

18th Annual Carolyn & Norwood Thomas

Undergraduate Research and Creativity Expo



**UNC
GREENSBORO**

Undergraduate
Research, Scholarship
and Creativity Office

April 10, 2024

18th Annual Carolyn and Norwood Thomas Undergraduate Research and Creativity Expo

2024



UNC GREENSBORO

Undergraduate
Research, Scholarship
and Creativity Office



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Undergraduate Research, Scholarship *and* Creativity Office

ursco.uncg.edu

Preston Lee Phillips Jr., Ph.D.

Director

Traci Miller, MSA

Academic Enhancement and U-RISE Program Coordinator

Curtis Bullard

Graduate Assistant

Siva Ganesh Peddisetti

Graduate Assistant

Alex Archambault

Undergraduate Assistant

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Creativity Office**
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URSCO Director

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Undergraduate
Research, Scholarship
and Creativity Office

135 Shaw Residence Hall
Greensboro, NC 27402-6170

April 10, 2024

Dear Students, Colleagues, and Guests,

I would like to welcome you to the *18th Annual Carolyn and Norwood Thomas Undergraduate Research and Creativity Expo*. We are pleased to include 138 presentations by 171 students, working with 77 mentors, and representing 27 academic departments/programs.

The *Undergraduate Research, Scholarship and Creativity Office (URSCO)* is dedicated to promoting and supporting student success through mentored undergraduate research, creative inquiry, and other scholarly experiences for the UNCG community. URSCO is also dedicated to helping faculty become increasingly effective with mentoring undergraduate research and integrating research skills into courses and curricula. These experiences can occur in many ways, including co- or extracurricular projects involving one or more students mentored by UNCG faculty. Scholarship is achieved by using the tools of an academic discipline to answer questions that enhance knowledge and understanding. We seek to highlight the diversity of disciplinary scholarship for and through our students to help cultivate a culture of life-long curiosity and learning.

URSCO offers financial assistance to promote faculty-mentored student scholarship and creativity. This academic year, we have provided *travel assistance* to 27 students to present the results of their inquiry at local, regional, and national meetings. We have also provided support for 38 students through *Undergraduate Research and Creativity Awards (URCA)*. Finally, 5 students participated in the *Artists in Residence* program, in partnership with the *Lloyd International Honors College* and the *College of Visual and Performing Arts*.

Today is a day to celebrate your scholarly accomplishments. I would like to thank all students and their faculty mentors for taking the time to share your work with the university community. Many thanks go to Dean Omar Ali of the Lloyd International Honor College, Vice Chancellor for Research and Economic Development, Dr. Terri Shelton, as well as Provost Debbie Storrs, and Chancellor Franklin Gilliam for their support of the URSCO and their dedication to student success. As always, special thanks go to Mrs. Carolyn Thomas for her generous contributions in support of the Expo and faculty-mentored undergraduate research. Finally, I would also like to thank Traci Miller, Katherine Reese, Curtis Bullard, Siva Ganesh Peddisetti, and Alex Archambault for their efforts to ensure the success of today's program.

Sincerely,

Lee Phillips, Ph.D.
Director, URSCO

ACCESSIBILITY INFORMATION

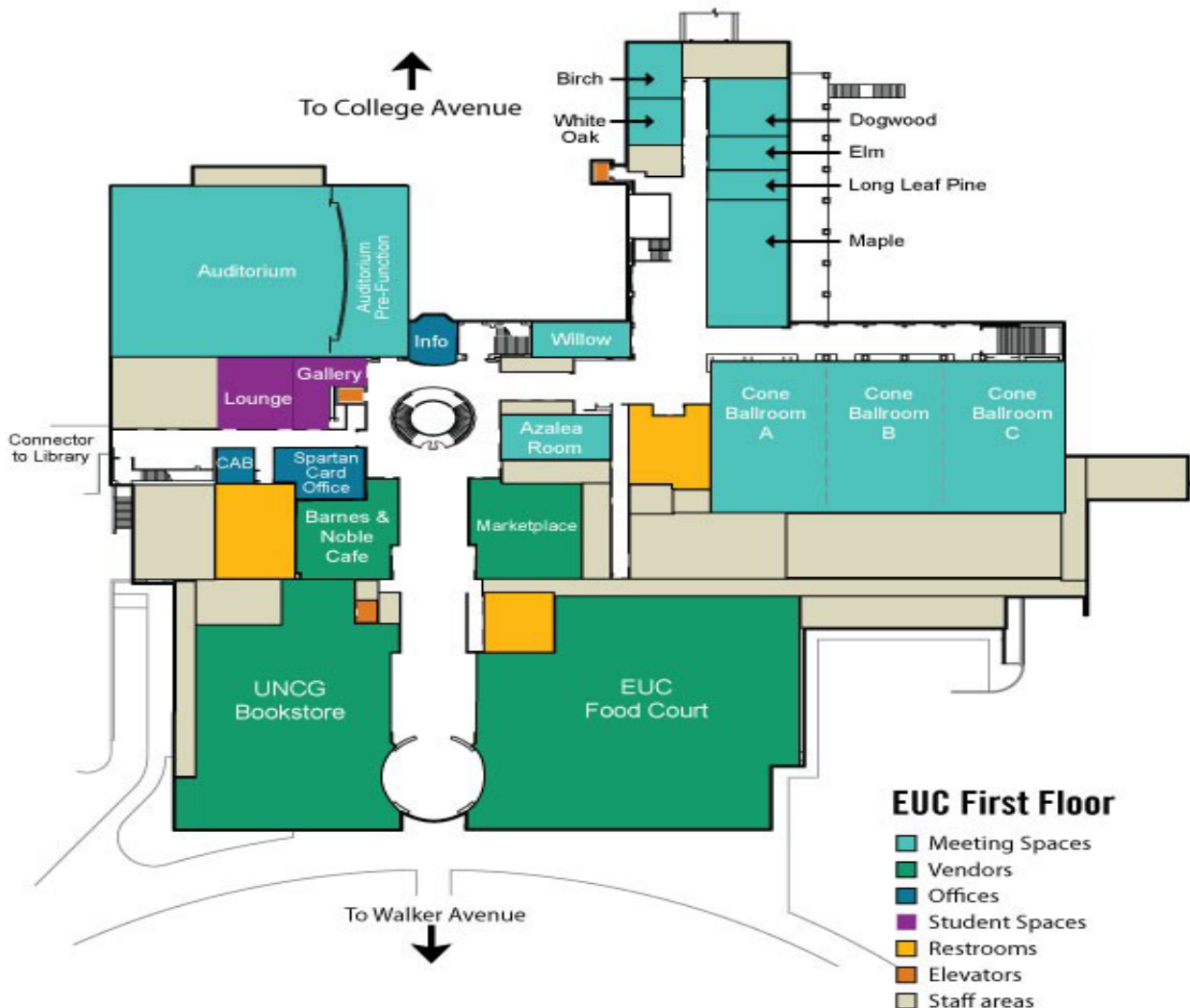
Elliott University Center

- Parking: Walker Avenue Parking Deck is the closest.
- Location in Building: Cone Ballroom (A, B, C).
- Bathrooms: Yes. Two bathrooms on the Ground Floor, three bathrooms on the First Floor, two bathrooms on the Second Floor (see map below).
- Elevators: Yes, two.

Entering UNCG Elliott University Center from Walker Avenue Parking Deck (507 Stirling St, Greensboro, NC 27412)

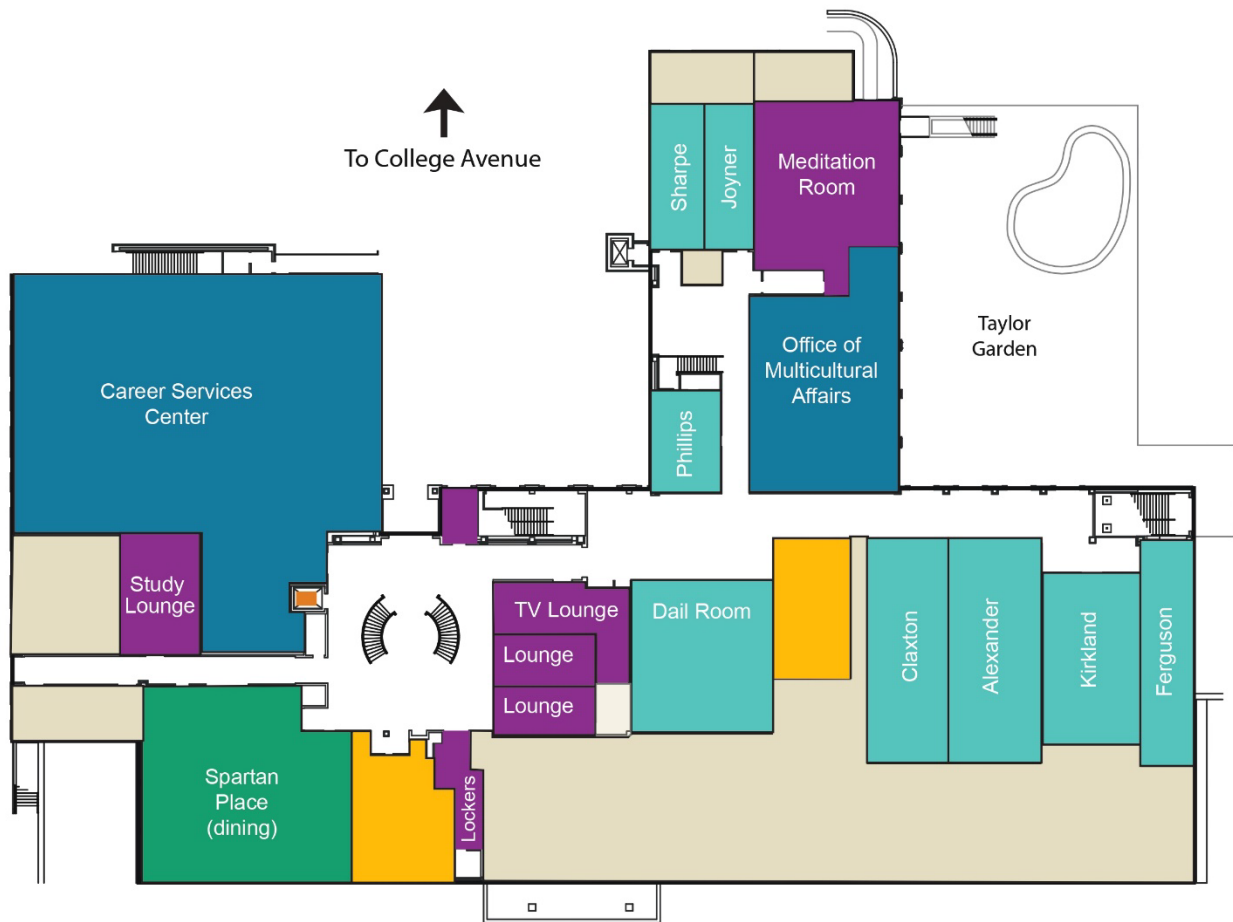
- Take the Stirling Street exit out of the Parking Deck.
- Walk across Stirling Street to the EUC building (next to the Library Tower)
- Enter building and walk straight toward the information desk.
- Make a right and the EXPO will be straight ahead.

MAP OF EUC (FIRST FLOOR)



ACCESSIBILITY INFORMATION

MAP OF EUC (GROUND FLOOR)



EUC Ground Floor

- Meeting Spaces
- Vendors
- Offices
- Student Spaces
- Restrooms
- Elevators
- Staff areas

SCHEDULE AT A GLANCE



18th Annual Carolyn & Norwood Thomas Undergraduate Research & Creativity Expo

Elliott University Center
 University of North Carolina at Greensboro
 April 10, 2024

8:30 **Registration** - Cone Ballroom

9:30 **Welcoming Remarks** - Cone Ballroom

9:30 – 3:00 **Visual Arts** - Willow Room

Oral Presentations

	<i>Business, Education, Behavioral and Social Sciences</i>	<i>Humanities</i>	<i>Mathematics, Life and Physical Sciences</i>	<i>Music, Theatre and Dance</i>
10:00 - 10:45	Kirkland	Alexander		Dail
10:45 - 11:45			Claxton	
1:00 - 2:00	Kirkland	Alexander	Claxton	

	<i>Poster Presentations</i>
9:30 - Noon	Morning Sessions
Noon - 1:00	~ Lunch Social Break ~
1:00 - 3:00	Afternoon Sessions



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18TH ANNUAL CAROLYN AND NORWOOD THOMAS UNDERGRADUATE RESEARCH & CREATIVITY EXPO



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CAROLYN AND NORWOOD THOMAS

Carolyn Styron Thomas graduated from Woman's College, now UNCG, in 1954 with a bachelor's degree in business. She is very committed to the success of her alma mater and believes strongly in the value of education. "The experience of obtaining my college degree at Woman's College gave me confidence throughout my life to face challenges, raise my family and serve my church and community, all leading to a very rewarding life," says Mrs. Thomas. To express their appreciation for Carolyn's education, the Thomases established an endowed fund in 1996 to support undergraduate and faculty research.

Mrs. Thomas has served on the board of directors for the UNCG Alumni Association and, most recently, the UNCG Board of Visitors. She is a member of the Harriet Elliott Society at UNCG. She has also been involved in numerous organizations in her hometown of Durham, NC, including the Junior League, the United Arts Council and the Methodist Retirement Home.

Her husband, the late Norwood A. Thomas, Jr., graduated from Duke University in 1955. The Thomases dated in college and were married for 46 years. Mr. Thomas retired from his position as Executive Vice President at Central Carolina Bank after 37 years. He later was a founding partner of the investment firm of Wilbanks, Smith & Thomas Asset Management of Norfolk, Virginia, where he worked for more than 10 years. Mr. Thomas was very active in community affairs in the Thomas' hometown of Durham.

Thomas Undergraduate Research Mentor Awards



Career: Dr. Sat Gupta,

Department of Mathematics and Statistics

Professor Sat Gupta, a statistician whose research interests include survey sampling and biostatistics, has received the 2024 UNCG Thomas Undergraduate Research Mentor Award in the tenured category. Dr. Gupta has mentored 9 UNCG undergraduate students on individual projects. As the principal investigator on a current 3-year NSF Research Experiences for Undergraduates (REU) grant and one in 2018 – and as senior personnel on previous REU grants – he has welcomed a host of visiting student researchers to our campus. He also launched the Research Experience in Statistics for UNCG Undergraduates program and serves as a co-

principal investigator on a multi-year, multi-million NSF LSAMP grant, which aims to increase the number of STEM and graduate degrees awarded to historically underrepresented groups and which includes undergraduate research mentorship as one of its core activities.

Gupta, who is a Fellow of the American Statistical Association and an elected member of the International Statistical Institute, believes teaching and research are intertwined. He invests in providing students with research opportunities that cultivate their critical thinking. “Motivating undergrads is very satisfying because it has the potential to change the trajectory of their professional career,” Gupta says.

Gupta’s mentorship strengths include building undergraduates’ holistic research skill sets, involving students in publishing work, encouraging graduate and undergraduate student collaborations, and providing career guidance. Many of his mentees have the opportunity to engage in research related to one of his main areas of expertise, randomized response models – scholarship which has important applications for health and behavioral sciences. Gupta, who has published over 165 journal articles, has co-authored 10 peer-reviewed articles with his undergraduate mentees. His students have also presented their research across the world and attended highly sought-after graduate programs. Gupta’s undergraduate research mentees have gone on to conduct their graduate work at a variety of locations, including, Cornell, UNC Chapel Hill, University of Virginia, and the University of Washington Seattle.

Thomas Undergraduate Research Mentor Awards

Early Career: Dr. Michaeline Jensen, Department of Psychology

Assistant Professor Michaeline Jensen has received the 2024 UNCG Thomas Undergraduate Research Mentor Award in the pre-tenure category. The psychologist and social scientist, who examines how mobile communication technologies impact young adults, has mentored 70 undergraduates on independent studies since she arrived at UNCG in 2018.

“The diverse UNCG undergraduate student body is truly a joy to engage with as they bring rich histories, worldviews, and identities to discussions both inside and outside of class,” she says. “Mentorship for these students often takes the form of walking alongside them as they build self-awareness, knowledge, and skills related to science and practice around race, ethnicity, and culture.”



Jensen involves her undergraduate mentees in all aspects of the research process, from study design to publication. Two students have co-authored peer-reviewed manuscripts, three have won Undergraduate Research and Creativity Awards, and one is a UNCG-McNair Scholar. Jensen has also mentored 2 students through the UNCG Psychology Department’s Early Scientist Program.

The scholar – who already has 30 publications of her own – has also impacted over 775 undergraduates in the classroom, where she translates both foundational psychology knowledge and advanced research for her students in her Ethnicity, Development, and Psychopathology and Introduction to Clinical Psychology classes.

