



UNG'S 2ND ANNUAL

# research pitch

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**Where: HOAG Student Center Auditorium, Rm 342, Dahlonega campus**

**When: October 28, 2021 from 5:30 pm to 7:00 pm**

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# UNG's 2nd Annual Research Pitch



October 28th, 2021 5:30 - 7pm

Hoag Auditorium - Dahlonga Campus

## Presenters

**Bryan Rocha** - *An Analysis on Persistent Government Negligence Towards the Danger that Lead-Based Paint in Properties Poses to Children's Health*

**Isabelle Pobanz** - *Forming a Copper Peptide-Based Hydrogel Through Flow Chemistry*

**Genesis Slocumb** - *The Effect of Diversity Present in University Websites Observed Through Eye-Tracking Data Collection*

**Sebastian Cherres** - *Do Your Homework: A Collective Case Study on K-12 Book Challenges*

**Chloe Meewes** - *Development of an Ethogram for Trichoplusia ni*

**Michelle Alvarado** - *A New Critical Approach to Bless Me, Ultima and how Borderland Theory is Essential to the Development of the Novel*

**Valeria Carazas** - *A Discrete Analytic Study of the Traffic Light Problem*

**Anna Cronan** - *Investigating the Effects of Neonicotinoid-based Insecticides on Southern Appalachia's Amphibians*

**Chloe Bishop** - *An Investigation of Hamiltonian Cayley Graphs*

**Cathryn Allen** - *Arising Online Dangers: Deepfakes are More Threatening Than They Seem*

## Host and Emcee



### **Vice Provost Dr. Steven Lloyd**

Dr. Lloyd earned his PhD in Neurobiology in 2005 and joined UNG in 2006 where he is a Professor of Psychological Science and chair of the department from 2012-2018. Steven's research area is in neuropsychopharmacology and he has published extensively with UNG faculty and student collaborators on the effects of drugs of abuse on the developing and adult brain and behavior. Since 2018, he serves as Vice Provost for Academic Affairs and Interim Dean for Graduate Studies.

## Judges



### **Dr. Erin Barding**

Dr. Barding has been a faculty member in the Biology Department for 11 years. She teaches a variety of courses for non-science and Biology majors, including study abroad courses in both Costa Rica and South Africa. She works with undergraduate students to conduct ecological research, with a focus on behavioral ecology & evolution in a host-parasite insect system, and wildlife ecology & conservation of mammals of northern Georgia.



### **Dr. Toluwani Oloke**

Dr. Oloke is an assistant professor in the department of Communication, Media and Journalism at the University of North Georgia. Dr. Oloke earned her doctoral degree from the University of Florida. Her research focus is in Health Communication and Cultural sensitivity in the development of health campaign messages. Dr. Oloke loves to spend time with her family, cook and read novels in her leisure time.



### **Dr. Bibek Chand**

Bibek Chand is an Assistant Professor in the Department of Political Science and International Affairs. His research interests include Sino-Indian interactions in Asia, international relations of small states, security studies, the emerging notion of the Indo-Pacific, and geopolitics. He is also interested in pedagogical development in the field of Political Science.



### **Dr. Supriya Reddy**

Dr. Reddy's research interests are in the broad area of public health. Specifically, the utilization of health behavior theory to examine risky substance abuse behaviors among college students. Currently, she is examining theoretical predictors related to the mixing of alcohol and energy drinks among college undergraduates and plans to extend her research to other risky college health behaviors. She also has an interest in global health initiatives, which have led her to both South Africa and India. These endeavors involved the implementation of health education efforts related to tuberculosis, HIV/AIDS, nutrition, and handwashing techniques. Currently, she is working on combatting health misinformation related to the COVID-19 pandemic.



### **Madison Bunch - Student Guest Judge**

Madison Bunch is a senior biology major at the UNG Dahlonega campus. Madison does undergraduate research with Dr. Dobrusia Bialonska and Dr. Paul Johnson, and she hopes to pursue a Ph.D. in microbiology after graduation. She was invited to be a student judge for the 2nd Annual Research Pitch after presenting and placing 2nd in last year's Research Pitch.

# Abstracts

## **Bryan Rocha - *An Analysis on Persistent Government Negligence Towards the Danger that Lead-Based Paint in Properties Poses to Children's Health* (Dr. David Broad)**

From Baltimore's first residential-segregation ordinance; to the insufficient number of prohibitions on the use of lead-based paint in properties, accompanied with the astonishing lack of government-led enforcement for the single ban that was approved; government officials have made decisions that have, and continue to, negatively impact a great number of West Baltimore's colored people. These decisions have led almost every house in Baltimore's minority-white communities to be so dilapidated, that inhabiting them can put any family's children in risk of being poisoned with lead and subsequently suffer from irreversible brain damage, among other severe health effects.

