves the generation of highly reactive, cytotoxic singlet oxygen by organic photosensitizers. Our research group is interested in improving PDT by combining metal complex photosensitizers with optimized light protocols. The modular architectures of metal complexes makes it relatively easy to tune their photophysical and biological properties for PDT, and the many recent advances in fiber optic and LED technology makes it possible to target many types of cancer. While much focus has been placed on the design of new photosensitizers for improving PDT, the light component has not been fully exploited. Herein we use in vitro biological assays to explore the light component of PDT (including wavelength, dose, and irradiance) with some of our most promising metal complex photosensitizers.

Faculty Mentor: Dr. Sherri McFarland

Justin Larson (Economics) North Carolina’s Clean Smokestacks Act and Emissions, Untangling a Tangled Relationship

Poster # 33, Time: 2-3pm

The Clean Smokestacks Act is a North Carolina state policy intended to reduce emissions of sulfur dioxide and nitrogen oxides. The policy targets coal-fired power plants owned by Duke Energy and Progress Energy, and caps annual emissions of sulfur dioxide and nitrogen oxides for each utility, in phases. The main goal of this study is to determine if the CSA has impacted emissions and, if so, how much of an impact on emissions did the policy have? Using the Continuous Emissions Monitoring System data, initial results show that the policy did cause a decrease in emissions but a smaller decrease than previously thought. This is due to the utilities moving production to non-CSA plants (i.e. power plants in bordering states), causing a “leakage” of emissions.

Faculty Mentor: Dr. Stephen P. Holland

Alex Patti (Communication Studies) Fundamentals of Communication: A Secondary-Level Basic Communication Course

Poster # 34, Time: 2-3pm

As of 2015 only one-third of K-12 public education students are at or above proficient in reading scores. Nationally, only 40% of public school graduates are considered college or career ready. Consequently, students are not consistently meeting the goals set by the Common Core. How can we help students meet dozens of educational standards while facilitating advancement of their academic, career, and personal endeavors? This project is a key for pioneering advancement of communication education at the secondary level of the education system. Fundamentals of Communication, a communication-specific basic course, is designed to provide students with increased communication literacy: reading, writing, and speaking. Such a course will teach foundational and advanced skills, often underrepresented in classrooms, necessary in multiple communicative contexts: intrapersonal, interpersonal, organizational, and public speaking. This proposed course is designed to work within school curricula in order to teach citizenship and career skills to students in public schools.

Faculty Mentor: Dr. Jessica McCall
Elizabeth Patton & Alexandra Martin (Educational Research Methodology) Game-Based Assessments: Considerations for a Validation Plan

Poster # 35, Time: 1-2pm

Technological advancements have introduced new opportunities for the assessment of cognitive and noncognitive skills and abilities. Specifically, game-based assessments (GBAs) provide opportunities to observe students in complex situations which are closer to real world scenarios. GBAs have numerous strengths including their ability for "stealth assessment", assessment while a student is playing without interrupting their normal school schedule. Given the possibilities GBAs present it is necessary to understand to what extent: (1) validation is currently being discussed in the context of GBAs, (2) the validation framework may differ from that of traditional assessments, and (3) what types of unique assumptions underlie the inferences made in GBAs. We will outline modifications to be made to Kane's IUA (2013) and provide specific examples of assumptions underlying inferences, the warrants that support those assumptions, challenges that could be made and backings that could be produced to refute the challenges.

Faculty Mentor: Dr. Micheline Chalhoub-Deville

Robyn Thomas Pitts (Educational Research Methodology) Designing Assessment Systems: A Program Theory Approach

Poster # 36, Time: 2-3pm

Testing is ubiquitous in the modern era of educational accountability and accreditation. The purpose of testing is to generate information (test scores) that can be used for some specific purpose. Indeed, validation of tests requires an evidentiary argument that justifies the extent to which inferences/actions resulting from scores are accurate and appropriate. Once deployed across many sites and contexts, tests are used, misused, and abused. Without the direct involvement of validity experts, how can test users identify and address score misuse and abuse? Currently in progress, this interpretive mixed methods study based on systems theory utilizes the concept of program theory to organize test score uses and consequences for an educational assessment system embedded with a clinical science training program for first-fourth year medical students.