SCHEDULE OF ORAL PRESENTATIONS

(BY STUDENT NAME)

Student Presenter(s)	1 st Student's Major	Title	Time	Room
Hasnain Awan, Siram Ali, & Gabriel Curz	Biology	Unveiling the Interconnected Web: Exploring the Impact of Microplastics on Soil, Plants, and Insect Growth using tobacco a model system	1:12	Claxton
Sarah Barber, Aidan Quinn, & Kevian Diaz-Salm	Computer Science	Everyday Life and Harmony in Japan	1:00	Alexander
Cecil Barlow	Classical Studies	Signs of Struggle: Analyzing the Intersection of Fate and Womanhood in Athenian Tragedy	10:24	Alexander
Daniel Borger	Classical Studies	Cicero's Theory of the 'Exordium' and the Development of the Four 'Loci'	10:00	Alexander
Vance Bowman	Library & Information Studies	Information Science and Mythological Items	1:12	Alexander
Keagen Buckley	Classical Studies	Reclaiming Medusa: Medusa as a Feminist Symbol	1:48	Alexander
Holly Buroughs	Physics & Astronomy	Revealing the Nature of the Emission-Line Star HD 50138	1:24	Claxton
Megan Byrd	Consumer Apparel & Retail Studies	Minimalism Trend in Apparel Consumption: A Perspective from Millennial Consumers	1:24	Kirkland
Melissa Cleary	Human Development & Family Studies	Enhancing Early Childhood Professionals' Infant and Toddler Mental Health Knowledge	10:36	Kirkland
Ethan Divon	Classical Studies	Expanding Classics: Comparative World Mythology and its Reception in Gaming	1:24	Alexander
Tyler Rae Durkee & Abigail Hughes	Music Education	Everybody Can Play Strings: Including Non-String Primaries in Your Program	10:36	Dail
Zoe Edmonson	Biology	Symmetry in Course Artifacts: Unveiling Inorganic Chemistry Teaching Strategies	10:12	Kirkland
Fatima Elhorry	Biology	Characterizing Naringenin Targets in MCF-7 Human Breast Cancer Cells	11:36	Claxton

SCHEDULE OF ORAL PRESENTATIONS

(BY STUDENT NAME)

Student Presenter(s)	1 st Student's Major	Title	Time	Room
Zane Graybeal	Classical Studies	Cheating Fate: The Corruption of Ancient Greek Oracles	1:36	Alexander
Clara Kennedy	Dance	Alloy	10:00	Dail
Sarah Korb	Chemistry and Biochemistry	Enantioselective Effects of Co-Catalysts on Tetrahydropyran Protected Alcohols	11:24	Claxton
Evangeline Grace Lothian	Classical Studies & English	Within the Reliquaries: Sainthood in John Donne's "The Canonization" and "The Relic"	10:36	Alexander
Sofie Muska	English	Scions of the Solar Sea	10:12	Alexander
Alexandra Nolan & Kimberly Gonzales	Biology	Effects of Microplastic Contamination on Tobacco Hornworms' Feeding Preferences	1:36	Claxton
Coren O'Brien	Biology	A Natural Grapefruit Derivative that Selectively Destroys Breast Cancer Cells	11:12	Claxton
Mohammad Omar	Biology	Interaction of microplastics with aluminum and sulfamethoxazole and its impact on hydroponically grown barley (<i>Hordeum vulgare</i>)	1:48	Claxton
Ariel Pocock	Biology	Weaving Strength and Well Being: A Novel Interview Approach for Improving Mental Health in Montagnard Elders and Youth	10:00	Kirkland
Taylor Pouges	Consumer Apparel & Retail Studies	What to Do with Your Old Jeans? Investigating Gen Z College Students' Consumption and Disposal Behavior Toward Jeans	10:24	Kirkland
Laniya Smith, Cameron Vanderha, & Clara Kennedy	Dance	Aria's Narrative	10:12	Dail
Nicholson Sprinkle	Nursing	ACLS simulation and student self-efficacy: A scaffolded approach	1:36	Kirkland
Jennifer Visser	Nursing	The Art of Letting Go: A Journey Through Grief and Loss	10:24	Dail

SCHEDULE OF ORAL PRESENTATIONS

(BY STUDENT NAME)

Student Presenter(s)	1st Student's Major	Title	Time	Room
Tammy Wang	Consumer Apparel & Retail Studies	Virtual Couture: Redefining Fashion in Gaming to Reduce Environmental Impact	1:48	Kirkland
Eric Whisnant	Biology	Eragrostis tef seed extracts show an ability to modulate important human immunological mechanisms	11:00	Claxton

SCHEDULE OF ORAL PRESENTATIONS

(BY ROOM AND TIME)

ALEXANDER

Humanities			
Time	Student Presenter(s)	Student's Major	Title
10:00	Daniel Borger	Classical Studies	Cicero's Theory of the 'Exordium' and the Development of the Four 'Loci'
10:12	Sofie Muska	English	Scions of the Solar Sea
10:24	Cecil Barlow	Classical Studies	Signs of Struggle: Analyzing the Intersection of Fate and Womanhood in Athenian Tragedy
10:36	Evangeline Grace Lothian	Classical Studies & English	Within the Reliquaries: Sainthood in John Donne's "The Canonization" and "The Relic"
<hr/>			
1:00	Sarah Barber, Aidan Quinn, & Kevian Diaz-Salm	Computer Science	Everyday Life and Harmony in Japan
1:12	Vance Bowman	Library & Information Studies	Information Science and Mythological Items
1:24	Ethan Divon	Classical Studies	Expanding Classics: Comparative World Mythology and its Reception in Gaming
1:36	Zane Graybeal	Classical Studies	Cheating Fate: The Corruption of Ancient Greek Oracles
1:48	Keagen Buckley	Classical Studies	Reclaiming Medusa: Medusa as a Feminist Symbol

SCHEDULE OF ORAL PRESENTATIONS

(BY ROOM AND TIME)

KIRKLAND

Business, Education, Social, and Behavioral Sciences			
Time	Student Presenter	Major	Title
10:00	Ariel Pocock	Biology	Weaving Strength and Well Being: A Novel Interview Approach for Improving Mental Health in Montagnard Elders and Youth
10:12	Zoe Edmonson	Biology	Symmetry in Course Artifacts: Unveiling Inorganic Chemistry Teaching Strategies
10:24	Taylor Pouges	Consumer Apparel & Retail Studies	What to Do with Your Old Jeans? Investigating Gen Z College Students' Consumption and Disposal Behavior Toward Jeans
10:36	Melissa Cleary	Human Development & Family Studies	Enhancing Early Childhood Professionals' Infant and Toddler Mental Health Knowledge
<hr/>			
1:24	Megan Byrd	Consumer Apparel & Retail Studies	Minimalism Trend in Apparel Consumption: A Perspective from Millennial Consumers
1:36	Nicholson Sprinkle	Nursing	ACLS simulation and student self-efficacy: A scaffolded approach
1:48	Tammy Wang	Consumer Apparel & Retail Studies	Virtual Couture: Redefining Fashion in Gaming to Reduce Environmental Impact

SCHEDULE OF ORAL PRESENTATIONS

(BY ROOM AND TIME)

CLAXTON

Mathematics, Life, and Physical Sciences			
Time	Student Presenter(s)	1st Student's Major	Title
11:00	Eric Whisnant	Biology	Eragrostis tef seed extracts show an ability to modulate important human immunological mechanisms
11:12	Coren O'Brien	Biology	A Natural Grapefruit Derivative that Selectively Destroys Breast Cancer Cells
11:24	Sarah Korb	Chemistry and Biochemistry	Enantioselective Effects of Co-Catalysts on Tetrahydropyran Protected Alcohols
11:36	Fatima Elhorry	Biology	Characterizing Naringenin Targets in MCF-7 Human Breast Cancer Cells
1:12	Hasnain Awan, Siram Ali, & Gabriel Curz	Biology	Unveiling the Interconnected Web: Exploring the Impact of Microplastics on Soil, Plants, and Insect Growth using tobacco a model system
1:24	Holly Buroughs	Physics & Astronomy	Revealing the Nature of the Emission-Line Star HD 50138
1:36	Alexandra Nolan & Kimberly Gonzales	Biology	Effects of Microplastic Contamination on Tobacco Hornworms' Feeding Preferences
1:48	Mohammad Omar	Biology	Interaction of microplastics with aluminum and sulfamethoxazole and its impact on hydroponically grown barley (<i>Hordeum vulgare</i>)

SCHEDULE OF ORAL PRESENTATIONS

(BY ROOM AND TIME)

DAIL

Music, Theatre, and Dance			
Time	Student Presenter(s)	1st Student's Major	Title
10:00	Clara Kennedy	Dance	Alloy
10:12	Laniya Smith, Cameron Vanderha, & Clara Kennedy	Dance	Aria's Narrative
10:24	Jennifer Visser	Nursing	The Art of Letting Go: A Journey Through Grief and Loss
10:36	Tyler Rae Durkee & Abigail Hughes	Music Education	Everybody Can Play Strings: Including Non-String Primaries in Your Program

SCHEDULE OF POSTER PRESENTATIONS

(BY LAST NAME)

****ALL POSTER PRESENTATIONS WILL BE IN THE CONE BALLROOM****

Poster No.	Student Presenter(s)	1 st Student's Major	Title of Presentation	9:30-10:30	10:45-11:45	1:00-1:55	2:00-2:55
1	Gabriell Allred	Biology	Study of Symbiotic Relationship Between Arbuscular Mycorrhizal Fungi, Rhizobia, and Legumes	X			
2	Breanna Alston	Chemistry	Potential Mechanisms of Caffeine's Protective Effect Against Depression: Moderation of Distress and Sleep Duration Predicting Cortisol Awakening Response			X	
3	Lianny Araujo-Martinez	Human Development and Family Studies	Children's Early Mathematical Skills: The Role of Formal and Informal Home Numeracy Practices		X		
4	Daniel Araya	Biology	Expression of Pyrococcus furiosus thioredoxin (PfTrx) in Transgenic Tobacco for Enhanced Abiotic Stress Tolerance		X		
5	Amanda Noelle-Astillero	Classical Studies	The Imitation Game: Using Nanotech and Artifacts for Academic Accessibility				X
6	Kimberly Cang & Tiffany Tan	Biology	Conversations About Discrimination Among Asian American Parents and Adolescents			X	
7	Nathaly Castro	Kinesiology	The Moderating Role of Adolescent Girl's Physical Activity Facilitators on the Association Between Affect and Engagement Level of Physical Activity				X
8	Nathan Dang	Public Health Education	Chronic Health Disparities in the U.S. Hmong Population: A National Profile with Implications for a Community-Driven Needs Assessment in NC		X		
9	Jay Darden	Women's and Gender Studies	Art is a Weapon: Critiquing War, Culture, and Society			X	

SCHEDULE OF POSTER PRESENTATIONS

(BY LAST NAME)

****ALL POSTER PRESENTATIONS WILL BE IN THE CONE BALLROOM****

Poster No.	Student Presenter(s)	1 st Student's Major	Title of Presentation	9:30-10:30	10:45-11:45	1:00-1:55	2:00-2:55
10	Krystajah Davis	Psychology	Contextualizing Communication: Effects of Everyday Activities on Parental Language Input in Naturalistic Audio Samples			X	
11	Grant Develle, Sarah Korb, Felix Russo-Weatherly, & Nolan Garci	Human Development and Family Studies	Understanding The Biochemical Applications of pH Manipulation in Dairy Products	X			
12	Victoria Farris	Chemistry	Metabolomic Profiling of Soil Fungi for the Discovery of Antimicrobial Properties Against Gram-Positive and Gram-Negative Bacterial Strains	X			
13	Stephanie Fisher-Huynh	Biology	Increasing CRISPR-based Gene Editing Specificity Through Extended CRISPR RNAs				X
14	Katelyn Garton, Kate McDavid, Alyese Whitecar, & Anthony Hines	Biology	TLeaf Ontogeny and Variation in the Plant Phenology of Different Plant Species May Help Explain the Life History Traits of Specialist Insects.			X	
15	Aaron Goldman	Psychology	The Influence of Correction Type and Source Credibility on the Belief in Fake News		X		
16	Brianna Gomez	Anthropology	Investigating the Impacts of Phytotoxins on Lemnaceae Growth	X			
17	Dominique Gould & Amanda Weller	Biology	From Specimen to Open Data: Digitizing the UNCG Mammal Biodiversity Collection		X		

SCHEDULE OF POSTER PRESENTATIONS

(BY LAST NAME)

****ALL POSTER PRESENTATIONS WILL BE IN THE CONE BALLROOM****

Poster No.	Student Presenter(s)	1 st Student's Major	Title of Presentation	9:30-10:30	10:45-11:45	1:00-1:55	2:00-2:55
18	Kyla Grant	Biology	The Uptake of 80 nm Nanoplastics by Human Aortic Endothelial Cells	X			
19	Jamie Gross	Classical Studies	Divine Dice: Dice Oracles and the Divination Hierarchy of Termessos			X	
20	Emily Guinn	Chemistry	Studies Towards the Regioselective Claisen Rearrangement of Meta-Substituted Allyloxy Benzenes		X		
21	Kya Hargan & Rosalie Terry	Biology	Investigating Changes in Bison Grazing and Insect Herbivory Preference After Long-Term Grazing Exclusion in Tallgrass Prairie			X	
22	Jackie Hayden	Biology	Patterns in Flea Abundance on Small Mammals in Mongolia	X			
23	Matthew Henderson	Anthropology	Zooarchaeological Considerations at Crusader-Period Caesarea Maritima				X
24	Karla Hernandez-Alvarez & Rayhanatou Issoufou	Public Health Education	HIV Among Women in the South: An Undergraduate Summer Research Training Program in Public Health				X
25	Taylor Hine & Emoni Wiley	Human Development and Family Studies	Examining Mental Health Impacts in Black Youth from Childhood Exposure to Gun Violence.	X			
26	Sarah Hudson	Biology	Exposure to Microplastics and Nanoplastics (MNPLs) Triggered Inflammatory Response in Human Aortic Endothelial Cells (HAEC)	X			

SCHEDULE OF POSTER PRESENTATIONS

(BY LAST NAME)

****ALL POSTER PRESENTATIONS WILL BE IN THE CONE BALLROOM****

Poster No.	Student Presenter(s)	1 st Student's Major	Title of Presentation	9:30-10:30	10:45-11:45	1:00-1:55	2:00-2:55
27	Jessica Jacob	Anthropology	Three-Dimensional Models of Taphonomic Modifications to Bone			X	
28	Yeancarlos Jalouf Zogbi & Grant Koher	Biology	Māmaki Ethanol Extracts Inhibit TNF-A-Induced Endothelial Proinflammatory Gene Expression in Human Aortic Endothelial Cells		X		
29	Amber Johnson	Biology	Determining Rhizobia Strain Effectiveness for Use in Legume Inoculations				X
30	Iman Khan	Kinesiology	Physical Activity and Affect in Adolescent Girls			X	
31	Olivia Kjuka & Olivia Militello	Biology	Inundation Effects on Schizachyrium scoparium Resource Allocation	X			
32	Aryan Kotian & Aaliyah Washington	Biology	How does Lytic Replication of Epstein-Barr Virus Hijack Cellular Pathways to Enable Metastasis of Cancer Cells?		X		
33	Melanie Lancelot & Tabitha Reid	Psychology	Interplay of Depression Symptoms and Risk Factors with Lab-Based Stressor Negative Evaluation Level Predicting Behavioral Engagement				X
34	Tiana Lillevig	Chemistry	Utilization of Chiral Brønsted Acids to Form Enantioenriched δ -Lactams	X			
35	Ava Miller, Olivia Chapman, Kristin Stierman, & Abigail Mendoza-Garcia	Biology	Testing the Extent of Dehnel's Phenomenon	X			

SCHEDULE OF POSTER PRESENTATIONS

(BY LAST NAME)

****ALL POSTER PRESENTATIONS WILL BE IN THE CONE BALLROOM****

Poster No.	Student Presenter(s)	1 st Student's Major	Title of Presentation	9:30-10:30	10:45-11:45	1:00-1:55	2:00-2:55
36	Corban Mills & Hayley Liebenow	Psychology	The Look of Racism: Examining Black and White American's Implicit Trait Perceptions of Racial Prejudice			X	
37	Janasia Moody	Kinesiology	Identifying Associations Between Adolescent Girl's Depressive Symptoms, Physical Activity and Sedentary Behavior				X
38	Maggie O'Daniel	Biology	Analysis of Silicon Transporter Genes in Tef		X		
39	Mason Page & Briana Tabor	Psychology	Coping Style as a Moderator Between Anxiety Sensitivity and Alexithymia in Trauma-Exposed Individuals		X		
40	Devyani Patel	Chemistry	Strain and Growth Condition Studies to Enhance the Production of Verticillin A and Verticillin D	X			
41	Mariana Quinonez-Medina	Kinesiology	Exploring the Differential Effects of Sport Participation on Cognitive Control in 9-10-Year-Olds		X		
42	Karime Ruiz-Saldana & Viviane Oyiwola	Public Health Education	Evaluating the Influence of an Additive Genetic Score of Serotonin Variants with Recent Life Stress on Personality Variables in Emerging Adults		X		
43	Tiffany Stephens & Rebecca Skebeck	Archaeology	The Lost Line: A Study of the Third Line at Guilford Courthouse National Military Park			X	
44	Tiffany Stephens	Classical Studies	Ceramic Lamps from the Insula of the Menander: A Window into Local Pottery Production and Consumption Habits	X			

SCHEDULE OF POSTER PRESENTATIONS

(BY LAST NAME)

****ALL POSTER PRESENTATIONS WILL BE IN THE CONE BALLROOM****

Poster No.	Student Presenter(s)	1 st Student's Major	Title of Presentation	9:30-10:30	10:45-11:45	1:00-1:55	2:00-2:55
45	Canaan Strickland	Psychology	The Role of Rural Religiosity in Predicting Help-Seeking Attitudes	X			
46	Tiffany Tan	Psychology	Parental Socialization and Personal Behavioral Styles Relating to Mental and Academic Outcomes in Young Adults of Color				X
47	Marcos Tapia	Chemistry	Electronic Absorption Spectroelectrochemical Studies of Fungal Perylenequinones for Understanding Their Roles as Potential Photodynamic Agents			X	
48	Kathryn Tarr & Abigail Stubblefield	Chemistry	Fungi-Free Purification of the Chlorination Enzyme from the Fungal Biosynthesis of Sporidesmin			X	
49	Sydney Thompson	Chemistry	Comparison of Secondary-Structure Prediction Programs Based on Accuracy		X		
50	Milan Toomer	Biology	Understanding the Role of Mutualistic Bacteria in Driving Coexistence Among Legume Plants in Mesic Grasslands	X			
51	Alexa Villarreal	Public Health Education	Effects of Psychosocial Predictors on Female Adolescents Daily Physical Activity			X	
52	Kendal Walker	Mathematics & Statistics	STEM Enrollment Gaps by Race/Ethnicity and Gender Before and After the COVID Pandemic: Evidence from North Carolina Public Colleges and Universities				X

SCHEDULE OF POSTER PRESENTATIONS

(BY LAST NAME)

****ALL POSTER PRESENTATIONS WILL BE IN THE CONE BALLROOM****

Poster No.	Student Presenter(s)	1 st Student's Major	Title of Presentation	9:30-10:30	10:45-11:45	1:00-1:55	2:00-2:55
53	Bayley Wellons	Psychology	An Eye-Tracking Study of News Headline Reading After Reading Fake News Corrections	X			
54	Miranda Williams & Cayden Hattaway	Biology	Climate Change and the Longleaf Pine Savanna: Effects of Freshwater and Saltwater Inundation on Schizachyrium scoparium Leaf Characteristics			X	

Emerging Scholars Posters begin on the next page.