## **Isabelle Pobanz - *Forming a Copper Peptide-Based Hydrogel Through Flow Chemistry* (Dr. Levi Z. Miller and Dr. Eric Huddleston)**

Collagen makes up 30% percent of the proteins in the human body and is vital for the formation of skin. As the human body ages, collagen production decreases. To counter aging, collagen boosting products have been formed. Copper peptides are one of the reactants used to increase collagen production. The purpose of this project is to create a copper peptide-based hydrogel that can increase the formation of collagen in the skin. Currently, the base hydrogel has been produced which was the beginning stage of forming the copper-peptide based hydrogel.

## **Genesis Slocumb - *The Effect of Diversity Present in University Websites Observed Through Eye-Tracking Data Collection* (Co-Author Xuan-Mai 'Sophia' Nguyen; Mentors Dr. Bryan Dawson and Dr. John Dewey)**

Imagine a prospective UNG student visiting our website. Where do they look? Does their eye gaze reflect their attitudes and values? Their future choices? Our study is designed to use eye-tracking software to determine what catches a prospective student's attention. We are interested in determining if students prefer universities that display a diverse student body and the potential impact an emphasis on diversity has on their admissions decisions when students indicate that diversity and inclusion are important. We hypothesize that a university website with diverse photos will have a significant effect on where a student decides to attend.



## Abstracts Cont.

### **Sebastian Cherres - *Do Your Homework: A Collective Case Study on K-12 Book Challenges* (Dr. Danielle Hartsfield and Dr. Sue Kimmel)**

Book challenges are persisting issues in US public education. Studies from Antell et. al. detail widespread teacher self-censorship out of fear of facing a challenge. Little research exists on the formal book challenge process and what risk or procedure there is, if any. Our research consists of interviews with K-12 educators who have experienced a book challenge, then transcribing and analyzing their experiences. Analysis of the interviews and a comprehensive understanding of the experiences and emotional states during the process will better inform educators about the process and risk associated with challenges and paint book challenges in a less intimidating light.

### **Chloe Meewes - *Development of an Ethogram for Trichoplusia ni* (Co-Author Logan Pearson; Mentors Dr. Ryan Shanks, Dr. Margaret Smith, and Dr. Erin Barding)**

The lepidopteran species, *Trichoplusia ni* (T.ni), is an excellent candidate as a model organism for studying behavioral changes in a controlled environment. Their relatively simple neurological system can help explain more complex neurological systems. To our knowledge, there is no existing ethogram for T.ni larvae, so our plan is to develop this detailed behavioral analysis so that we may establish a baseline to which we can compare behavior in future experiments. Ultimately, our goal is to establish T.ni larvae as a model organism that can be used for future behavioral studies in a wide range of disciplines.

### **Michelle Alvarado - *A New Critical Approach to Bless Me, Ultima and how Borderland Theory is Essential to the Development of the Novel* (Dr. Tanya Bennett and Dr. Valerie Surrectt)**

The assimilation of cultures in Anaya's novel *Bless Me, Ultima* has prompted multiple debates on which culture the protagonist Antonio must choose: his Mexican indigenous side or his Latin fused culture with Anglo-American. However, I argue that Anaya proposes a balance of Antonio's two worlds. I demonstrate this balance by analyzing Anaya's novel through a New Critical lens while demonstrating how Gloria Anzaldúa's borderlands theory shapes the novel and Antonio's decisions. A New Critical lens highlights the novel's structural merit revealing essential insights on the issues of Chicano/a identity. Borderland theory aids in the exploration of the novel's intersectionality.

# Abstracts Cont.

## **Valeria Carazas - *A Discrete Analytic Study of the Traffic Light Problem* (Dr. Bikash Das)**

It is clear as technology and humanity continue to advance, the role of traffic also grows. We derived an algorithm to predict an individual's most likely path from point A to point B by solving a system of differential equations. Data were collected randomly on a local neighborhood of UNG's Gainesville Campus. We tested and compared the analytic model with a proposed ideal abstract graph-theoretic model. When a student travels to school, given a fixed amount of time to arrive, they may make decisions under influence of emotion. This is considered under the ideas of emotive game theory and strategy making. I will discuss the impact of varying speed limits, differing number of traffic lights, and the distance as the three contributing factors in the emotive game.