Faculty Mentor: Dr. Jill Anne Chouinard

Emily Hamm (Nutrition) IRB #: 15-0072, Differences in Taste Preferences and Consumption of Fruit and Vegetables Among Young Children by Parental Feeding Style

Poster # 52, Time: 2-3pm

Parents influence their children’s eating at an early age. Yet, little is known about how parental feeding may influence children’s fruit and vegetable (FV) taste preferences and intake. This study examined relationships between feeding style, children’s taste preferences and frequency of FV intake among 281 low-income preschoolers in North Carolina. There was a positive correlation between child taste preferences for fruit (r=.12; p<.05) and vegetables (r=.26; p<.001) and their FV intake. One third of parents reported a permissive feeding style (32%), followed by authoritarian (29%), uninvolved (21%) and authoritative (18%). No differences in children’s FV intake were found between the feeding styles. Children of permissive parents had greater taste preferences for vegetables compared to authoritarian (p< 0.01) and authoritative (p< 0.05) parents. Because FV taste preferences are known predictors of FV consumption, further research on the mechanisms between permissive feeding style and young children’s V taste preference is warranted.

Faculty Mentor: Dr. Lenka H. Shriver & Dr. Cheryl A. Buehler

Alla Hill (Nutrition) IRB #: 13-0311, Food Insecurity: How is it Related to Food Habits and Health Status Among Low-Income Pregnant Women

Poster # 53, Time: 2-3pm

Pregnancy is a time during which women require optimal nutrition to ensure normal fetal development and maintain good health. Food insecurity (FI), or inconsistent access to safe and nutritious food, is a major public health issue in the U.S. and is associated with obesity and chronic diseases among adults. However, the effects of FI during pregnancy are not very clear. The objectives of this study were to: 1) understand the prevalence and severity of FI by socio-demographic characteristics; 2) examine the association between FI, dietary habits, and daily nutrient intake; 3) assess the relationship between FI, weight gain and overall health status among low-income pregnant women. The study was conducted at the Guilford County-WIC office, involving in-person and telephone interviews in English or Spanish with pregnant women. Preliminary results indicated that food insecurity was very common (43%), and 19% reported experiencing hunger or a severe level of FI.

Faculty Mentor: Dr. Jigna M. Dharod
**Michael Elias** (Nanoscience) IRB #: 46.110, Study #: 13-0276, *Formulation of a Nano-Enhanced Blood Clotting Cocktail for a New Point-of-Care Device*

Poster # 50, Time: 12-1pm

Unprocessed whole blood is used for the measurement of disease-diagnosing biomarkers for a wide range of molecules. Whole blood contains components that can make the measurement of these biomarkers inaccurate, leading to misdiagnosis and increased patient mortality and morbidity. While whole blood is quick and convenient for point-of-care (POC) devices, the gold standard substrate for accurate disease detection and quantification is serum; which requires extensive processing that delays and provides a burdensome hurdle to overcome. We have developed a nano-enhanced coagulation formula to quickly coagulate whole blood and be implemented into a POC device which will produce pure serum at the bedside of patients for disease detection. With the combination of a novel nano-enhanced coagulation formula and a device to extract serum, the current issue of a long extensive process to obtain the gold standard will be remedied.

Faculty Mentor: Dr. Christopher L. Kepley

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**Nneze Eluka** (Public Health Education) *Pregnancy Related Behaviors and Status of HIV Positive Mothers in Zambia*

Poster # 51, Time: 12-1pm

Sub-Saharan Africa has been a known epicenter for HIV/AIDS. Zambia for example, has one of the highest HIV prevalence rates, but has seen a decrease from 15% to 13.4%. Progress towards reducing HIV/AIDS incidence is promising and more resources have been leveraged towards improving the health status of HIV/AIDS patients. The purpose of our study is to examine pregnancy-related behaviors of HIV positive mothers. We analyzed secondary data collected from 7,000 Zambian women who participated in the country’s Demographic and Health Surveys. Our analysis revealed that HIV positive mothers have similar or better quality nutritional status than their HIV negative counterparts as measured by vitamin A and iron uptake. Further, they are more likely to have accessed/used skilled birth attendants, and as a result were less vulnerable to poorer health status. These baseline findings will inform future studies on micronutrients and antiretroviral uptake among HIV positive mothers.