SCHEDULE OF POSTER PRESENTATIONS

(BY LAST NAME)

****ALL POSTER PRESENTATIONS WILL BE IN THE CONE BALLROOM****

Poster No.	Student Name	Student Major	Title of Presentation	9:30-10:30	10:45-11:45	1:00-2:00	2:00-3:00
ES-01	Asia Adams	Nursing	Autism in Females	X			
ES-02	Mathew Almeida	Music	AI's Potential Future and Why We Need to Restrict Its Use				X
ES-03	Robbie Altier	Art	The Discernible Relationship Between Astronomy and Art Leads to a Heightened Sense of Wonder, Curiosity, and Creativity				X
ES-04	Carman Banser	Theatre	The AWA Has a Spider Problem			X	
ES-05	Maricus Barnes	Biology	Navigating the Human Footprint: Environmental Impact, Climate Change Effects, and Strategies for Carbon Footprint Reduction.				X
ES-06	Yasmeen Blue	Psychology	Romance and Psychology in Long Term Relationships		X		
ES-07	Teyoni Brinson	Human Development and Family Studies	Roots of Financial Disparities: Impact on Black Stereotypes		X		
ES-08	Frasier Butler	Women's and Gender Studies	Individuals Place in the Environment of Fast Fashion		X		
ES-09	Abigail Cheek	Psychology	Picture Books and Visual Learning				X
ES-10	Philip Cressler	English	It's How You Play the Game		X		
ES-11	Ziana Daniels	Psychology	How Social Media Influence Society		X		

SCHEDULE OF POSTER PRESENTATIONS

(BY LAST NAME)

****ALL POSTER PRESENTATIONS WILL BE IN THE CONE BALLROOM****

Poster No.	Student Name	Student Major	Title of Presentation	9:30-10:30	10:45-11:45	1:00-2:00	2:00-3:00
ES-12	Ella Davis	Social Work	A Reflection on the Struggles of Living in Mainstream American Society after Surviving Religious Cults		X		
ES-13	Briana Easterly	Marketing, Entre., Hospitality and Tourism	Walkable Cities Lasting Impact on the Economy from Businesses to Consumers			X	
ES-14	Amber Fairchild	Biology	Omphalotus nidiformis: An Ecological Analysis Through Citizen Science			X	
ES-15	Laya Faulk	Political Science	The Best Military in Asia	X			
ES-16	Jackson Fleetwood	Media Studies	Building a Career as a Social Media User				X
ES-17	Lorenzo Gomez-Gadd	Social Work	Today's Gendered Experience		X		
ES-18	Kyen Gross	Psychology	The Effectiveness of Social Protest to Bring About Change Through the Lens of the Black Lives Matter Movement		X		
ES-19	Destiny Haith	Nursing	The Impact of Healthcare System Dynamics on Nursing Practice: Challenges and Opportunities	X			
ES-20	Will Harrison	Political Science	Issues of Conflict Resolution			X	
ES-21	Maya Haston	Media Studies	Nightmares on Screen: The Damaging Depiction of African Americans in Horror Films				X

SCHEDULE OF POSTER PRESENTATIONS

(BY LAST NAME)

****ALL POSTER PRESENTATIONS WILL BE IN THE CONE BALLROOM****

Poster No.	Student Name	Student Major	Title of Presentation	9:30-10:30	10:45-11:45	1:00-2:00	2:00-3:00
ES-22	Jax Keiser	Media Studies	The TV Show Supernatural is a Deep Rabbit Hole of Folklore Reference and Correlation			X	
ES-23	Esther Koumedzina	Biology	The Impact of Social Media on Mental Health			X	
ES-24	Taqura Lennon	Management	Childhood Trauma		X		
ES-25	Mia Lerman	Computer Science	The Bermuda Triangle is Very Dangerous, and We Should Be Careful.	X			
ES-26	Hunter Mantilla	Art	The Future of Criminal Justice Practices: Trauma-Informed Restorative Justice as an Alternative to Punishment and Dehumanization		X		
ES-27	Yasmin Maroua	Biology	Genetic Variation and Drug Response in Cardiovascular Medicine		X		
ES-28	Maggie McGee	Psychology	Interviewing Adolescent Xenogender-Identifying Individuals to Understand the Link it may have to Autism	X			
ES-29	Alana Murray	Media Studies	God, Love and Relationships				X
ES-30	Elijah Murray	Physics & Astronomy	Social, Political, and Psychological effectiveness of Activism methods		X		
ES-31	Bailee Napier	Psychology	Observing the Impact of Gender-Identity on How College Students Select Partners	X			

SCHEDULE OF POSTER PRESENTATIONS

(BY LAST NAME)

****ALL POSTER PRESENTATIONS WILL BE IN THE CONE BALLROOM****

Poster No.	Student Name	Student Major	Title of Presentation	9:30-10:30	10:45-11:45	1:00-2:00	2:00-3:00
ES-32	Craig Nyaga	Information Systems and Supply Chain Management	Exploring the Synergistic Relationship between Humans and Robots	X			
ES-33	Mason Odom	Teacher Education and Higher Education	Unveiling Disproportionality: Exploring the Overrepresentation of BIPOC Students in Special Education			X	
ES-34	Zakeiryh Perry	Information Systems and Supply Chain Management	Grogan Research Capstone		X		
ES-35	Julia Plunk	Political Science	Running Toward a Healthier Future: Why Running is One of the Best forms of Exercise Therapy				X
ES-36	Zoe Redmond	Sociology	Third Places Foster Community Interaction, Civic Discourse, and Social Wellbeing			X	
ES-37	Robert Rice	Biology	Empowering Environmentalism from Home		X		
ES-38	Nickolas Riggins	Psychology	Beat of the Campus: Understanding How Music Impacts College Students' Daily Lives and Social Relationships				X
ES-39	Calliope Rodriguez	English	Making the Metaphysical Physical: An Inquiry into How the Haft Peykar, The Conference of the Birds, and Sufi Mysticism Represent Transcendence	X			

SCHEDULE OF POSTER PRESENTATIONS

(BY LAST NAME)

****ALL POSTER PRESENTATIONS WILL BE IN THE CONE BALLROOM****

Poster No.	Student Name	Student Major	Title of Presentation	9:30-10:30	10:45-11:45	1:00-2:00	2:00-3:00
ES-40	Sebastian Russell	Psychology	Effect of Light Pollution of Sleep Quality			X	
ES-41	Cassandra Saunders	Psychology	How ESAs Affect Mental Health			X	
ES-42	Zaebiah Shepard	Biology	Academic Stress and Anxiety on College Students' Psychological Well-Being				X
ES-43	Mallory Shouse	Art	What Makes a Museum Experience Good?				X
ES-44	Percy Sluder	Theatre	Flawed Gods and Vengeful Adams: An Analysis of Artificial Lives and their Creators in Media	X			
ES-45	Skylar Sumrell	Specialized Education Services	Oralism vs. Manualism in Deaf Education			X	
ES-46	Nissa Williams	Kinesiology	The Importance of Mangroves & Why We Need them for our Ecosystem				X
ES-47	Artaveon Woodson	Theatre	Werewolf Media and it's Uninspiring Box	X			
ES-48	Zion York	Human Development and Family Studies	How Does Pop-Culture and Media Skew Our Ideas of Romantic Relationships?	X			

SCHEDULE OF EXHIBITS

****ON DISPLAY ALL DAY****

WILLOW

Time	Student Presenter(s)	1st Student's Major	Title
11:00 – 12:00	Laura Hernandez	Art	Observing What's Familial In A Space Known As Liminal
11:00 – 12:00	Ashley Jones	Art	Wild Clay Vessels
11:00 – 12:00	Annabelle Kizer	Art	The Children of Nightmare
11:00 – 12:00	Olivia Overton	Art	Garden Cyanotype
11:00 – 12:00	Sophie Shahan	Theatre	Corsets: Exploring History and Theatrical Mobility
11:00 – 12:00	Penny Shrewbury	Art	CVPA Pollinator Garden Project: Floral Motifs
11:00 – 12:00	Sarah Smith & Amiah Jones	Art	Murals and Large-Scale Painting: Bridging Creative Research and Community Development

ABSTRACTS

Autism in Females

Student Author(s): Asia Adams, Sophomore (Nursing)

Faculty Mentor(s): Jessica Abell (Residential Colleges)

Autism is a disorder, which is diagnosed through a spectrum test any time in life. It is shown that girls are more than likely to be diagnosed later on in life compared to boys. I want to understand and learn more about Autism. During my research, it is shown that girls are diagnosed less than boys, which sparked my interest to dig deeper. Girls who are autistic are usually diagnosed far less and later on in their lifespan compared to boys. This could be proven by the use of genetics, gender, and age when the diagnosing criteria was given. I tend to use both primary and secondary sources such as the book *Women, Girls, and Autism Spectrum Disorders*, articles such as *Recognizing Autism in Girls Within the Education Context: Reflecting on the Internal Presentation and the Diagnostic Criteria*, and a website named Signs and Symptoms of Autism in Girls. The significance of gathering information, I have learned that based upon the biological sex of an individual it could prevent the diagnosis she has been looking for. Not only could it be from her signs and symptoms but from the diagnosing criteria given to identify and recognize a disorder to help them feel like themselves.

Study of Symbiotic Relationship Between Arbuscular Mycorrhizal Fungi, Rhizobia, and Legumes

Student Author(s): Gabriell Allred, Senior (Biology)

Faculty Mentor(s): Sally Koerner (Biology), Shae Nester (Psychology)

Legume plants have been shown to associate with multiple symbionts at one time, such as nitrogen fixing bacteria called rhizobia and arbuscular mycorrhizal fungi (AMF), which greatly benefit the legume host. These symbiotic relationships benefit the plant by increasing access to water and nutrients such as nitrogen, which can then be returned to the soil. If legumes in the biodiverse and threatened longleaf pine (LLP) savanna ecosystem are associating with rhizobia as well as AMF, more nitrogen could be fixed from the atmosphere and returned to the understory, enhancing overall productivity and biomass of the legumes. This study investigated the effects of AMF and rhizobia on the growth of 4 legume species from the LLP savanna ecosystem. Two central questions were addressed: (1) is percent colonization of roots with AMF different between the four legume species, and (2) is greater root colonization correlated with greater legume aboveground biomass and root nodule number? I predicted that higher percent colonization would be correlated with higher numbers of root nodules and more aboveground biomass. In 2021, 120 legume individuals of 4 species were dug up in the field. The root nodules were counted, and aboveground biomass was collected and weighed. To count percent root colonization, legume roots were cleared and stained. I found that percent colonization was significantly different across legume species. There was no significant correlation between percent colonization by AMF and nodule number or aboveground biomass, indicating that further investigation is needed to determine how AMF colonization influences legumes.

AI's Potential Future and Why We Need to Restrict Its Use

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Student Author(s): Mathew Almeida, Sophomore (Music)

Faculty Mentor(s): Will Dodson (Residential Colleges)

AI has been used for more and more in the workforce and as of the recent actor and writers' strike, in the entertainment industry. There is a growing fear that the use of artificial intelligence will be used so much that the need for the human factor would become obsolete, meaning that AI will take over most jobs in America. Just recently, SAG-AFTRA, one of the biggest voice acting unions, signed a deal with a voice AI company to use their own actors as AI programmed voices. These growing concerns are rising more and more as AI continues to evolve into other industries such as art and teaching. Using sources like Tech-8's website article about "Report: AI will replace 2.4 million jobs by 2030" and the article "Artificial Intelligence and the future of work," I can help inform people on why restricting AI is going to be important for the long run if we want to maintain a more physical workforce in the future. I also explain how AI has evolved over the last few years before going straight into how it will impact many different industries.

Potential Mechanisms of Caffeine's Protective Effect against depression: Moderation of Distress and Sleep Duration Predicting Cortisol Awakening Response

Student Author(s): Breanna Alston, Post Baccalaureate (Chemistry)

Faculty Mentor(s): Suzanne Vrshek-Schallhorn (Psychology)

The cortisol awakening response (CAR) has been shown to predict depression, although higher CAR also compensates for prior night insufficient sleep or negative mood. To better understand how caffeine might protect against depression, the present study hypothesized that caffeine use would moderate the effect of sleep duration and depression symptoms on CAR. Emerging adults reported total number of hours of sleep, habitual caffeine use, depression symptoms, and provided morning cortisol samples. Multiple regression examined the main effects of hours of sleep, distress, and moderation by caffeine on CAR. Main effects of caffeine use, and distress were not significant, but less sleep predicted a larger CAR. Caffeine use moderated the effect of sleep on CAR, and a simple slope analysis revealed the effects of sleep and distress were strongly but negatively associated with CAR for habitual caffeine users, and this slope approached significance. Habitual caffeine use was associated with a stronger effect of sleep on CAR, suggesting a resource mobilizing "boost" effect of CAR. Further, while the interaction (Caffeine x Distress) only approached significance, results indicated caffeine may mitigate the effects of distress on the CAR.

The Discernible Relationship Between Astronomy and Art Leads to a Heightened Sense of Wonder, Curiosity, and Creativity

Student Author(s): Robbie Altier, Senior (Art)

Faculty Mentor(s): Jessica Abell (Residential Colleges)

Over the course of human history, famous astronomers and artists have captured the world using their lens, fusing beliefs from each discipline and progressing curiosity for the natural world. In today's society, humans have lost this curiosity which leads them to diminish art around us. I argue that the sheer ambiguity and sublime nature of space correlate to wonder of the astronomical world, influencing humans to create art set within nature's bounds. By using sources such as an article

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from Undark.org, “Sketching the Stars: How Art Can Advance Astronomy,” a book by Ron Miller and Jon Ramer, *The Beauty of Space Art, An Illustrated Journey Through the Cosmos*, and a myriad of articles, journal entries, and philosophical and artistic concepts, I depict the connection between the galaxy we live in and the influence it has on creativity. This research will explain the importance of perspective and how crucial it is to the development of interest in the natural and astronomical world, carving a path for humans to create art.

Children’s Early Mathematical Skills: The Role of Formal and Informal Home Numeracy Practices

Student Author(s): Lianny Araujo-Martinez, Senior (Human Development and Family Studies), Amber Westover, Post Baccalaureate (Humans Development and Family Studies)

Faculty Mentor(s): Jennifer Coffman (Human Development and Family Studies)

Researchers have identified two categories of parent home numeracy practices, formal and informal, that support children’s math knowledge acquisition. Formal activities involve directly teaching children math skills (e.g., counting), whereas informal activities include playing games and performing everyday tasks that apply math principles (e.g., cooking; Zhang et al., 2020).

To examine the role of home numeracy practices in early math abilities, 123 children were administered math assessments at the beginning of kindergarten. Parents completed a questionnaire measuring the frequency of math activities, ranging from 0 (did not occur) to 4 (daily), across four indicators: number skills (mean frequency = 2.23, more than once a week), math books (1.36, a few times a month), math games (1.87, once a week), and application activities (1.54, multiple times a month). Activities to promote number skills and the use of math books were coded as formal practices; playing games and performing application activities were measured as informal practices.

Despite number skills being the most frequently utilized parental practice, only the use of informal activities was significantly correlated with math performance at kindergarten entry. This suggests that informal math practices, such as games and application activities, are methods parents can utilize in promoting mathematics readiness.

Expression of *Pyrococcus Furiosus* Thioredoxin (PfTrx) in Transgenic Tobacco for Enhanced Abiotic Stress Tolerance

Student Author(s): Daniel Araya, Senior (Biology)

Faculty Mentor(s): Osen Ayalew (Biology)

Plants are essential to human survival. Every single thing we consume comes from either plants or animals which depend on plants at some point in the food chain. A third of the carbon dioxide that humans emit each year is absorbed by plants, which are also the foundation of natural ecosystems. Unfortunately, with climate change stressors that weaken plant growth and productivity will occur. Abiotic stresses such as rising temperature, droughts and salinity are common manifestations of climate change. Climate change has had a number of negative consequences on the biosphere’s plant population. Abiotic stresses induce oxidative stress in plants. Plant cells have an antioxidant system, which is the protective mechanism of the cell that protects plants against stressors. However, under

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extreme conditions, plants may be unable to combat reactive oxygen species that induce oxidative stress. In this study, we are interested in *Pyrococcus furiosus*, which is an archaea whose optimum temperature is 100°C, which is a temperature that would kill most living things. Which means it has the ability to thrive above the boiling point of water. In my research, I am testing whether the *P. furiosus* thioredoxin gene (*PfTrx*) confers stress tolerance in transgenic tobacco plants. Thioredoxins are redox proteins present in all organisms and hold significance in biological processes. The Osen lab previously generated transgenic tobacco expressing the *PfTrx* genes. Our preliminary data show that the transgenic lines are more tolerant to salt and drought than the non-transgenic control plants. I will perform phenotypic, biomedical, and molecular characterization of the transgenic tobacco lines under abiotic stress conditions. We expect to identify stress tolerance genes from archaea that can be transferred to economically important crops such as rice and cassava.

The Imitation Game: Using Nanotech and Artifacts for Academic Accessibility

Student Author(s): Amanda Noelle Astillero, Junior (Classical Studies)

Faculty Mentor(s): Robyn Le Blanc (Classical Studies), Daniel Herr (Joint School of Nanoscience and Nanoengineering)

Coins are an object of interest for anyone who studies the ancient Roman world. In this project, I am using STEM technology to analyze Roman coins to collect data to make it more accessible to scholars. Various methods of analysis have been used to produce elemental compositions and find out the chemical compositions on the surface, some of which were destructive. During the 60s and the 70s, non-invasive methods of studying coins up close started to gain popularity. A SEM (scanning electron microscope) can be used to investigate the surface of objects and produce higher-resolution images than what can be seen by the naked eye. At this scale, inscriptions, tooling, other notable details, and evidence of forgeries can be detected. I argue that the data collected from scanning Roman coins in an SEM can provide better imaging and allow scholars to ask new questions about ancient objects and collect data that can be made accessible to other scholars and for the wider public interested in archaeology.

Unveiling the Interconnected Web: Exploring the Impact of Microplastics on Soil, Plants, and Insect Growth Using Tobacco a Model System

Student Author(s): Hasnain Awan, Senior (Biology), Siram Ali, Junior (Biology), Gabriela Cruz, Senior (Biology)

Faculty Mentor(s): Jim Coleman (Biology)

Microplastic contamination is widespread in marine and terrestrial ecosystems. Studies indicate plants absorb microplastics through roots, affecting leaf biochemistry. Soil insects differentiate control and microplastic-amended soil. Herbivorous insects respond to plant biochemistry changes, but it's unknown if feeding behavior and performance respond to microplastics in soil. We hypothesized that tobacco hornworm growth would decrease feeding on tobacco plants grown in microplastic-amended soil (1% dry weight). Initial results suggest hornworm larvae grow faster without microplastics. Ongoing experiments will provide updated results. A companion study investigated whether hornworms preferred control or microplastic-amended plants, revealing a

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preference for the latter. If statistically significant, this implies decoupling insect preference and performance due to microplastic-contaminated soil. This raises questions about leaf chemistry changes influencing herbivores. Potential shifts in insect performance and preference on plants in microplastic-contaminated soils could alter insect community dynamics. Understanding these effects is crucial for assessing broader ecological implications of microplastic pollution.