## **Anna Cronan - *Investigating the Effects of Neonicotinoid-based Insecticides on Southern Appalachia's Amphibians* (Prof. Aminda Everett and Prof. Jessy Patterson)**

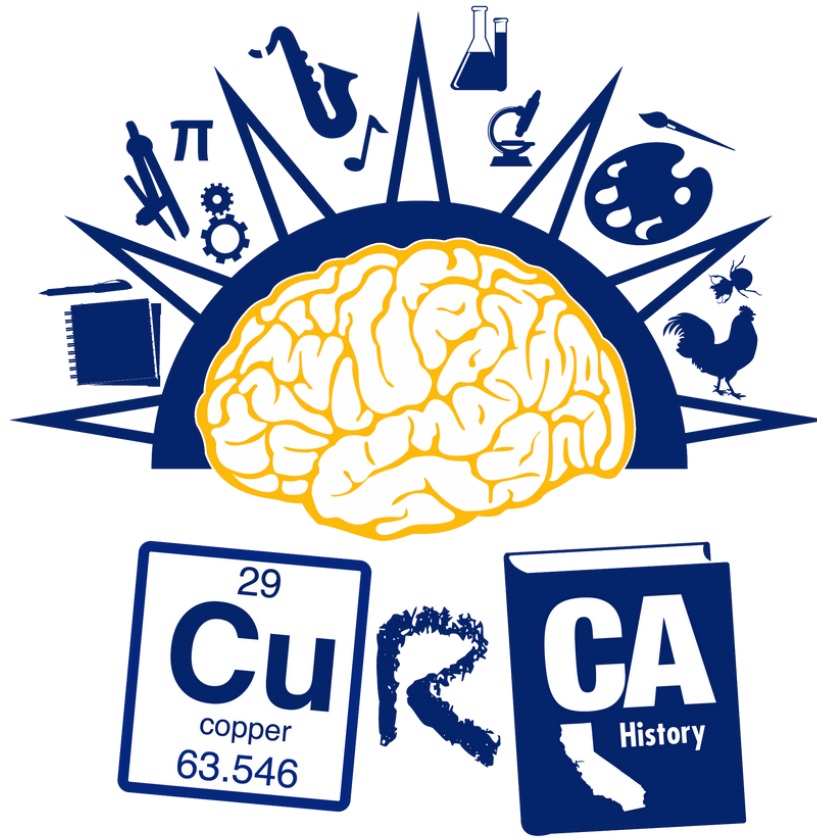
Neonicotinoid insecticides are used to control Hemlock Woolly Adelgid (HWA) infestations on Eastern (Tsuga canadensis) and Carolina hemlock (Tsuga caroliniana) trees. Neonicotinoids are water soluble and their effect on non-target species, specifically amphibians, is unknown. We monitored American toad tadpoles (Anaxyrus americanus) chronically exposed to two neonicotinoid insecticides, imidacloprid (100 µg/L) and dinotefuran (100 µg/L), throughout the summer. Tadpole and toadling body width (mm) and snout-to-vent length (SVL; mm) was recorded. Our study indicates that chronic exposure to neonicotinoid insecticides may have negative impacts on amphibian growth and survivorship. Therefore, neonicotinoids should be carefully monitored to prevent potential ecosystem disruptions.

## **Chloe Bishop - *An Investigation of Hamiltonian Cayley Graphs* (Dr. Bikash Das)**

Cayley graphs are graphs associated to a group and a set of group generators. Our purpose was to examine examples of Cayley graphs through group theory, graph theory, and applications. We gave background material and examples of Cayley graphs and digraphs which must be path-connected. This helped investigate the conjecture that Cayley graphs are Hamiltonian. Also, Cayley graphs and Hamiltonian cycles can apply to campanology. Concluding by citing the example of the Lamp Lighter Group and how its Cayley graph helps view the group acting on a doubly infinite sequence of streetlamps, and a lamp lighter standing at some lamp.

## **Cathryn Allen- *Arising Online Dangers: Deepfakes are More Threatening Than They Seem* (Dr. Bryson Payne, Dr. Tamirat Abegaz, Dr. Chuck Robertson, and Dr. Royce Dansby-Sparks)**

People use the internet and social media every day. Online, they are exposed to false information, in the form of misinformation or disinformation, through different media. One arising form is Deepfakes. Deepfakes are videos that have been manipulated to show events that never took place. These videos can change the opinions of viewers by exploiting human susceptibility to information. The internet is becoming unsafe and people need to become aware of what dangers they face.



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