Faculty Mentors: Dr. Sharon D. Morrison, Dr. William N. Dudley, & Dr. Jigna M. Dharod

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**Stephanie Watts** (Specialized Education Services) *Synthesizing the Challenges of Early Childhood Mental Health Needs: Developing a Model to Bridge School and Community*

Poster # 37, Time: 1-2pm

Inquiry examines current challenges of supporting mental health needs of children ages 4-8 years in lower socio-economic demographic. Results from inquiry have prompted the following proposal: 1) a plan to provide a more efficient model of providing supports through a school-based approach, 2) an active communication plan in reaching the community about early childhood mental health resources, 3) a push of awareness to policy makers regarding the need for more research of early intervention measures and the possibility of enacting school-based programs across the state of NC, 4) and examination of educator preparation programs and certification of mental health professionals. Data from inquiry was synthesized and collected through a small sample teacher survey, a family interview of a child diagnosed with Autism Spectrum Disorder, and a presentation of student cases while working in a Title 1 North Carolina prekindergarten classroom.

Faculty Mentor: Dr. Joanna K. Lower
Humanities

Brenta Blevins (English) From Corporeality to Virtual Reality: Understanding Literacy in Augmented, Mixed, and Virtual Realities
Poster # 38, Time: 2-3pm

This presentation describes what literacy is in the emerging media of Virtual (VR), Augmented (AR), and Mixed Realities (MR) and how and why we should prepare to compose in those new digital media, as well as media yet to emerge. The research presented here includes the author’s comparative research into past literacy expression to argue that we have been engaging in VR, AR, and MR composing for longer than the digital era. Such an understanding helps us compose in new VR, AR, and MR media, a finding important both for educators and anyone communicating in new digital technologies. The research draws from theories in literacy studies (Gee, Brandt, Selfe), multiliteracy (1996 New London Group, Kress), spatial (Reynolds, de Certeau, Soja), digital studies (Turkle, Lanier, Ulmer), rhetoric (Plato, Barthes, Burke, Welch), and more.

Faculty Mentor: Dr. Stephen Yarbrough

Christopher Davis (History) Cross-Purposes: American Missionaries and the U.S. Occupation of Haiti
Poster # 39, Time: 2-3pm

The 1915 U.S. invasion and subsequent occupation of the island nation of Haiti remains a topic that has received little attention by scholars, with most of that attention being given to the various motivations by the Wilson Administration to intervene and the consequences of the 19 year military occupation that followed. As a result, the invasion and occupation are thus far understood via political and economic lenses, and therefore the main actors on which this story is focused are either American politicians or businessmen. What this approach overlooks are non-state actors who interacted with Haiti before and after the events of 1915; namely religious and humanitarian aid workers. The purpose of this study is to explore how American missionaries both impacted, and were impacted by, the U.S. decision to intervene.

Faculty Mentor: Dr. Mark Elliott

Michaela Brown (Communication Sciences & Disorders Department) Catherine Cotton & Dr. Alan Kamhi, IRB #: 14-0061, The CASD: Differentiating Between the Diagnosis of ASD and ADHD
Poster # 48, Time: 12-1pm

The purpose of this research project is to analyze the similarities between children diagnosed with autism spectrum disorder (ASD) or attention deficit hyperactivity disorder (ADHD) on the parent rated Checklist for Autism Spectrum Disorder (CASP). The CASP was developed as a quick screening tool for diagnosing individuals with ASD. The CASP rates 30 symptoms covering six domains: problems with social interaction, perseveration, somatosensory disturbance, atypical communication and development, mood, and problems with attention and safety. Due to the overlapping symptoms seen in children diagnosed with ASD and ADHD, the purpose of this project is to investigate the similarities in each domain by analyzing the parent reported symptoms based on the CASP.

Faculty Mentor: Dr. Alan G. Kamhi

Reynaldo Diaz (Nanoscience) A High Magnification Microscopy Study: The Interaction, Adhesion Between Surfaces and Microbes in the Formation of Biofilms
Poster # 49, Time: 1-2pm

This study focuses on the process of how microbes attach themselves to surfaces. The cicada insect’s wing presents a unique surface when magnified one hundred thousand times we can see that the wing is composed of an even array of tiny nails. When bacteria and baker’s yeast come into contact with this bed of nails their cell walls get disrupted. This is a promising find towards developing alternative microbial control both in the medical field and everyday life. The reasons these surfaces disrupt the cell-wall remain unclear. I hypothesize that the key to this microbe disruption lies within the interaction of an adhesive protein (found in the outer layer of the cell) and the surface topography. Due to the small scale, electron and helium microscopy were relied on to visualize in three dimensions the protein and the surface contact points. To confirm the protein visual location, I developed a labeling technique.