The AWA Has a Spider Problem

Student Author(s): Carman Banser, Sophomore (Theatre)

Faculty Mentor(s): Will Dodson (Residential Colleges)

Ball pythons are the most popular pet snake species in America. Because of their popularity, there has been a race amongst breeders to create new morph, or pattern, variations. Some of these morphs, like the spider ball python, are born with neurological conditions that impact their quality of life. The spider ball python has the “wobble,” a disability that causes side-to-side head tremors, incoordination, and erratic corkscrewing of the head and neck among other symptoms. The gene that causes the spider mutation is dominant, so all snakes that display the spider pattern have the spider wobble, as well as all the offspring that the snake would produce. The USDA Animal Welfare Act has regulations around the animal breeding, transportation, and sale of popular pets in America, but this act excludes cold blooded animals. While all dog breeders that supply animals to commercial pet stores must be licensed by the USDA and undergo regular welfare inspections under the AWA, no such regulations exist for ball python breeding despite scientific evidence of morph related breeding disabilities. Therefore: spider ball pythons are an example of unethical designer breeding in the reptile industry and should be protected under the USDA Animal Welfare act.

Everyday Life and Harmony in Japan

Student Author(s): Sarah Barber, Junior (Computer Science), Aidan Quinn, Junior (Computer Science), Kevin Diaz-Salmeron, Senior (Accounting & Finance)

Faculty Mentor(s): Maria Anastasiou (International & Global Studies)

Our group will discuss general events and the conditions of living as a resident in a suburban area of Nagoya, Japan. Some topics that are to be discussed are cost of living, the different social aspects of forging relationships with both native and non-native people, Japanese school life, the role entertainment plays in personal life and social gatherings, and what parts were the easiest and hardest to adjust to when it came to being a foreigner in Japan. With the gathered experiences and ranging identities of the three of us, it will make for an interesting discussion on what it's like to live as a quasi-resident of Japan. It will also present an opportunity for those who are curious about Japanese culture to learn more about what it means to truly be submerged in Japanese living.

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Signs of Struggle: Analyzing the Intersection of Fate and Womanhood in Athenian Tragedy

Student Author(s): Cecil Barlow, Junior (Classical Studies)

Faculty Mentor(s): Michiel Van Veldhuizen (Classical Studies)

In the tapestry of Athenian tragedy, women unravel the threads of fate, weaving an intricate connection with the divinatory signposts that frequently elude the grasp of their male counterparts. In this paper I argue that within Athenian tragedy, signs are accessed and understood by women in ways that imply they have an intrinsic natural connection to fate that is not accessible to those surrounding them, specifically men. This connection will be illuminated through analyses of scenes involving fate, signs, and divination, with Clytemnestra in *The Agamemnon*, and Deianeira in *The Women of Trachis* being the subjects of comparison. Through the lens of Clytemnestra's seemingly prescient knowledge and Deianeira's encounters with cryptic signs, we explore the binaries within fate that set women apart, offering them a distinctive perspective on destiny.

Navigating the Human Footprint: Environmental Impact, Climate Change Effects, and Strategies for Carbon Footprint Reduction

Student Author(s): Maricus Barnes, Freshman (Biology)

Faculty Mentor(s): Will Dodson (Residential Colleges), Sarah Colonna (Residential Colleges)

My research project focuses on the human impact on the environment, particularly in the context of climate change, and explores strategies for reducing our carbon footprint. I aim to investigate how human activities such as deforestation, industrialization, and fossil fuel emissions contribute to environmental degradation and climate change effects. Additionally, I will analyze various approaches to mitigate these impacts and promote sustainability. Through an examination of the human footprint on the environment and its correlation with climate change, this research aims to propose effective strategies for reducing carbon emissions and sustainable practices to mitigate environmental damage. I am passionate about environmental sustainability and recognize the urgent need for action to address the threats posed by climate change. Understanding the complex relationship between human activities is important for developing informed solutions to reduce these impacts and preserve the planet for future generations. Primary and secondary sources that might be useful, include (Primary Source) The Intergovernmental Panel on Climate Change (IPCC) reports provide comprehensive assessments of climate change science, impacts, and mitigation strategies. (Secondary source) Drawdown: The Most Comprehensive Plan Ever Proposed to Reverse Global Warming" by Paul Hawken offers insights into practical solutions for reducing carbon emissions and combating climate change. Through this research, I hope to gain a deeper understanding of the human impact on the environment and identify actionable strategies for reducing carbon emissions. I believe that by navigating our human footprint more responsibly, we can contribute to a sustainable and resilient future for all.

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Romance and Psychology in Long Term Relationships

Student Author(s): Yasmeen Blue, Sophomore (Psychology)

Faculty Mentor(s): Will Dodson (Residential Colleges)

In relationships, people crave long-lasting romantic connections. Love is usually defined differently based on how the person is raised and the various love languages. These love languages consist of gift-giving, words of affirmation, acts of service, quality time, and physical touch. I believe that understanding what your love language is, the type of attachment style you have, and how trauma plays a role. Love languages are connected to individual psychology because they show a reflection of how you want to be loved and how you want to give love. I argue that romance and psychology should have a bigger impact on long-term relationships. The reason I am interested is because of experience and I feel like people need to have an in-depth understanding of themselves and their partner, to have a successful relationship. To strengthen my argument, I will be using sources such as the website "Love and the Brain" provided by Harvard Medical School researchers, Richard Schwartz and Jacqueline Olds. I also will be using articles, books, and peer-reviewed journals. In conclusion, I will prove that love can be strengthened using my findings and hope to improve long-lived relationships.

Cicero's Theory of the 'Exordium' and the Development of the Four 'Loci'

Student Author(s): Daniel Borger, Senior (Classical Studies)

Faculty Mentor(s): Jonathan Zarecki (Classical Studies)

This paper demonstrates that Cicero's use of his four loci in his exordia (introductions) evolved from using all four to create an oration as persuasive as possible to later using them as he saw fit, as if they were not entirely necessary to create a persuasive oration. Loci are places from which the orator can gain favor from the audience. Cicero lays out the four loci in *De Inventione*, and they include: favor from the defendant, from the opposition, from the judges, and from the case. Later in his career he would publish *De Oratore* in which he defines the four loci again under different terms, but they maintain the same concepts. This paper looks into why the definition did not change, but his use of them did. The paper accomplished this analysis by exploring his use of the four loci, examining his rhetoric and vocabulary, Cicero's development as a *novus homo*, a Roman who did not have any family in the senate, and the context of the four chosen defense orations from the start of his career in 81 BCE until 56 BCE. These orations include: *Pro Quinctio* (81 BCE), *Pro Caecina* (69 BCE), *Pro Murena* (63 BCE), and *Pro Balbo* (56 BCE). This analysis provides insight into how the speeches of Rome's greatest orator were shaped by his experience, political career, and the politics of Rome during this period.

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Information Science and Mythological Items

Student Author(s): Vance Bowman, Senior (Information Science)

Faculty Mentor(s): Zachary Frazier (Information, Library, and Research Studies), Michiel Van Veldhuizen (Classical Studies), Amy Vines (English)

This research paper is an interdisciplinary comparative analysis of mythology examining J.R.R. Tolkien's works and Greek mythology while employing perspectives and frameworks from information science. The study uses formalized processes to identify key special items/artifacts within the narratives, then explore parallels, derivatives, and unique features, shedding light on potential cultural links and influences. The paper examines key elements of Tolkien's mythology, known for its modernity and depth, and seeks to draw connections to the extensive and enduring body of Greek mythology. Through the exploration of special items/artifacts such as the Silmarils and their counterparts in Greek myths, the paper employs information science concepts like Buckland's (1991) information-as-thing framework and classical studies concepts like comparatist functionalism to analyze the narrative function and significance of these items. Additionally, the paper discusses the limitations of mythological narratives as literal evidence and emphasizes the value of understanding them as informative documents representing cultural beliefs and patterns. The research methodology involves an interdisciplinary approach, drawing from literature in information science and mythology genres and employing analytical tools such as information theory and document theory. By examining the intersection of mythology and information science, this study contributes to a deeper understanding of how narratives convey meaning, reflect cultural values, and engage with human cognition.

Roots of Financial Disparities: Impact on Black Stereotypes

Student Author(s): Teyonia Brinson, Sophomore (Human Development and Family Studies)

Faculty Mentor(s): Jessica Abell (Residential Colleges)

What are financial disparities? Financial disparities are whenever there is an income inequality based on your environment, social class or group. Knowing that there is a deep connection to the unfairness in the system, leads me to dive deeper into why it is more common in minorities, specifically the Black communities. A book called "The Broken Ladder," is a source I used to support my topic because it shows how unequal the system is and how it is deeply rooted within our minds affecting the community. This source breaks down the psychological aspect of how people of all races view the system, themselves and others. This is a major impact because everything begins with the mind and its thoughts. It also breaks down the views of poverty and the rich. Compared to White communities, Black people are more common to have a lack of wealth and buy nicer homes because of their financial state. Another website, American Progress, also dives into the historical events that took place that had a major effect on the system and mindsets on stereotypes within the Black community. It gives an inside look on why slavery and the Jim Crow laws play a role in the inequity of the system. Because there are so many factors that come with the views of Black people, talking about the financial aspect could lead to a better understanding between how they are viewed based

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on certain stereotypes and why might the financial stability of owning nice things such as homes, connect.

Revealing the Nature of the Emission-Line Star HD 50138

Student Author(s): Holly Buroughs, Senior (Physics & Astronomy)

Faculty Mentor(s): Anatoly Miroshnichenko (Physics & Astronomy)

HD 50138 is the second brightest star in the Milky Way that exhibits the B[e] phenomenon, which refers to the presence of strong emission lines in the spectra of stars with surface temperatures of $T = 9000\text{--}30000$ K. There is growing evidence that objects with this phenomenon are binary star systems, in which the two stars exchange parts of their masses. The emission-line spectrum of HD 50138 was discovered a century ago, but its nature and evolutionary state are still unclear. The star has been observed at the Three College Observatory for the last 10 years and our data collection is the largest among published collections and contains over 300 spectra. We measured positions and studied profiles of the spectral lines of Hydrogen, Helium, Silicon, Magnesium, and Oxygen. Our findings include the line-profile variations on timescales from days to years that have not been reported in the literature about the star. We present examples of these variations and suggest explanations for the observed behavior.

Reclaiming Medusa: Medusa as a Feminist Symbol

Student Author(s): Keagen Buckley, Junior (Classical Studies)

Faculty Mentor(s): Robyn Le Blanc (Classical Studies)

Medusa was a terrifying monster with snakes for hair and the ability to turn anyone into stone in Greek and Roman mythology; she was slain by the hero Perseus at the behest of the gods. In Greco-Roman art she is depicted with serpents for hair, canine teeth and her tongue extended out, with wings and wearing a long dress and boots. This project looks at depictions of Medusa in modern art; namely, depictions of Medusa as an empowered, sometimes vengeful, mythological being who is a protagonist rather than an antagonist. Modern scholars talk about Medusa as a symbol of feminist rage and anger, but what is left out of the discussion is how modern treatment of Medusa's hair, body, and pose contribute to this role. Modern artists bring out her femininity by depicting her as less of a monster physically but keeping her snake hair and ability to turn people to stone. This project addresses the imagery of Medusa as a feminist symbol by comparing her depictions in ancient art to modern tattoos and statues centering Medusa as a powerful and sympathetic figure.

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Individuals Place in the Environment of Fast Fashion

Student Author(s): Frasier Butler, Senior (Recreation and Parks Management)

Faculty Mentor(s): Jessica Abell (Residential Colleges)

The topic of consumerism within the fashion industry and individuals' effects on how it affects us and the environment within the US. Consumerism as a whole has had negative consequences, as it is the idea that people should be constantly buying new things, by constantly consuming. The question I am trying to find is whether or not the individual can actually make a meaningful difference to this is defense of the environment. I will be doing this with several sources such as "Fast Fashion: Its Detrimental Effect on the Environment." by Rashmila Maiti, and others as well as a survey given to people among several generations in order to see what the generational view of this situation is. I am writing this paper as I rather care for the environment, and fashion, but I do not like fast fashion. I want to know if by doing small gestures can I actually make a difference in this matter. I also wish to share this information as I know some people do not bother to do things that may help, under the sole belief that only the bigger deeds will help.

Minimalism Trend in Apparel Consumption: A Perspective from Millennial Consumers

Student Author(s): Megan Byrd, Senior (Consumer Apparel & Retail Studies)

Faculty Mentor(s): Jin Su (Consumer Apparel & Retail Studies)

The pressure of consumerism by apparel companies is motivating consumers to have unbalanced and impulsive spending patterns. This is led by fashion marketing which encourages consumers to purchase more apparel products by using strategies that satisfy consumers' wants and needs. However, this excessive apparel consumption has created major environmental problems. Recently, the rapid increase in the consumers' interest in apparel sustainability, the economic uncertainty, and associated long-term financial fears created by the COVID-19 pandemic have accelerated the minimalist lifestyle. Minimalist lifestyle emphasizes consuming fewer materials and focusing more on the quality of products over quantity. It is an intentional and mindful behavior consumers take on to prioritize personal growth, simplicity, and sustainable living. It is important to understand minimalistic consumers' intrinsic desires, motivations, and triggers in being minimalistic. The study employs the qualitative research approach and analyzes the interview data collected from 20 interviews with millennial consumers. The goal of the research is to illustrate how consumers have adapted to the trend of minimalism and explain the impact of a minimalistic lifestyle on apparel consumption. The study offers valuable insights for the US apparel industry and retail marketers.

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Conversations About Discrimination Among Asian American Parents and Adolescents

Student Author(s): Kimberly Cang, Post Baccalaureate (Biology), Tiffany Tan, Senior (Psychology)

Faculty Mentor(s): Stephanie Coard (Human Development and Family Studies), Frances Lobo (Human Development and Family Studies), Gabriela Livas Stein (Psychology)

Racial-ethnic socialization (RES) serves as an essential resource in shaping the experiences of Asian American (AA) youth as they navigate an increasingly racialized post-pandemic society. While parents are commonly studied as “deliverers” of messages building cultural pride and preparing youth for racism, theory suggests RES is a bidirectional process; adolescents may use experiences beyond the household to label discriminatory events or find support from racialized situations (Patel et al., 2023). Little is known about what strategies children employ in the face of discrimination and how these vary depending upon context. So far, 16 AA parent-child dyads have participated in a virtual observation task where they were asked how they would respond to four discrimination scenarios. Using thematic analysis, we coded children’s strategies and underlying motivations. Children contributed equally, if not more, across 67% of the discussions. Child strategies varied depending on the context of discrimination such as expressing more proactive strategies if the perpetrator were a peer versus choosing more conservative strategies such as complicity in a discriminatory interaction involving a police officer. Understanding how AA youth respond to racialized situations is an important step in developing interventions towards facilitating parent-child conversation and preserving the well-being of minority youth.

The Moderating Role of Adolescent Girls’ Physical Activity Facilitators on the Association Between Affect and Engagement Level of Physical Activity

Student Author(s): Nathaly Castro, Sophomore (Kinesiology)

Faculty Mentor(s): Jessica Dollar (Kinesiology), Jaclyn Maher (Kinesiology)

Maintaining an active lifestyle during adolescence is crucial for physical and mental health. However, 80% of adolescent girls do not meet the US Physical Activity (PA) Guidelines. One’s affect is a PA determinant but it's unclear how daily life facilitators affect this association. This study will use ecological momentary assessment (i.e. daily fluctuations in PA determinants and PA) to determine if PA facilitators influence the association between adolescent girls’ daily affect and PA on a given day. Sixty-six girls (12-18 years old) participated in a 28-day daily diary study. The end-of-day questionnaire assessed daily affective states, PA facilitators (e.g. socializing while being active), and time spent engaged in PA that day. Results indicated that the associations between positive affect and PA became less positive on days when girls experienced more PA facilitators than typical. Associations between negative affect and PA were negative and did not change based on the facilitator's experience that day. Additional research is needed to determine the most effective facilitator of PA.

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Picture Books and Visual Learning

Student Author(s): Abigail Cheek, Senior (Psychology)

Faculty Mentor(s): Will Dodson (Residential Colleges)

Picture books, short, illustrated stories, often aimed at children, are prevalent in today's society. Although many view picture books as simplistic, children are doing a great deal when reading them. Children enhance their visual perception by viewing and reading picture books. Visual perception rapidly develops in children from a young age (Yu, 2012). Visual perception skills can help foster visual literacy in children. Visual literacy, while sometimes underemphasized in American education, is a crucial skill as it can aid in establishing other essential abilities, such as media literacy. Beyond promoting visual perception and literacy, picture books often help introduce children to their culture (Salisbury & Styles, 2012). By connecting with the stories in picture books and engaging in the art critique process when viewing the illustrations, children can begin to understand and contribute to the world in which they live.

Enhancing Early Childhood Professionals' Infant and Toddler Mental Health Knowledge

Student Author(s): Melissa Cleary, Senior (Human Development and Family Studies)

Faculty Mentor(s): Heather Coleman (Specialized Education Services)

Think Babies (2020) states between 10 & 16% of young children experience severe mental health conditions (e.g., post-traumatic stress disorder and anxiety). Family members and early childhood/home educators are the adults who spend most of the time with infants/toddlers. Thus, these adults must have the capacity to understand the full definition of infant and toddler mental health (ITMH) and teach in a way that aligns. These adults need support to understand how to effectively incorporate ITMH in their educational services. As part of ongoing program development, the UNCG Leadership in Infant and Toddler Learning (LITL) program partnered with the North Carolina Infant and Early Childhood Mental Health Association (NCIMHA) to support the efforts of embedding ITMH knowledge into the LITL program. The process of creating this co-branded crosswalk across the LITL Certificate curriculum and the Competency Guidelines emphasizes the commitment of the LITL Program to enhance LITL graduates' knowledge and expertise around ITMH. In this presentation, the authors will describe the research methods involved in creating this crosswalk. They will also discuss the final product and how the UNCG LITL program emphasizes ITMH.

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It's How You Play the Game

Student Author(s): Philip Cressler, Junior (English)

Faculty Mentor(s): Will Dodson (Residential Colleges)

Culture can be defined as “the collective mental programming of the human mind distinguishing one group of people from another” including, but not limited to traits such as: individualism, uncertainty avoidance, and indulgence. While such traits have managed to influence the board games we tend to play in America, little influence is seen in the manners in which we play them. What tends to stand out instead, is an individual’s personality, traits like neuroticism, openness, conscientiousness, and extroversion. Our behavior, how we go about playing games, must be linked to our personalities. Focusing on board games allows me to explore culture and personality through a lens of which I’m familiar with. Tristan Donovan’s *It’s All a Game* pays particular attention to the evolution of board games in America. By looking at how games have changed and evolved through various circumstances, we can make claims about what they reflect. My research will explore the interconnected relationship between personality, culture, and board gaming.

Chronic Health Disparities in the U.S. Hmong Population: A National Profile with Implications for a Community-Driven Needs Assessment in NC

Student Author(s): Nathan Dang, Senior (Public Health Education)

Faculty Mentor(s): Sharon Morrison (Public Health Education)

Currently, public health educators have limited understanding of the social determinants of health (SDOH) for North Carolina’s (NC) Hmong community. Anecdotal accounts indicate that Hmong individuals and families in this region continue to experience health and social disparities that have yet to be appropriately documented and addressed at the county level, and in a manner that reflects their rich cultural heritage and economic contributions. Working in partnership with the NC Hmong Women Association, we are conducting a 2-stage community-driven needs assessment based on the SDOH framework for Hmong residing in the Hickory-Lenoire-Morganton Metropolitan Statistical area of NC. This process includes reviewing and analyzing publicly available secondary data sources to create a national chronic health profile of this population. Our preliminary findings suggest Hmong are more susceptible to digestive system cancers, hypertension, diabetes, gout, and mental health disorders. They also suggest that Hmong live in areas where Asian Americans experience significant socioeconomic disparities, but the supporting data lacks the needed specificity to determine Hmong differentiated outcomes. Our preliminary findings will be leveraged for a culturally responsive and language appropriate needs assessment that centers NC Hmong community stakeholder voices and viewpoints and recognizes indigenous knowledge systems.

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Social Media Plays a Bigger Role in Our Society Than We Realize

Student Author(s): Ziana Daniels, Sophomore (Psychology)

Faculty Mentor(s): Will Dodson (Residential Colleges)

Social media is a tool that we use in our every life to entertain us and to let us know what is going on in the world. Historically looking back at the use of social media it was used and marketed as a tool used to help people stay or get connected with people and the main platform people used for this was Facebook. Facebook is a platform originally marketed as a website where people can connect with family and friends. Later as the website expanded, they started welcoming advisement from different companies. Later, it would become known to the public that Facebook would sell their users information for a profit to these companies. That's why some people when you talk to them about social media trends, they may not have seen it because it is not advertised to them. Overall, I would say that this topic is interesting to me because I like to see how easily influenced people can be without realizing it. For me I would say that I got really interested in this topic back in 2020 when I realized that there were different sides to social media after talking with my friends about what they have seen on the app Tik Tok. A book that I liked looking at was *The Hype Machine* where the book talks about how social media plays a role when it comes to politics and the economy. Overall, at the end of this project I hope to further understand how social media plays a role in our lives and how we can be more aware of it.

Art is a Weapon: Critiquing War, Culture, and Society

Student Author(s): Jay Darden, Post Baccalaureate (Women's and Gender Studies)

Faculty Mentor(s): Nathan McMenamin (Geography)

Art has always been used as a medium of critique, but via social media we are now making art—old and new—more accessible than ever before. Additionally, online evidence of violence, war, and genocide is just as accessible. With proof of violence comes opposition to that violence, creating a vast virtual gallery of anti-war artwork. U.S. policy prioritizes weapon manufacturing and war-profiteering over human life, fueling endless wars abroad and prisons at home. With obscene amounts of money invested into violence with little to no money funding healthcare, education, affordable housing, clean water and food, we are at a breaking point. In this time of crisis, art has become more important than ever as a unifying medium for folks resisting war & propaganda. While politicians ignore people's basic needs & demands for peace, the people retaliate with artwork shared internationally to change minds and condemn war.

A Reflection on the Struggles of Living in Mainstream American Society After Surviving Religious Cults

Student Author(s): Ella Davis, Sophomore (Social Work)

Faculty Mentor(s): Will Dodson (Residential Colleges)

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When religious cults or high control groups based in religion are the only things survivors know, they often have difficulty integrating or re-integrating into mainstream secular society in the US. There is usually a realization that survivors have, near the end of their time in the group, where they are confused, angry, and sometimes even feel lied to. My research will help clarify what it's like to be in a cult religion and how those experiences put demands on survivors to just enter regular society and be "normal" – whatever that means. By compiling interviews with a religious leader and a cult survivor, knowledge from books such as "Cult Controversies" and memoirs like "Forager" and looking at pre-existing quantitative data highlighting the number of survivors, I hope to answer one main question: how does surviving a religious cult change the way survivors exist in the world in American society?

Contextualizing Communication: Effects of Everyday Activities on Parental Language Input in Naturalistic Audio Samples

Student Author(s): Krystajah Davis, Post Baccalaureate (Pre-Health)

Faculty Mentor(s): Margaret Oliveri-Fields (Psychology)

Recent research on language development has highlighted the importance of understanding parental language input in natural settings (Anderson et al., 2021). Compared to structured tasks, language input in everyday life fluctuates more and contains fewer words, shorter conversations, and frequent silence (Holme et al., 2022; Tamis-LeMonda et al., 2017). Yet we know little about the effects of everyday activities on parental language input. Using naturalistic audio recordings, we will examine the speech parents direct toward their toddlers during everyday activities. Data were collected from a sample of 25 one-year-olds, who wore a small audio recorder for a full day. Next, 10-minute audio samples from each recording were transcribed. We developed a coding scheme to identify naturally occurring activities families engaged in within these samples, including reading, playing, feeding, grooming, household chores, and transitions. Following coding, we will examine associations between activity type and aspects of language input (i.e., # total words, # different words). This project will provide insight into how different activities may influence language input and can inform strategies for promoting language-rich interactions between parents and their toddlers.

Understanding The Biochemical Applications of pH Manipulation in Dairy Products

Student Author(s): Grant Develle, Senior (Human Development and Family Studies), Sarah Korb, Senior (Chemistry & Biochemistry), Felix Russo-Weatherly, Freshman (Chemistry & Biochemistry), Nolan Garci, Freshman (Chemistry & Biochemistry)

Faculty Mentor(s): Mitchell Croatt (Chemistry), Kimberly Petersen (Chemistry & Biochemistry), Jerry Walsh (Chemistry & Biochemistry)

Acidification techniques within the dairy industry have been a source of scientific inquiry, especially given the unique biological properties of milk, and the many health benefits of processes such as

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fermentation. In the dairy industry, milk is often treated with various agents such as heat, salts, enzymes, acids, sugars, and gases to control pH, bacterial growth, shelf stability, and coagulation. This is important as more acidic conditions can denature the proteins of present pathogens, killing them off. Better health outcomes in communities who consume dairy products directly result from these processes. Aside from public health benefits, foods such as cheese and yogurt depend on reducing the pH of milk causing it to curdle and become these beloved products. Acidity can be added by one of two primary methods - (1) introducing a weak acid such as acetic acid, or (2) by inoculating the milk starter with acid-producing bacterium such as lactic acid bacteria (LAB). Vinegar, which contains water and acetic acid, will be added to milk for our demonstration to show how the reduced pH leads to immediate curdling. This simple process is what has allowed for the advancement of the dairy industry and the promotion of public health outcomes.

Expanding Classics: Comparative World Mythology and its Reception in Gaming

Student Author(s): Ethan Divon, Senior (Classical Studies)

Faculty Mentor(s): Alisha Dad (Classical Studies)

Classical reception informs almost every genre of modern literature. From children's novels to horror films, the classical world has shaped the ways modern society tells its stories. Even with this immense influence, the study of reception in gaming is lackluster. While more disciplines progress into this fresh field of study, Classics seem to have remained rooted in the past. This research seeks to tackle one of the largest issues with inspiring research in gaming reception: accessibility. Because many researchers are not acquainted with the world of gaming, they do not have the tools to study games. To begin overcoming this barrier, this research creates a database which distills the vast quantity of data into a more easily understood engine, also highlighting the beginnings of pedagogical strategies to gaming. By simplifying gaming, this research allows researchers to engage with games while encouraging the implementation of game studies into classics education.

Everybody Can Play Strings: Including Non-String Primaries in Your Program

Student Author(s): Tyler Rae Durkee, Senior (Music Education)

Faculty Mentor(s): Rebecca MacLeod (Music Education), Abigail Hughes (Music Education)

This session will focus on ways to increase access to string education for non-string primaries in a collegiate setting. Over the last twenty years, there has been an increasing need for qualified string teachers in the United States, and this problem will continue to get worse as current teachers retire. Increasing access to string-specific music education coursework and experience at the collegiate level would allow more preservice music teachers to have the tools needed to successfully teach a strings class regardless of their primary instrument. Recruitment is a key part of this, supported by having access to quality string instruments and helping students find them. A vital part of making this more accessible to a wider audience of students and teachers is working against the stigma of who is considered a "string teacher", including promoting inclusion within the string community.

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Ways to increase student participation include opportunities for non-string primaries to play in string ensembles, access to faculty mentorship to build foundational skills, pairing non-string primaries with string-primary peers, and how to modify music to increase access for different skill levels. Anyone who teaches or plays strings is a string teacher or player, regardless of their primary instrument.

Walkable Cities Lasting Impact on the Economy from Businesses to Consumers

Student Author(s): Briana Easterly, Junior (Marketing, Entrepreneurship, Hospitality and Tourism)

Faculty Mentor(s): Jessica Abell (Residential Colleges)

With the recent rise in Millennials and Gen Z wanting to live small, many have started to move or show interest in walkable cities and downtown areas. This is due to the tiny home movement and the creative aspects in these tightknit communities. With this growing interest that contrasts the car driven world many Americans live in today, people now question the effects of these types of cities on the economy, good or bad. Using sources such as the book “Walkable Cities: Revitalization, Vibrancy, and Sustainable Consumption” by Carlos Balsas, article “Why Walkable Urban Areas are efficient economic areas in the US” from the World Economic Forum, and other firsthand accounts, I can conclude that Walkable cities have a positive effect on the economy by boosting company sales and profits, increasing the number of jobs in an area, and keeping businesses and consumers connected to one another. My research will dive into examples, data, and context on each aspect of the economy that is affected or changed due to the structure of these cities, highlighting how it is not only sustainable but also builds a community with a strong foundation keeping people connected.

Symmetry in Course Artifacts: Unveiling Inorganic Chemistry Teaching Strategies

Student Author(s): Zoe Edmonson, Senior (Biology)

Faculty Mentor(s): Maia Popova (Chemistry)

Symmetry plays a vital role in various properties exhibited by molecules and, therefore, is a foundational topic in Inorganic Chemistry. Despite this, no research has been done to understand inorganic chemistry instructors’ pedagogical content knowledge (PCK) and instructional practices for teaching symmetry. Our research aims to fill this gap by characterizing the landscape of instructional reasoning and practice related to teaching symmetry and understanding what practices might lead to positive student learning outcomes. We frame this study using the Refined Consensus Model of Pedagogical Content Knowledge to elicit instructors’ pedagogical reasoning for teaching symmetry. Our analysis delves into instructors’ course artifacts (syllabi, slides, assessments), to characterize whether their teaching practices lean towards being instructor-centered, student-centered, or a blend of both approaches. Through this presentation, we aim to illuminate the diverse instructional landscapes in the teaching of symmetry, contributing valuable insights into effective pedagogical practices in Inorganic Chemistry.

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Characterizing Naringenin Targets in MCF-7 Human Breast Cancer Cells

Student Author(s): Fatima Elhorry, Sophomore (Biology)

Faculty Mentor(s): Yashomati Patel (Biology)

Breast cancer is the second most common cause of death in woman around the world. Treatments of patients with breast cancer are not always effective because patients become resistant to the treatment. Naringenin, a naturally occurring flavonoid found in citrus fruits, induces apoptosis in cancerous cells. By screening for targets of naringenin, we identified several E3 ligases. E3 ligase along with E1, activating enzymes and E2, conjugating enzymes are part of ubiquitination pathway, an important process in protein degradation/regulation. Through a series of steps, an E2-E3 complex is formed, with the E2 bound to ubiquitin and the E3 bound to a protein. From here, the ubiquitin is passed to the E3 ligase which will ubiquitinate the protein to be degraded by the proteasome. If naringenin binds to E3 ligases and alters their activity, this could explain the induction of apoptosis in breast cancer cell treated with naringenin. We hypothesized that naringenin increases E3 ligase activity which in turn increases the ubiquitination and degradation of proteins needed for cancer cell survival. These studies will further our understanding of the mechanism by which naringenin initiates apoptosis in cancerous cells.

Omphalotus nidiformis: An Ecological Analysis Through Citizen Science

Student Author(s): Amber Fairchild, Sophomore (Biology)

Faculty Mentor(s): Sally Koerner (Biology)

Omphalotus nidiformis is a mycorrhizal mushroom that exhibits the natural phenomenon of bioluminescence, the capacity of living organisms to emit light through the conversion of luciferin and oxygen. Bioluminescent proteins serve vital roles in scientific advancement and are used to tag and track cellular processes. Interpreting the ecological data of the fungi, in terms of range, interactions with other organisms, and responses to abiotic factors, can shed light on the evolutionary question surrounding the adaptive significance of bioluminescence. iNaturalist is an important digital platform for monitoring changes in biodiversity at both local and global levels, leveraging data contributed by citizen identifiers. On the iNaturalist platform, users record observations in nature via manual data entry and by utilizing the built-in identification and geotagging software. Using data from iNaturalist, *Omphalotus nidiformis*, commonly known as ghost fungi, can be studied through crowd-sourced observations, illuminating the complex interplay between the ghost fungi and its environment. This study delves into the ecology of *Omphalotus nidiformis* through collaborative data, and aims to unravel the insights extracted from iNaturalist, along with the challenges inherent with the use of citizen science data. Through data-driven exploration, we endeavor to gain a more comprehensive ecological perspective of the ghost fungus.

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Metabolomic Profiling of Soil Fungi for the Discovery of Antimicrobial Properties Against Gram-Positive and Gram-Negative Bacterial Strains

Student Author(s): Victoria Farris, Senior (Chemistry)

Faculty Mentor(s): Nadja Cech (Chemistry)

The prevalence of antibiotic-resistant bacterial pathogens such as Methicillin-resistant *Staphylococcus aureus* (MRSA) and *Acinetobacter baumannii* constitute a significant health concern. Despite significant progress in the field of antibiotic discovery, there is ongoing emergence of resistance. The goal of this study is to identify new antimicrobial compounds from fungal sources. Towards this goal, six fungal samples and fractions were screened against MRSA and *A. baumannii*. Three of these samples were active against MRSA, while three were active against *A. baumannii*. Notably, sample G1160 exhibited promising activity against *A. baumannii* and was selected for further isolation study using High-Pressure Liquid Chromatography (HPLC) to identify the compound responsible for its antimicrobial activity. Untargeted LC-MS metabolomics datasets obtained from these samples were utilized to identify detected ions that might be associated with activity. The putative active ions were compared against a fungal dereplication library established in-house. Additional experiments are currently in progress for structural elucidation.

The Best Military in Asia

Student Author(s): Laya Faulk, Junior (Political Science)

Faculty Mentor(s): Jessica Abell (Residential Colleges)

East Asian militaries have been overlooked in history and continue to be the underdog in the present. Compared to the western part of the world they are seen as inferior. With this project I hope to broaden your knowledge on their strengths and weaknesses. I will start off by talking about their history and evolution. Then continue with talking about their size and power. In the end I will compare them and bring to light which country I believe has the strongest military. I will base this conclusion on each country's experience and how they fought. After a little explanation of the analysis, I hope to end the paper with who I think has the best military. This project is written to help you understand more about our opponents in warfare and which key countries to look out for that may have a history with unethical strategies. My secondary sources like the military and democracy in Asia and the Pacific will be used to reference many facts about each country.

Increasing CRISPR-based Gene Editing Specificity Through Extended CRISPR RNAs

Student Author(s): Stephanie Fisher-Huynh, Junior (Biology), Ashley Herring-Nicholas, Ph.D. Candidate (Nanoscience), Hillary Dimig, Ph.D. Candidate (Nanoscience)

Faculty Mentor(s): Eric Josephs (Nanoscience)

Sickle cell anemia is an autosomal recessive disease caused by an inactivating mutation of the *HBB* gene. Recently, a CRISPR-based gene editing treatment has been approved by the FDA to treat sickle cell anemia, however, with CRISPR-based gene editing there is a possibility for off-target DNA

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to be modified. We hypothesize that this issue can be overcome by using a method we developed called SECRETS (Selection of Extended CRISPR RNAs with Enhanced Targeting and Specificity) that can generate custom-tailored CRISPR therapies that target a specific sequence while avoiding determined off-targets. This is performed by screening a library of variants of the RNA co-factor (the "guide RNA") used in CRISPR treatments for both therapeutic activity and specificity. Here, we report that there was no novel off-target activity and the selected guide RNA variants have increased specificity for target sites for the gene HBB, in comparison with the standard guide RNA. With our new method, guide RNAs that survived the SECRETS screen have increased specificity and could create a safer, personalized treatment for individuals with sickle cell anemia or other genetic diseases by finding their off-target variants.

Building A Career as A Social Media User

Student Author(s): Jackson Fleetwood, Sophomore (Media Studies)

Faculty Mentor(s): Will Dodson (Residential Colleges)

Being a social media influencer, Youtuber, or Tiktoker can be seen by most people as mere hobbies rather than professional careers, but this perspective is not always true. An influencer, or someone who promotes material and information through a social media platform, can earn money from the content they create, sponsorships, and the community that they can build during their journey. This social media career is based not only on money or skill, but mainly on passion. As Indeed's website, What Are Influencers? (Plus Salary and How To Become One) explains, an average influencer can make up to \$52,035 a year. Once again, all of these factors are determined by how one spends their time as a social media influencer and works to earn their share. My research on this topic will present content creation and influencers in a new perspective. I hope to give people a better understanding of why social media is not a complete waste of time from work, and how one's future could change from doing what they love on different social media platforms.

Leaf Ontogeny and Variation in the Plant Phenology of Different Plant Species May Help Explain the Life History Traits of Specialist Insects.