Faculty Mentor: Dr. Dennis LaJeunesse
Health Sciences

Rufaida Al Zoubi (Chemistry & Biochemistry). Mr. Dow P. Hurst, Dr. Diane L. Lynch, Dr. Mary E. Abood, Dr. Herbert H. Seltzman, & Dr. Patricia H. Reggio, *Fine Tuning Type 1 Cannabinoid Receptor (CB1) Using Biased Ligands for Promising Therapeutic Applications*

Poster # 46, Time: 12-1pm

The cannabinoid receptor (CB1) is a membrane protein and a member of G-protein coupled receptors. It is the receptor protein for Δ9-THC - the major psychoactive constituent in Cannabis Sativa (Marijuana). The CB1 is the most abundant neuromodulatory receptor in the central nervous system and regulates the function of many receptors including the dopamine, gamma-aminobutyric acid, and Glutamate receptors. CB1 receptor agonists activate the receptor and result in multiple intracellular signaling cascades through coupling to different intracellular effector proteins; G-proteins (Gαi/o) and β-arrestins(1/2). Some of these signals translate into potential therapeutic applications such as the symptomatic relief of neuropathic pain in patients with multiple sclerosis, or treatment of neurodegenerative diseases such as Huntington’s disease. Other signals result in untoward psychoactive side effects. This research will focus on designing biased ligands that can tune the signaling pathways through the CB1 receptor towards a therapeutic application while avoiding non-desired signaling pathways.

Faculty Mentor: Dr. Patricia H. Reggio

Abdullah Almulhim (Public Health Education) *Utilizing Photovoice as a Tool for Expressing Concerns and Advocating for Health Among Montagnard Community*

Poster # 47, Time: 1-2pm

In the past, hospitals and physicians were the only sources of making decisions for individuals’ health. Recently, communities are playing a crucial rule to navigate resources that assist in improving their health outcomes. Today, Greensboro has the largest community of Montagnard refugees around the world. Montagnard refugees have gone through difficult circumstances during their lives, which ultimately impacted their health conditions. The Montagnard Hypertension project is an ongoing community-based participatory research that aims to address community concerns about rising prevalence of chronic illness, specifically hypertension among households and families. Bad housing condition has shown an impact on developing hypertension. Thus, I use Photovoice as a tool to translate the power of visual photos into action in practice to empower the community to raise their concerns and advocate for their own health. The Photovoice exhibit aims to create a dialog with local housing organizations and other public entities for promoting change.

Faculty Mentor: Dr. Sharon Morrison

Humansities, continued

Jessica Eder (History) “Something is Happening in Memphis; Something is Happening in Our World”: The Media and the Memphis Sanitation Worker Strike

Poster # 40, Time: 12-1pm

Following years of mistreatment and the horrifying deaths of two men, black sanitation workers in Memphis decided to go on strike in 1968 in an effort to acquire better pay, working conditions, and treatment. In April, as part of his Poor People’s Campaign, Dr. Martin Luther King Jr. traveled to Memphis and delivered his last speech before his impending assassination. Despite the vast amount of research about the Civil Rights Movement and the growing scholarship about the strike itself, few have addressed how people of different backgrounds reacted to the strike at the local and national level. I argue that the strike received less national attention because the country, for the most part, had become disenchanted with Dr. King and his turn towards economic justice.

Faculty Mentor: Dr. Thomas Jackson

Lynda Kellam (History) *Looking Forward: The British Liberal Forwards After the Armenian Massacres, 1896-1899*

Poster # 41, Time: 1-2pm

In 1894, the massacre of Armenians in the Ottoman Empire galvanized British humanitarian groups in support of intervention. By 1896, the massacres had abated and support began to subside. One group, however, continued to agitate for a response. The Liberal Forwards contested the assumption that calls for intervention were based only on religion, using instead a discourse about the capacity of the Ottoman Empire to protect its citizens. Moreover, they continued to use and adjust this discourse over time. This project examines the spread of agitation across causes to understand how the Liberal Forwards used what they learned from the Armenian campaign to develop an understanding of the role of the state, and then applied that knowledge to other causes, including the South African War. The experience of the Liberal Forwards provides insight into the multi-faceted and complex discourses within British humanitarianism and across broader social movements.