Student Author(s): Katelyn Garton, Junior (Biology), Kate McDavid, Senior (Biology), Alyese Whitecar, Senior (Biology), Anthony Hines, Senior (Biology)

Faculty Mentor(s): Jim Coleman (Biology)

We ask whether life history traits of herbivorous insects that specialize on one or closely related plant species (specialists) are determined by changes in the quality of leaves for food as they age (leaf ontogeny), coupled with the phenology of leaf production in different species. As leaves expand, there are predictable changes in their nutritive quality. Plants differ in the timing of leaf production. Some plants form all of the leaves they will produce in a season at once (determinate). Other plants produce leaves all season (indeterminate). Specialists often prefer younger leaves at or around full expansion. In determinate plants, all leaves reach full expansion at the same time

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creating a short window during a season where a large number of high-quality leaves are available. In indeterminate plants, leaves are produced all season leading to relatively constant availability of high-quality leaves during a season. So, patterns of leaf ontogeny together with leaf phenology of different plant species, may help to explain the evolution of insect life history traits (e.g., the number of generations/year). We used a literature analysis linking insect preferences for leaves as they age, the phenology of leaf production, and various life history traits of herbivorous insects. Our findings suggest that specialists have a remarkable ability to discern changes in leaf quality as leaves expand, and that several life history traits are associated the phenology of leaf production. There are also ecological implications of the synchrony between herbivores and plants as they relate to the dynamics and structure of insect communities.

The Influence of Correction Type and Source Credibility on the Belief in Fake News

Student Author(s): Aaron Goldman, Senior (Psychology)

Faculty Mentor(s): Christopher Wahlheim (Psychology), Robert Wiley (Psychology)

Misinformation, which is sometimes referred to as “fake news,” is an issue exacerbated by today’s social media landscape. The most effective methods of correcting misinformation are still a matter of debate, but previous research has found that restating and refuting misinformation before correcting it has been more effective in reducing belief in misinformation than corrections appearing on their own. The effectiveness of corrections could be moderated by the trustworthiness of its source. Our polarized political environment has dramatically altered public trust in media outlets. Our research is focused on the roles of correction type and source credibility as a function of partisan congruence. We examined how believable misinformation statements and corrections were depending on if they were attributed to sources that are considered politically conservative or liberal. Republicans and Democrats were exposed to both true and false statements attributed to different media outlets (e.g., Fox News, CNN). Any false statements were later corrected by a source of the opposite political leaning. We expect to find that political partisans are most likely to believe corrections from a politically congruent source that directly refute misinformation from a politically incongruent source. The results from this study will further our understanding of the factors underlying the likelihood of believing in misinformation.

Investigating the Impacts of Phytotoxins on Lemnaceae Growth

Student Author(s): Brianna Gomez, Senior (Anthropology)

Faculty Mentor(s): Eric Josephs (Nanoscience)

Duckweed species have recently emerged as promising model organisms for plant synthetic biology due to their rapid doubling time and adaptability to diverse aqueous environments. Here we develop 3D-printed microfluidic “mother machines” to evaluate the impacts of biocompatible resins on the viability and developmental phenotypes of the duckweed genera *Spirodela polyrhiza* and *Wolffia australiana*. Using these devices, we tracked individual duckweed expansion dynamics over one-

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week periods when exposed to a selection of commercial-grade and lab-formulated photocurable resins rinsed in ethanol. Results demonstrate that our custom resin, predominantly composed of polyethylene glycol diacrylate, enables normal duckweed proliferation without leakage or toxicity. In contrast, certain commercially available bioresins significantly compromise growth kinetics and morphology. Quantitative image analysis reveals the doubling time and reproductive variability in our devices is comparable to literature precedent under control conditions. Overall, this work establishes an effective experimental pipeline integrating 3D printing and synthetic biology to uncover phytotoxin-free materials for constructing customizable platforms to further duckweed knowledge and toxicity detection applications.

Today's Gendered Experience

Student Author(s): Lorenzo Gomez-Gadd, Sophomore (Social Work)

Faculty Mentor(s): Maia Popova (Chemistry)

I will do a series of interviews about gender and gender expression. I will talk about people's individual experiences and how they navigate this world in layered identity. To answer the rather open question of, how does gender and gender presentation affect the modern person, defining gender norms? My website will be centered around interviews, possibly in a podcast format. My experience with these topics; I am a trans man and very passionate about my community and I'm surrounded by it in this college environment. I am interested in individual experiences in the modern day, and the people that surround us. I will have conversations not just about gender but how that interacts with all other aspects of your life. How your branches of identity talk to one other. What I might learn from this project is a fuller and more diverse, understanding of the modern gender nonconforming person, there was only so much you can only learn from oneself. I want this research project for me to be about talking to others and presenting what I find in a constructive way. I have done interviews like this in the past, but I want to learn how to take helpful information from the interviews. What I might learn from this project is different perspectives of gender, more expansive ideas. A resource I will in this project is this article, Report Reveals Sharp Rise in Transgender Young People in the U.S. I think it is right up my ally for things I will be looking into.

From Specimen to Open Data: Digitizing the UNCG Mammal Biodiversity Collection

Student Author(s): Dominique Gould, Senior (Biology), Amanda Weller, Graduate Student (Biology)

Faculty Mentor(s): Bryan McLean (Biology)

Making biodiversity data open and accessible is critical for conservation and monitoring efforts. The UNCG Biodiversity Collection, housed in the Department of Biology, holds mammal and mammalian parasite specimens with a focus on the Southern Appalachians ecoregion. To achieve openness and dissemination, the collection interfaces with multiple global biodiversity aggregators which host information from collections globally, including GBIF. From a single specimen comes

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many different data, and not all data is proper for one single repository. For example, genetic data can be housed on GenBank, which is known and used often by researchers across many fields. That repository is appropriate for only genetic data. Any other data is housed in other ways. We discuss the scope of these collections in this presentation, using shrews and their many types of derived data as exemplars of the approach to open and linked biodiversity information.

The Uptake of 80 nm Nanoplastics by Human Aortic Endothelial Cells

Student Author(s): Kyla Grant, Junior (Biochemistry)

Faculty Mentor(s): Jia Zhenquan (Biology)

Society has become dependent on the versatility of plastic, leading to widespread use in products worldwide. Microplastics and Nanoplastics (M-NPLs) from these products have made their way into the human body through consumption of food and beverages, ultimately infiltrating blood and tissues. The potential pathways of internalization are key to understanding NPLs effects on cells. To investigate this, Human Aortic Endothelial Cells (HAEC) were cultured and treated with 0.1, 1, 10 $\mu\text{g}/\text{mL}$ concentrations of 80 nm Fluorescent NPLs. The cells were then collected and analyzed through flow cytometry to quantify the uptake of 80 nm NPLs by HAEC cells. The cells were also treated with various channel blockers and endocytic inhibitors in conjunction 10 $\mu\text{g}/\text{mL}$ doses of 80nm NPLs and analyzed through flow cytometry to identify potential uptake routes. Our results suggested that the uptake of the NPLs occurs primarily through micropinocytosis. Uptake of these particles allows them to interact with cellular structures, potentially leading to unforeseen consequences. Knowing the uptake pathways may allow preventative actions against the ever-growing threat of M-NPLs. As these particles continue to infiltrate tissues, information on how they interact with our cell lines will become crucial.

Cheating Fate: The Corruption of Ancient Greek Oracles

Student Author(s): Zane Graybeal, Senior (Classical Studies)

Faculty Mentor(s): Michiel Van Veldhuizen (Classical Studies)

Oracles are signs provided by supernatural powers which direct man's actions and provide guidance in making important decisions. To a modern audience the idea that something playing this role that is so important in people's daily lives could be fallible is incredibly uncomfortable. However, this sentiment may not be nearly as dominant in the ancient Greek mindset. Multiple ancient sources, including Herodotus and Homer, relay stories about oracles being tampered with and in many cases, this does not seem to be perceived as wrong and it does not impact their reliability. Utilizing the texts from Ancient Greek authors such as Thucydides, Herodotus, and Homer I argue that there is a high comfortability with the human manipulation of oracles that does not invalidate the authority of the pronouncement.

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Divine Dice: Dice Oracles and the Divination Hierarchy of Termessos

Student Author(s): Jamie Gross, Junior (Classical Studies)

Faculty Mentor(s): Michiel Van Veldhuizen (Classical Studies)

Apollo is the most prominent god of divination that looms over the world of the Greek Mediterranean, with oracles established in mainland Greece and along the Ionian Coast; however, the people of Termessos, a city located in Asia Minor, turned to another god, Hermes - the herald of the Olympians - to answer their oracular questions and ponderings through dice oracles. While Apollo was the primary oracular god in the Greek Mediterranean world, he was not the only one, with references to other gods being involved in oracles or having their own sanctuaries or temples. Hermes is one of these “other gods,” and the relationship between him and Apollo is where the implications for the ‘divination hierarchy’ of Termessos begin. This research addresses how these other gods referenced in the Termessos dice oracles fit into a hierarchy. The inscriptions from Termessos are not solely attributed to Hermes but are connected to other Greek gods. This raises two questions: Why are the Termessos dice oracles divided up amongst various gods, and how does this division create the prophecy hierarchy of Termessos? My research attempts to answer these questions by examining the oracular roles of Hermes, Zeus, Herakles, and Aphrodite and where they fit into the prophecy hierarchy of Termessos.

The Effectiveness of Social Protest to Bring About Change Through the Lens of the Black Lives Matter Movement

Student Author(s): Kyen Gross, Sophomore (Psychology)

Faculty Mentor(s): Will Dodson (Residential College)

Protest has played a pivotal role in the advancement of civil rights. With our increased connectedness through the internet and social media, it has become easier than ever to get involved in a cause. Black Lives Matter (BLM) was a movement that exploded into prominence across the United States following the death of George Floyd, though it has led to thousands of demonstrations, many have questioned its overall impact. I argue that this movement can be used to analyze the effectiveness of social protest to bring about change in a post-modern world. With the public increasingly skeptical of their ability to make a difference, it's more important than ever to push the sentiment that activism does bring about change. Using firsthand accounts from protestors, media coverage, archives from The Library of Congress, and studies into the sociological impacts of the movement, with articles such as Black Lives Matter Protests Shift Public Discourse from the journal, PNAS. Though the impact of a movement may not be immediately visible, engaging in social protest can play a pivotal role in influencing public opinion and bringing about positive change.

Studies Towards the Regioselective Claisen Rearrangement of Meta-Substituted Allyloxy Benzenes

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Student Author(s): Emily Guin, Sophomore (Chemistry)

Faculty Mentor(s): Mitch Croatt (Chemistry)

The aromatic-Claisen rearrangement is a classic reaction in organic synthesis in which an allyl group migrates from an aryl allyl ether to from an alkylated phenol. This reaction is a staple of organic chemistry as it forms a bond between carbon atoms. The Claisen rearrangement can be used in the synthesis of many compounds that have shown significant biological activity, such as (+)-Cycloepoxydon Dimer. The regioselectivity of the Claisen rearrangement can provide opportunities for such compounds to be made in less steps. Previous studies in our lab show the rearrangement tends to be more selective towards the more crowded position of the aromatic ring, instead of migrating to the opposing unhindered position. To help explain why the allyl group would migrate towards the more hindered position, different groups can be attached to a starting material to be tested. My study specifically focused on compounds where an amine group was explored and how the influence of an internal base can influence the regioselectivity during the Claisen rearrangement. This can then be applied to the synthesis of the (+)-Cycloepoxydon Dimer which was also explored and will be presented.

Breaking the Cycle: What Causes Nurse Burnout and How We Can Prevent It

Student Author(s): Destiny Haith, Junior (Nursing)

Faculty Mentor(s): Will Dodson (Residential Colleges)

Nursing burnout occurs when nurses become physically and emotionally exhausted by the intense demands of their work. The condition is caused by chronic occupational stress and affects 62% of nurses who work in healthcare today. The impact of burnout causes detrimental effects on the quality of patient care and leads to a heightened probability of adverse patient events. As a result, it is important to identify the causes of nurse burnout and devise strategies to prevent it. The objective of my project is to identify the variables that cause burnout as well as to propose strategies for managing these stressors. My data has been collected from accredited academic publications and through personal interviews with current and former registered nurses. I have analyzed the data to identify trends and patterns that can cause burnout. As well as studied the results of the interviews and articles to determine the strategies to manage stress. Through this study, I will develop a comprehensive analysis of burnout and help nurses manage and cope with the stress they encounter at work.

Investigating Changes in Bison Grazing and Insect Herbivory Preference After Long-Term Grazing Exclusion in Tallgrass Prairie

Student Author(s): Kya Hargan, Senior (Biology), Rosalie Terry, Post Baccalaureate (Biology)

Faculty Mentor(s): Sally Koerner (Biology)

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Grasslands are dependent on grazing by both large mammals and insects, which promotes biodiversity and habitat heterogeneity. Additionally, grasslands frequently transition between being grazed and ungrazed as animals move (or are moved by land managers) around the landscape. Despite the importance of grazers and grazing history in influencing grassland dynamics, little is known about how large and small grazers influence each other in areas with different grazing histories. I investigated whether there was a relationship between bison and insect grazing preference and whether grazing history influenced bison and insect herbivory intensity. As part of an ongoing experiment at the Konza Prairie Biological Station, 21 38.5 m² plots were opened to large grazers for the first time in 15 years. To determine how bison grazing patterns changed when they gained access to a previously ungrazed area and how bison presence influences insect herbivory, I surveyed bison and insect herbivory in the newly opened plots, as well as another 21 plots that have always been open to grazers. 10 random individuals of the dominant grass species *Andropogon gerardii* were sampled and measured for bison herbivory, insect herbivory, and overall plant height in each of the 42 plots. I found that bison grazing was higher in plots that were historically ungrazed, while insect herbivory did not differ based on grazing history. Additionally, I found that bison grazing did not influence insect herbivory.

Issues of Conflict Resolution

Student Author(s): Will Harrison, Sophomore (Political Science)

Faculty Mentor(s): Jessica Abell (Residential Colleges)

France and Germany were enemies for centuries before the 1940s, however after WWII which saw France invaded by Germany and many on both sides' dead, France and Germany became allies. I believe the main reason for this was because they had bigger problems than each other. Both France and Germany were war torn and needed to rebuild so they started what would later become the European Union. Also, the threat of the Soviet Union, which had control of Eastern Germany pulled Germany closer to France and western Europe. I picked this subject because I wanted to understand how to end conflicts that have continued over generations, such as the Israel Palestine conflict or the tensions between India and Pakistan. A source I will use particularly to look at how Germany recovered after WWII is *Everyday Denazification in postwar Germany the Fragebogen and political screening during the Allied occupation* by Mikkel Dack. A source to look at an example of failed reconciliation I will use the source *White supremacy, terrorism, and the failure of Reconstruction in the United States* by Daniel Byman. I believe that for two countries, or groups of people with bad blood between them to end their conflict, a crisis that brings them together is often seen.

Nightmares on Screen: The Damaging Depiction of African Americans in Horror Films

Student Author(s): Maya Haston, Sophomore (Media Studies)

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Faculty Mentor(s): Jessica Abell (Residential Colleges), Hassan Pitts (Media Studies)

Representation in the film industry is essential because it shapes our understanding and perception of different cultures, races, genders, and identities. When certain groups are underrepresented or misrepresented in films, it can limit the opportunities and experiences of those groups in the industry and society. The portrayal of African Americans in horror films is a problem because it perpetuates negative stereotypes and biases, reinforces systemic racism, and can have detrimental effects on the experiences and opportunities of African American viewers and talent in the film industry. I am working on the topic of portrayals of African Americans in horror films because I would like to find out the effects on African American viewers and talent in the film industry. The journal article "Blaxploitation Horror Films: Generic Reappropriation or Reinscription?" by Harry M. Benshoff explores the intersection of the Blaxploitation and horror genres in films from the 1970s. Benshoff examines how Blaxploitation horror films both subvert and reinforce stereotypes of Blackness and how they negotiate the competing demands of commercial filmmaking and social commentary. By presenting this research, my audience could become more open-minded and raise questions about how discrimination in film can be terminated.

Patterns in Flea Abundance on Small Mammals in Mongolia

Student Author(s): Jackie Hayden, Senior (Biology), Wade Burris, Graduate Student (Environmental Health Science)

Faculty Mentor(s): Bryan McLean (Biology)

Understanding how parasite abundance varies over time and with host traits can provide insight into disease transmission patterns. Fleas (Order Siphonaptera) are an important vector for many human pathogens, including *Yersinia pestis*, the bacterium responsible for plague. We compiled and analyzed a database of small mammals captured and sampled for fleas in Mongolia between 2009 and 2023 during eight separate expeditions across the country. *Y. pestis* is endemic to parts of Mongolia, and some of the host species included in this dataset are known reservoirs. The data includes 58 host genera, 113 species, and over 7000 individual small mammals sampled. The data available for each individual includes capture location, date, morphometrics, reproductive status, life stage, sex, and flea count, all of which are hosted publicly on the Arctos museum database. We conducted analyses in R to examine how different combinations of climate and host variables affect the number of fleas found on each host. Since fleas are an important vector for many human diseases, our use of public museum data to illuminate aspects of flea abundance and diversity provides a model for future host-parasite or host-pathogen studies.

Zooarchaeological Considerations at Crusader-Period Caesarea Maritima

Student Author(s): Mathew Henderson, Senior (Anthropology)

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Faculty Mentor(s): Asa Eger (History), Charles Egeland (Anthropology)

The analysis of animal remains in an archaeological context – zooarchaeology - is a valuable source of information about past environments and human foodways. Within an urban context, bone modifications like cut marks can indicate butchery practices and processes of food production, while the skeletal elements themselves can reveal eating habits and diet. This allows archaeologists to form more thorough interpretations of urban lifeways that might otherwise be absent in the archaeological record. Towards this end, this presentation offers an overview of ongoing UNCG research at Caesarea Maritima, a major port city transformed by Roman, Byzantine, Islamic, and Crusader occupations, as well as one of the largest archaeological sites in Israel. The site of Caesarea provides an important opportunity to address a dearth of zooarchaeological research in historic-period research in Israel. This study involved the analysis of sixty-seven specimens from the Crusader-aged levels of Caesarea excavated in 2023. Analyses of bone surface modification and skeletal element representation found prominent levels of adult Bovidae (i.e. cattle, sheep, goat, water buffalo) representation in the assemblage that reflected widespread carnivore damage and suggested an indoor practice of butchering. The consideration of diet and its association with identity through cultural food prohibitions is particularly relevant given Caesarea's existence as a cultural melting pot where site occupation changed hands throughout the medieval period. Continued zooarchaeological research at Caesarea offers the opportunity to better understand and illustrate the cultural experiences at this site, particularly through variations in butchering techniques.

Observing What's Familial in A Space Known as Liminal

Student Author(s): Laura Hernandez, Senior (Art)

Faculty Mentor(s): Jennifer Meanley (Art)

My works deals with a combination of symbolic visuals and ambiguous storytelling that are transfixed on my own personal experiences. The themes enclosed in my paintings, as vague as they are presented, deliberately interrogate the emotional turmoil that is constrained within my past, which is an area I analyze frequently due to questioning how it has impacted me presently as an individual. The tension between what's liminal in the attributes of my work and the exposure of vulnerability that is held as a visual experience tied towards an emotional connection. The artmaking process for my paintings begin with a defined set of ideas that elaborate on my own connotation of how certain familial relationships have affected me psychologically and allowed me to examine it in an outsider perspective. There's an over-analyzation that I tend to reflect on within the developmental points in my life that I believe to have been affected by these relationships. Symbolic imagery illustrates the composition of emotions that is dealt through these inwardly encounters. Vulnerability is a component that is hidden behind these symbolic images as I want to keep an unshielded message that a viewer can perceive while taking in the details of the painting.

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HIV Among Women in the South: An Undergraduate Summer Research Training Program in Public Health

Student Author(s): Karla Hernandez-Alvarez, Senior (Public Health Education), Rayhanatou Issoufou, Junior (Public Health Education)

Faculty Mentor(s): Jennifer Erasquin (Public Health Education)

Southern states account for more than half of the new HIV diagnoses in the U.S. HIV is a treatable chronic disease that requires regular medical appointments and antiviral medication. New strategies are needed to understand the multiple barriers to HIV care engagement for diverse women living with HIV in the South. As part of a NIH-funded study (PI: Erasquin), three UNCG undergraduates participated in a Summer 2023 research training program, focused on learning public health methods to approach this problem. In this presentation, we provide details about the training process and content across 6 weeks and 120 hours. Participating in this program strengthened our knowledge of public health skills like epidemiology, social determinants of health, participant recruitment, and working with qualitative and quantitative data. We also learned techniques for quickly and effectively analyzing research literature which proved essential for the success of the project. At the conclusion of the summer training, we researched and developed infographics about issues important to women living with HIV and present them here. This summer research training prepared undergraduate students to dive into research projects, ensuring that our involvement in the project as research assistants would be a success in the next academic year.

Examining Mental Health Impacts in Black Youth from Childhood Exposure to Gun Violence

Student Author(s): Taylor Hine, Senior (Human Development and Family Studies), Emoni Wiley, Senior (Human Development and Family Studies)

Faculty Mentor(s): Jocelyn Smith Lee (Human Development and Family Studies), Erica Payton Fo (Public Health Education)

Black youth are at a higher risk for mental health conditions compared to their counterparts. According to the American Psychological Association, “Black men have less access to and poorer quality of mental health care than White men, despite significant needs” (DeAngelis, 2023, p.40). Previous studies have shown that exposure to gun violence in childhood can have lasting impacts on Black males' mental health across the lifespan (Smith, 2015). The purpose of this research is to examine how childhood exposure to gun violence impacts mental health in Black boys further perpetuating their lack of access and comfortability to seek mental health services. Our research question asks: How does being exposed to gun violence impact the mental well-being of Black male youth? To answer this question, we conducted focus groups with ten Black males aged 10-17 to discuss their lived experiences with violence exposure. From hearing the participants' voices, we hope to gain perspectives and recommendations on how we can bring healing and support positive mental health outcomes to Black youth who have been exposed to violence in the Greensboro community.

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Exposure to Microplastics and Nanoplastics (MNPLs) Triggered Inflammatory Response in Human Aortic Endothelial Cells (HAEC)

Student Author(s): Sarah Hudson, Senior (Biology)

Faculty Mentor(s): Zhenquan Jia (Biology)

Cardiovascular disease (CVD) is the leading cause of death. In the U.S, CVD was responsible for 1 in every 5 deaths recorded in 2021. Among types of CVD, atherosclerosis is the most notorious form, and aortic endothelial inflammation plays a key role in the disease's development. Micro- and nanoplastics (MNPLs) are emerging pollutants detected in human tissues, and their adverse effects on cardiovascular health are of concern. This study explores the impact of MNPLs on the expression of pro-inflammatory cytokines, including IL-1 β , IL-6, and IL-8, in human aortic endothelial cells (HAECs), which line the aortic vessel. HAEC cells were treated with 0.08 μ m-sized MNPLs at doses of 20, 120, 240, and 480 μ g/mL for 72 hours of incubation. Inflammatory gene expression was quantified using qRT-PCR. Our results showed a significant ($p < 0.05$) increase in the expression of IL-8 and IL-1 β as compared to the control in a dose-dependent manner. Whereas no significant changes were detected in IL-6 expression. Our results suggest that exposure to MNPLs could induce pro-inflammation in HAEC cells. These results will enhance our assessment of the health effects of exposure to environmental pollutant MNPLs.

Three-Dimensional Models of Taphonomic Modifications to Bone

Student Author(s): Jessica Jacob, Junior (Anthropology)

Faculty Mentor(s): Charles Egeland (Anthropology)

Bone surface modifications (BSMs)— perimortem cut, tooth, and percussion marks on bones, are crucial in the identification of causal agents and the understanding of site formation processes. BSMs are key to understanding taphonomic history— all the events that occur between a once-living specimen's death and discovery. Thus, the analysis of BSMs plays a critical role in the interpretation of prehistoric fossil assemblages. Actualistic studies that utilize contemporary faunal assemblages are necessary for reconstructing past behavior accurately. This study combines an actualistic approach with CT scanning to produce three-dimensional models of bovid long bones. These 3D models will be used to train a convolutional neural network (CNN) to measure the spatial dimensions and distribution of the marks. A statistical analysis will then be conducted on the spatial data derived from the CNN. This more objective methodology reduces researcher bias and misinterpretation. This research presents a case study of three-dimensional modeling and machine learning methods and their applications within a paleoanthropological context. We expect to be able to distinguish between primary and secondary access and identify diagnostic signatures of each access type.

Māmaki Ethanol Extracts Inhibit TNF-A-Induced Endothelial Proinflammatory Gene Expression in Human Aortic Endothelial Cells

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Student Author(s): Yeancarlos Jalouf-Zogbi, Senior (Biology), Grant Koher, Post Baccalaureate (Chemistry & Biochemistry)

Faculty Mentor(s): Zhenquan Jia (Biology)

Māmaki is a plant endemic to the Hawaiian Islands. It has been traditionally used by natives for various health benefits, including potential modulatory effects on blood sugar, blood pressure, and cardiovascular health. TNF- α -mediated pro-inflammatory responses in vascular endothelial cells contribute to the development of atherosclerosis. Recent research conducted in our laboratory shows that māmaki extracts have anti-inflammatory properties. However, it is currently unclear whether Māmaki extracts have anti-inflammatory effects on human aortic endothelial cells (HAECs), a key mediator of the inflammatory responses in the development of atherosclerosis. HAECs were co-treated with 10 ng/mL of TNF- α and six different māmaki extracts (ethanol, hexane, water, ethyl acetate, chloroform, and butanol) at a 50 μ g/mL treatment concentration. Results showed that Māmaki ethanol extracts showed the most significant inhibitory reduction in TNF- α -induced IL-8 and CCL2 expression as measured by qRT-PCR software ($P=0.0123$ and $P=0.0091$, respectively). These findings demonstrate the potential of ethanol extracts of māmaki in reducing inflammation, emphasizing the need for further research into its therapeutic applications.

Determining Rhizobia Strain Effectiveness for Use in Legume Inoculations

Student Author(s): Amber Johnson, Senior (Biology)

Faculty Mentor(s): Sally Koerner (Biology)

The fire-dependent, nutrient poor, and biodiverse longleaf pine (LLP) ecosystem was once expansive across the US Southeast (92 million acres). However, due to anthropogenic pressures, < 2 million acres remain; therefore, restoration is of high conservation value. Legumes are commonly found across fire-prone landscapes and form symbioses with nitrogen (N) fixing bacteria, helping them to overcome nutrient deficiencies and return N to the soil. Farmers have long used inoculation of legume crops in place of fertilization to enhance yield. Further, inoculation of crops with different rhizobia strains can lead to greater N-fixation. The benefits of utilizing symbioses over fertilization may also be important in other ecosystems, like LLP savannas. This study aims to determine if inoculation with different strains of rhizobia will yield different rates of root nodulation, indicative of a successful symbiosis. In the UNCG Greenhouse, I grew individuals of *Chamaecrista nictitans*, and administered 5 different treatments. I collected data on aboveground biomass, nodule number and weight per nodule. I found a significant difference in nodule number and weight per nodule between treatments, indicating that the identity of rhizobia in inoculations is an important consideration.

Wild Clay Vessels

Student Author(s): Ashley Jones, Senior (Art Education)

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Faculty Mentor(s): Leah Sobsey (Art), Tara Webb (Theatre)

The CVPA pollinator garden is a nontraditional style of gardening on UNCG's campus. All of the plants grown are native to North Carolina. Those of us working on the garden would leave different elements of nature such as grasses, leaves, and volunteer plants, embracing the garden's nativeness and naturalness. This inspired me to create vessels using wild clay I gathered from the garden and surrounding area. I then printed plants that were grown in the vessels in glaze. My goal of this project was to use art to place an emphasis on what the ground of North Carolina has to offer.

The TV Show Supernatural is a Deep Rabbit Hole of Folklore Reference and

Correlation Student Author(s): Jax Keiser, Junior (Media Studies)

Faculty Mentor(s): Jessica Abell (Residential Colleges)

Supernatural is a hard-hitting drama with many advantages and flaws. Although it does not accurately depict the lore where it draws from, it is beloved by millions around the world. I will be summarizing what Supernatural is, how it compares to the lore of real life, and the subjects that received fair judgement. As a media studies student who studies witchcraft in their free time, I am very interested in analyzing on screen representation. Although it is almost always inaccurate, there are nuggets of truth hidden underneath. I intend to use the Philosophy of Natural Magic by Henry Agrippa and The Book of Ceremonial Magic by Arthur Waite to analyze Supernatural's use of witchcraft. They will also help me uncover additional lore as I go. The only area in which I lack sourcing is my section called "Fae (Show VS Reality)". I am thrilled to learn more about my own craft through this project. With or without a love for the show Supernatural, anyone can find this essay interesting.

Alloy

Student Author(s): Clara Kennedy, Senior (Dance)

Faculty Mentor(s): Clarice Young (Dance)

Alloy is a three-part performance and interdisciplinary performance series created by Clara Kennedy over the 2023-2024 academic year. *Alloy* is composed of three parts; a five-minute contemporary dance performance titled *Now, Run*. (performed in fall of 2023), a five-minute contemporary dance film titled *Echos* (screened in the fall of 2023), and a final 10-minute contemporary dance titled *Abacus* (set to be performed in April 2024). *Alloy* is a cumulative representation of my learning experience here at UNCG, and it is centered around themes of repetition, habit, and complacency. Humans are creatures of habit. How often do we settle in our habits, patterns, and thoughts? What does it look like when one is comfortable in their place in the world? In their gender, ethnicity, and sexuality? These are a few of the primary questions that drove my research through choreography and embodied practice, and I'm excited to share the results of my work and investigation at the Expo this year.

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Physical Activity and Affect in Adolescent Girls

Student Author(s): Iman Khan, Senior (Kinesiology)

Faculty Mentor(s): Jaclyn Maher (Kinesiology)

Rates of psychological distress among adolescents, including symptoms of anxiety, depression, and other mental health disorders continue to climb. Physical Activity (PA) is a well-established tool for improving aspects of mental health, but many adolescents, and especially adolescent girls, do not meet recommended levels of PA. Adolescent girls are more likely to engage in subsequent PA if PA results in acute boosts in affective states because, according to hedonic theories, we are more likely to continue to do things that make us feel good. However, the acute effects of PA on affective states, or the mood, of individuals in real world-environments' are not well-understood. This study used daily diary methods to determine daily associations between PA and affect among adolescent girls. Each evening for 28-days, adolescent girls (n=66, ages 12-18) reported minutes of PA and their affect (i.e., positive activated affect, positive deactivated affect, negative activated affect, negative deactivated affect) that day. Consistent with previous research, adolescent girls that tended to engage in more PA, tended to report more positive deactivated affect. A novel finding because of the present study's intensive assessment was that on days when girl engaged in more PA than was typical for them, they reported higher levels of positive activated affect and a non-significant trend for higher levels of positive deactivated affect. Both averages and daily levels of PA produce more mood-boosting effects in adolescent girls.

The Children of Nightmare

Student Author(s): Annabelle Kizer, Senior (Art)

Faculty Mentor(s): Christopher Cassidy (Art)

"The Children of Nightmare" is a children's storybook that takes a deep allegorical dive into the world of sleep. Research into the five most common sleep disorders and the stages of sleep was used to create a set of unique expressive characters. Each joins our protagonist in helping them overcome their fear of falling asleep in this symbolist-inspired adventure.

Inundation Effects on *Schizachyrium scoparium* Resource Allocation

Student Author(s): Olivia Kjuka, Senior (Biology), Olivia Militello, Sophomore (Biology)

Faculty Mentor(s): Sally Koerner (Biology)

The longleaf pine (LLP) savanna is one of the most diverse ecosystems in North America. Little bluestem (*Schizachyrium scoparium*) is an understory grass of the LLP that collects pine needles to fuel fires and creates space for native plant species to grow. Climate change is predicted to increase hurricane frequency and intensity, introducing harsh environments for little bluestem. In this

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experiment, we exposed little bluestem to salt and freshwater inundation to mimic the flooding and storm surge effects caused by hurricanes. We planted 240 little bluestem plugs and equally distributed them amongst the following treatments: no treatment, saltwater inundation (29 ppt), and freshwater inundation. All plugs were grown for two weeks before receiving their respective treatments and left to grow for 13 weeks after treatment. We predict that saltwater plants will have the most dead aboveground biomass while freshwater plants will have the most alive aboveground biomass. Saltwater plants are predicted to have the fewest stems while freshwater plants have the most. Saltwater plants are predicted to allocate more resources to their root systems whereas freshwater plants are predicted to allocate more resources to their stems and leaves; control plants are predicted to allocate their resources equally.

Enantioselective Effects of Co-Catalysts on Tetrahydropyran Protected Alcohols

Student Author(s): Sarah Korb, Sophomore (Biochemistry), Felix Russo-Weatherly, Sophomore (Biochemistry)

Faculty Mentor(s): Kimberly Petersen (Chemistry)

In the pharmaceutical world, there are a variety of beneficial bioactive molecules. Many of the beneficial molecules contain a cyclic ester, or lactone moiety which is critical to their activity. Each of these molecules can have several different specific geometries, or stereoisomers, however, in many cases only one isomer of the molecule is responsible for the biological activity. Previous work done by the Petersen group demonstrated the efficient synthesis of a single stereoisomer by combining a catalytic amount of chiral acid with an acid labile alcohol protecting group so that deprotection of the alcohol and cyclization of the molecule would occur in a single step. In this project we hypothesize that we can increase the substrate scope of this reaction to include more diverse chemical properties by introducing an achiral co-catalyst to the reaction. Preliminary results showed that our new methodology of combining THP protected alcohols with a new catalytic acid system still enables good yields and enantioselectivity with tolerance to increased chemical complexity. Applications of this research include utilization of this process on an industrial scale with the potential to increase yields and decrease prices in the preparation of potential pharmaceutical molecules.

How does Lytic Replication of Epstein-Barr Virus Hijack Cellular Pathways to Enable Metastasis of Cancer Cells?

Student Author(s): Aryan Kotian, Freshman (Biology), Aaliyah Washington, Senior (Biology)

Faculty Mentor(s): Amy Adamson (Biology)

Epstein-Barr Virus (EBV) is an oncovirus discovered by Anthony Epstein, Yvonne Barr, and Burt Achong in 1964. EBV infects over 90% of the world's population and has been shown to cause certain cancers like Burkitt's lymphoma and nasopharyngeal carcinoma. EBV is transmitted primarily through saliva and infects epithelial and B cells. The virus infects human host cells and

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disrupts cellular pathways to proliferate and spread to other cells (in epithelial cells) or lay dormant and immortalize cells (in B cells). Our research aims to understand the cellular pathways involved in EBV lytic replication and cell migration (a part of cancer metastasis) in human cells infected with EBV. Specifically, we have investigated the role of a cellular protein called MAP-kinase-interacting kinase (Mnk) during EBV lytic replication. Mnk is also known to contribute to cancer, and we have shown that EBV and Mnk synergize their activities and by doing so, promote cancer cell phenotypes.

The Impact of Social Media on Mental Health

Student Author(s): Esther Koumedzina, Sophomore (Biology)

Faculty Mentor(s): Will Dodson (Residential Colleges)

The prevalence of social media in modern society has raised concerns about its potential impact on mental health. My research investigates the relationship between social media usage and mental health well-being, addressing the negative effects. Drawing from a variety of scholarly sources, including psychological studies and sociological analyses, I'm going to explore how social media platforms influence individuals' self-esteem, interpersonal relationships, and overall psychological well-being. Additionally, I will examine the role of various features of social media, such as likes, comments, and curated content, in shaping users' perceptions of themselves and others. Additionally, I will explore ways to lessen social media's harm to mental health, like teaching people how to navigate the online world better and changing how social media platforms work. By looking at all the research and sharing what I find, I hope to help everyone understand this important problem better and suggest ways to make using social media less stressful and more positive for mental health.