Faculty Mentors: Dr. Mark Elliott & Dr. Jill Bender
Leslie Leonard, Sonya Laney, Alexis Scholfield & Josh Dacey (History & Museum Studies) Voices From the Chain Gang: What Can We Learn From Listening?

Poster # 42, Time: 12-1pm

Voices from the Chain Gang will explore the history of road camps and chain gangs in North Carolina. As a part of the "Good Roads" Movement in the 1920s, the state of North Carolina utilized convict labor to create and expand infrastructure and roads to increase interstate travel and tourism. Using letters from the North Carolina State Archives written from chain gang prisoners in the 1920s, this presentation will examine some of the personal accounts of the penal system in North Carolina. The presentation will also discuss the nationwide traveling exhibition States of Incarceration, which explores the past, present, and future of mass incarceration and how chain gangs fits into that complicated narrative.

Faculty Mentor: Dr. Anne Parsons

Luciana Lilley (English) Cannibalism Does What?! in George Thompson's Venus in Boston?

Poster # 43, Time: 1-2pm

What do a 19th century American literary text and an Early Modern recipe for mummy have in common? Cannibalism (more commonly known as medicinal cannibalism or mumia) is the connection: the practice of consuming mummified human body parts in an attempt to heal the human body. In George Thompson's Venus in Boston: A Romance of City Life, the character Jew Mike kills a man, places him in a wine barrel, and subsequently serves the cannibalistic wine to his ignorant victims. His preparation of the body is reminiscent of Early Modern recipes for processed mummified body; thus, Jew Mike's actions can be seen not only as revenge, but also as an attempt to heal the hypocritical couple through the utilization of medicinal cannibalism. I argue that Jew Mike used the body of the dead man, transformed it into a medicinal mummy, and then used it to manipulate living bodies.

Faculty Mentor: Dr. Maria Sanchez

Paul Piatkowski (English) Ghost Parrot(ing): Re/Deconstructing Order through Psychic Mimesis, Revenge Justice, and Conjuration in The Spanish Tragedy

Poster # 44, Time: 2-3pm

In Thomas Kyd's The Spanish Tragedy, acts of spectrality and conjuring begin inside the structure of the drama and extend in literal and figurative dimensions into the characters, scenes, and deeper layers of text in order to haunt the play, and, through this hauntology, to elevate the reader to a position where the lines between justice and injustice are blurred as are actions of revenge and execution, illuminating the solutions and problems formed in such attempts to reestablish order through a performance of revenge-justice. Kyd conjures a set of concepts that, with careful analysis of the means and meanings of such dis/embodied figures, lends to a reinterpretation of the social world of the early modern period in which bodily performances of violence and retribution problematize resolution. Kyd haunts the audience with questions of ultimate justice, natural and unnatural order, and the cyclical history of performed violence.

Faculty Mentor: Dr. Jennifer Feather

Jamie Watson (English) Man-Made Menopause and Architectural Embodiment in Herman Melville's I and My Chimney

Poster # 45, Time: 1-2pm

In this presentation, I argue Herman Melville's 1856 short story “I and My Chimney” has a feminist undercurrent heretofore acknowledged in scholarship. More specifically, Melville portrays the nineteenth-century understanding of menopause as male-constructed and oppressive. Melville’s old narrator desires to preserve his chimney at all costs. Meanwhile, his wife seeks to compromise the chimney for mobility within the home and her family’s comfort. Though critics like R. Bruce Bickley, Jr. and Clark Davis view the wife as emasculating, the narrator incites many of the physical and mental conditions that limit his wife’s agency—conditions mimicking how contemporary physicians defined menopause. To further argue that Melville advocates for female empowerment, I compare Melville’s story with Mary E. Wilkins Freeman’s “Revolt of ‘Mother’”—a critically-accepted feminist text. Freeman’s female protagonist experiences a similar plight to the wife in “I and My Chimney,” though scholars have interpreted these texts in opposing ways.

Faculty Mentor: Dr. Maria Sanchez