Interplay of Depression Symptoms and Risk Factors with Lab-Based Stressor Negative Evaluation Level Predicting Behavioral Engagement

Student Author(s): Melanie Lancelot, Junior (Psychology), Tabitha Reid, Junior (Psychology)

Faculty Mentor(s): Suzanne Vrshek-Schallhorn (Psychology)

Understanding behavioral engagement—the observable level of participation in an activity, emanating from motivational factors (Martin et al., 2017)—particularly under stress, is likely to shed light on pathways to depression. Evidence suggests in stressful situations, individuals more prone to negative appraisals, such as those with even subthreshold depression symptoms or depression risk factors, tend to disengage and invest fewer resources, consistent with a quitting behavior (Silvia, 2014, 2016). Beyond depression symptoms such as elevated negative affect or distress and anhedonia, established risk factors for depression include high neuroticism (Griffith et al., 2010) and trait rumination (Nolen-Hoeksema, 2000). The study examines what constructs impact behavioral engagement. Results from 124 participants revealed a significant main effect of negative evaluative level (condition) predicting behavioral engagement in each of the four models. The main effects of general distress and trait rumination also approached significance, and higher levels of

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each were associated with less behavioral engagement. However, contrary to predictions, there were no further main effects or interaction effects of symptoms or traits with TSST stress condition. It also emphasizes the important role of the environment for engagement level and suggests naturalistic research in samples with a full range of depression.

Childhood Trauma

Student Author(s): Taqura Lennon, Sophomore (Management)

Faculty Mentor(s): Jessica Abell (Residential Colleges)

From a young age you start making choices about different things based on how your parents raised you. The way your parents raised you has a deep effect on how you go about managing the different relationships in your life. There are many ups and downs. Part of the downside is the trauma that might be created. Nobody's parents are perfect but there are parents that try to be and parents that don't care either way. Parents that don't care about their child's wellbeing often create trauma. I want to investigate the different types of traumas that parent child relationship could create.

The Bermuda Triangle is very dangerous, and we should be careful.

Student Author(s): Mia Lerman, Sophomore (Information Science)

Faculty Mentor(s): Jessica Abell (Residential Colleges)

The Bermuda Triangle got its name in 1964 from a pulp magazine to explain the missing ships that have been happening. Ever since the large attracting in magazines, the Bermuda Triangles has been a big mystery as of why and where these ships and planes disappear to. The triangle has been such an interesting mystery, that it has been featured in cartoons and in many stories. Even though it's very interesting, people don't talk much about the reason behind it all. There are many scientists studying and researching the why to the disappearances in that specific area. In Discover Magazine, they have a lot of details and explanations in their article "What is the scientific mystery behind the Bermuda Triangle?" They say that the Bermuda Triangle's mysteries are due to being heavily trafficked, magnetic anomalies, navigational challenges, and the waves". By using this source and more, I could bring potential explanations to so many mysteries and give answers to the "why". The Bermuda Triangle is very dangerous, but if we can understand it fully then we can still travel through it safely without being in danger from the ocean mysteries.

Utilization of Chiral Brønsted Acids to Form Enantioenriched δ -Lactams

Student Author(s): Tiana Lillevig, Senior (Biochemistry)

Faculty Mentor(s): Kimberly Petersen (Chemistry)

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Lactams and their derivatives can be found in natural products such as D-glucaro- δ -lactam (anti-cancer properties) and drugs like Ritalin (used to treat ADHD) and Paxil (anti-platelet drug). Previously, the Petersen group developed a stereoselective method of synthesizing hydroxy esters via chiral Brønsted acid catalysts. The Petersen group is applying similar methods to produce enantioenriched δ -lactams by cyclizing disubstituted diester amines, removing the need for costly and toxic metal catalysts. In our method, tert-butyl malonates are substituted at the alpha carbon with alkyl groups and a benzylic group with an ortho nitro group. Reduction of the nitro group gives the desired aniline species that is then cyclized via a chiral Brønsted acid, forming a δ -lactam. Yields up to 96% and enantiopurity up to 87% were observed. The work discussed here demonstrates the breadth of this synthetic route by detailing an example of how an ethylated δ -lactam was produced using the binol based chiral phosphoric acid R-TRIP. The δ -lactam structure produced can be used to synthesize a variety of biologically active molecules. Future work will test the tolerance of other functional groups, that could serve to further diversify the scope of lactams produced.

Within the Reliquaries: Sainthood in John Donne's "The Canonization" and "The Relic"

Student Author(s): Evangeline Grace Lothian, Sophomore (Classical Studies)

Faculty Mentor(s): Christopher Hodgkins (English)

This presentation is derived from a research paper on the portrayals of sainthood and its interplay with sexual language and secular love in John Donne's "The Canonization" and "The Relic." Donne evokes and uses his Catholic background and knowledge to satirize the process of canonization and veneration of saints in the Catholic Church in both poems, but in very different ways. Whereas "The Canonization" outlines the complexity of the lovers' acceptance and the power of martyrdom in canonizing them, "The Relic" suggests that the two lovers become relics without any procedure or difficulty at all and turn Love into a god. I propose to explore how these two portrayals of sainthood underline theological difficulties that popular notions of sainthood presented for Donne, especially the "veneration" of saints and their supposed omnipresence, and their occasionally appearing "more important" than Christ or the Trinity. Whereas other scholars have thoroughly explored both individual poems within the context of the portrayal and process of sainthood, I intend to compare the two and show how their separate image patterns and theological suggestions intersect through the theme of Love and elevation of love above all else.

The Future of Criminal Justice Practices: Trauma-Informed Restorative Justice as an Alternative to Punishment and Dehumanization

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Student Author(s): Hunter Mantilla, Junior (Art)

Faculty Mentor(s): Jessica Abell (Residential Colleges)

Perpetrators of trauma are oftentimes drawn to enact violence onto others as a result of the trauma they have experienced firsthand. The current criminal justice system seeks to punish those who have committed acts of these interpersonal transgressions, yet has failed to prevent repeat offenses of these acts. This is due to the lack of trauma-informed methods employed by the systems in place. As someone who has both been a victim and a perpetrator of interpersonal transgressions, I am a firm proponent of restorative justice as a viable alternative. Restorative justice is defined as both a philosophy and a set of practices meant to repair harm and maintain connection in the face of wrongdoing by the journal article Trauma-Informed Restorative Justice Practices in Schools: An Opportunity for School Social Workers. The goal of restorative justice is to provide a non-judgmental and trauma-informed approach in order to encourage perpetrators to take responsibility for their actions, which is done through the prioritizing of mental health. This fosters reduced feelings of guilt and shame along with incentivizing forgiveness within themselves. With this method perpetrators are less likely to feel dehumanized and more likely to engage in self-accountability, which lowers the risk of re-offense.

Genetic Variations and Drug Response in Cardiovascular Medicine

Student Author(s): Yasmine Maroua, Sophomore (Human Health Science)

Faculty Mentor(s): Will Dodson (Residential Colleges)

Cardiovascular medication therapy is thought to be impacted by genetic variation, explaining much about responses people have to this particular drug type. Understanding genetic variation in terms of reaction to medication will play important role in how medications may be processed. Understanding this concept can improve the outcome of drug therapy, conclusively aiding the outcomes of many cardiovascular patients. Cardiovascular diseases remain the leading cause of morbidity and mortality globally (40% of overall deaths in the US annually), and because cardiovascular medications are widely prescribed, understanding the genetic factors contributing to varied responses to cardiovascular medications will be important. Personalized medicine is a little-known but rapidly growing area that has the potential to optimize treatment outcomes in cardiovascular care by tailoring drug regimens to individuals' genetic makeup. We will aim to identify individual genetic responses to several commonly prescribed cardiovascular medications, how they are broken down to their metabolites by enzymes in the liver and eliminating them in the kidney through urine. This information will guide development of a personalized approach to optimize therapeutic interventions. Our research is driven by the need to bridge the gap between the human genome sequence and individualized patient care in cardiovascular medicine. We envision a future where precision medicine will change clinical practice much in the same way as ultrasound, antibiotics, and the internet have. Our primary motivation is to improve patient outcomes and prevent adverse drug reactions to cardiovascular medicine.

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Interviewing Adolescent Xenogender-Identifying Individuals to Understand the Link it May Have to Autism

Student Author(s): Maggie McGee, Junior (Psychology)

Faculty Mentor(s): Jessica Abell (Residential Colleges)

Within the past decade, it has been well documented the increasing number of young individuals identifying under the transgender umbrella. One such label that many have begun using is the term "xenogender," a gender identity that transcends human understanding of gender in which the gender is more symbolic of the individual at hand. Since its origination in 2014 (LGBTQ Nation), more people, especially autistic adolescents (12-25), have taken to it as a better way to describe their gender experiences. Considering its growing popularity among autistic youth, I am curious to understand what the correlation is, if any, between the two. In this experiment, I will be interviewing several college and high school students between the ages of 12-25 who identify with xenogender terms to explain in more depth their gender experiences. Groups of people will be assorted into "not autistic," "diagnosed with autism," and "suspected autism." It is my suspicion that autistic people often gravitate towards xenogender labels as a result of their neurodivergency directly affecting their view of gender in a way that is different from allistic people. Such research will allow psychologists working with transgender autistic individuals to have a better understanding of their identity as a person.

Testing the Extent of Dehnel's Phenomenon

Student Author(s): Ava Miller, Senior (Biology), Olivia Chapman, Post Baccalaureate (Biology), Kristen Stierman, Post Baccalaureate (Biology), Abigail Mendoza-Garcia, Junior (Biology)

Faculty Mentor(s): Bryan McLean (Biology)

Phenotypic plasticity, defined as non-heritable anatomical changes in response to changing environmental contexts, is one way that species cope with changes in their environment. Shrews (genus *Sorex*) are a diverse group of small mammals found throughout the Americas, Africa, Europe, and Asia. Shrew species range from 2 to 15 grams, are active year-round, and have one of the highest metabolic rates of any mammal genus. In order to sustain their high metabolism throughout winter, some species exhibit decreases in body size, skull, and brain size in winter, a trend called Dehnel's phenomenon. This allows them to save energy, as the brain is one of the most energetically expensive tissues for mammals to maintain. In this study, we monitored a novel population of masked shrews (*Sorex cinereus*; 5 g average body mass) in North Carolina, USA, for two years. Through micro-CT scanning and gross external measurements, we show that this population exhibits classic signals of Dehnel's phenomenon. We also extend measurements to hindlimbs (femurs), a novel trait that has the potential to expand our current understanding and the extent of Dehnel's phenomenon across the entire body plan of shrews.

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The Look of Racism: Examining Black and White Americans' Implicit Trait Perceptions of Racial Prejudice

Student Author(s): Corban Mills, Senior (Psychology), Hayley Lienbenow, Post Baccalaureate (Psychology)

Faculty Mentor(s): Brittany Cassidy (Psychology)

Racism against Black individuals is a historic and ongoing problem in America. This history elicits more negative perceptions of people who may perpetuate this problem (e.g., police) among Black versus White Americans. We examined whether these more negative perceptions generalize to broad swaths of the population. We used reverse correlation to examine Black and White Americans' implicit trait perceptions of people described as being more or less racist toward Black individuals. This study had a 2 (Participant Race: Black, White) x 2 (Racism Level: more, less) design. Mixed-measures ANOVAs were used to assess effects on several valenced traits (e.g., warmth and competence). Both Black and White Americans had broadly more negative implicit trait perceptions of more relative to less racist people and had similar expectations about more relative to less racist people's ideologies as reflected by faces. However, whereas Black and White Americans' perceptions of less racist people were similarly masculine, Black relative to White Americans' perceptions of more racist people were more masculine. These findings suggest that Black and White Americans have similar implicit trait perceptions of people who are racist, but that subtle differences may emerge among perceptions associated with expectations of criminal behavior.

Identifying Associations Between Adolescent Girls' Depressive Symptoms, Physical Activity and Sedentary Behavior

Student Author(s): Janasia Moody, Senior (Kinesiology)

Faculty Mentor(s): Jessica Dollar (Kinesiology), Jaelyn Maher (Kinesiology)

Adolescent mental illness, especially depressive symptomatology, remains a significant concern. Existing research indicates that lower physical activity (PA) and increased sedentary behavior (SB) are associated with increased depressive symptoms. However, existing research has failed to consider PA and SB within the context of one another, especially among adolescent girls, a population where rising depression rates are a significant concern. This study aims to examine: 1) the association between PA and depressive symptoms, and 2) the association between SB and depressive symptoms among adolescent girls. As part of a larger daily diary study, 66 female participants (12-18 years old) reported on their depressive symptomatology at the start of the study and their PA and distinct SBs every evening for 28 consecutive days. Results revealed that against expectations, PA and SB were not significantly associated with depressive symptomatology. A sensitivity analysis examining different types of SB (e.g., sitting, lying down, using electronic devices) also failed to reveal any significant associations with depressive symptoms. These null findings highlight the need for additional research to identify the processes that may explain for whom the associations between PA, SB, and depressive symptoms exist among adolescent girls.

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God, Love, and Relationships

Student Author(s): Alana Murray, Sophomore (Media Studies)

Faculty Mentor(s): Jessica Abell (Residential Colleges)

In this research project, I will explore Christian relationships built upon Christ's teachings about love. This project will be examining, who God is, what love is, and what that should look like in a relationship. It will tackle rising challenges concerning relationships and how to better navigate them with tips with the inclusion of real-life experiences. My current slant is: Relationships with the foundation of Christ are the most perfect example of love. I am interested in this topic because I want to educate and provide tips for those who are also looking for a potential future partner and advice for couples who are religious. For Primary sources, I won't have much of those besides the ones that define love and God. An example source for my primary will be pulled from the UNCG library and the source is called 'An Introduction to God's Nature and Attributes' written by professors at Liberty University. For my secondary sources, I will incorporate blog postings or articles on testimonies. How my research may help others is to recognize the love within themselves that can be grown and as well as with other people. I believe after reading my article, they can help identify what God's love looks like as well.

Social, Political, and Psychological Effectiveness of Activism Methods

Student Author(s): Elijah Murray, Junior (Physics & Astronomy)

Faculty Mentor(s): Will Dodson (Residential College)

The effectiveness of activism methods across social, psychological, and political realms is explored. Employing a mixed-methods approach, the manner in and degree to which different tactics shape public discourse and mobilize communities is investigated. Through case studies and survey data, and existing research like *The Psychology of Effective Activism* published in *Cambridge Elements Applied Social Psychology*, the roles of different protest tactics and community organizing efforts, as well as the psychological impacts of activism on attitudes toward particular social movements, are analyzed. Politically, the influence of activism on policy outcomes, institutional change, and power dynamics is assessed, drawing comparisons between historical movements and contemporary campaigns. Through these methodologies, practical implications are provided for activists, organizers, and policymakers. A conclusion is reached that strategies that emphasize frequent, constant presence in the public mind, and direct action to influence those with power to make change, are the most effective at reaching political and social success.

Scions of the Solar Sea

Student Author(s): Sofie Muska, Senior (English)

Faculty Mentor(s): Holly Goddard Jones (English)

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Science fiction has always been a genre linked with exploration, allowing authors to take humanity's ideas and investigate their best and worst potentials. *Scions of the Solar Sea* is a draft science fiction novel that finds its inspiration in Charles Darwin's theory of evolution and studies the consequences of change. On an alien planet named Darwin in humanity's distant future, natural and unnatural, living and nonliving parts of the environment transform and react to one another's transformations, demonstrating how no part of nature exists in isolation but always affects others, for better or for worse. In this world, there are no guarantees, and a step in one direction can lead to survival while a step in another can lead to death. Two young men, Aymond Estragon and Nereus Anastos, are among the many attempting to negotiate this reality. While Aymond takes self-experimentation a step further than advised in hopes of reversing the nerve damage done to him by a virus, Nereus struggles to adapt to life without his younger brother and to a scientist mother who always seems to ask for just a bit too much. In a world that keeps cycling on, welcoming one species and saying goodbye to the next, Aymond and Nereus represent the human heart that dares and dreams.

Observing the Impact of Gender-Identity on How College Students Select Partners

Student Author(s): Bailee Napier, Sophomore (Psychology)

Faculty Mentor(s): Jessica Abell (Residential Colleges)

The vast majority of psychology's understanding of partner selection is based almost entirely on cisgendered, heterosexual relationships. These conclusions often suggest that specific traits/values can influence how someone chooses their partner. This gap of information could lead to varying conclusions when Gender-Identity is considered for partner selection. By creating a survey at UNCG, and observing what attributes are desirable for both cisgender folk and transgender folk, I plan to show how folks may differ. Additionally, using articles such as, "Tradeoffs, Constraints, and Strategies in Transgender and Nonbinary Young Adults' Romantic Relationships: The Identity Needs in Relationships Framework," I further explain why trans folk may have different desires. Furthermore, by comparing what traits may be desirable for cisgender relationships to transgender relationships, I express the deep need for better diversity in our understanding of social psychology.

Effects of Microplastic Contamination on Tobacco Hornworms' Feeding Preferences

Student Author(s): Alexandra Nolan, Senior (Biology), Selina Ifidon, Senior (Biology), Kimberly Gonzales, Senior (Biology)

Faculty Mentor(s): Jim Coleman (Biology)

This study investigates the impact of microplastics contamination on the feeding preferences of tobacco hornworms (*Manduca sexta*) on tobacco plants (*Nicotiana tabacum*). With an increasing concern over ecological consequences of microplastic pollution, understanding its influence on herbivorous insects is significant. Experiments were conducted to discern whether microplastic amendment in soil leads to altered feeding preference of tobacco hornworm larvae. Two experimental groups were established: a control group with tobacco plants grown in microplastic-

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free soil and a treatment group with tobacco plants supplemented with microplastics. Tall rectangular cages were used for the experiments conducted in a greenhouse. The cages were covered with mesh material around their perimeter to allow for sunlight and plants were watered and fertilized regularly. Three to four hornworms were introduced into each cage, with a petri dish positioned between the two potted tobacco plants, each one from a different treatment. Hornworm feeding preference was monitored and recorded, focusing on the patterns over time in leaf tissue eaten for the control and treatment plants in each cage. The results showed a trend that indicated the hornworms preferred the tobacco plants grown in soil with microplastics vs those tobacco plants grown in control soil. We are repeating that experiment this semester. A companion study examined whether hornworms grew faster on treated or control plants, and the trends from that experiment suggested hornworms grew faster on control plants. If these results are confirmed, they would suggest that microplastics are causing changes in leaf biochemistry that decouples insect preference and performance.

Exploring the Synergistic Relationship between Humans and Robots

Student Author(s): Craig Nyaga, Sophomore (Information Systems and Supply Chain Management)

Faculty Mentor(s): Jessica Abell (Residential Colleges)

The relationship between humans and machines has changed significantly over time, bringing about major changes in sectors like manufacturing and healthcare. Even though automation has increased productivity, worries about possible job displacement persist, especially as AI is incorporated into industries like finance and education. It is essential to address ethical issues like bias and privacy to navigate this rapidly evolving landscape with effectiveness. My research is motivated by the topic's significant influence on the nature of work and society in the future. It is critical to comprehend how to foster successful human-machine collaboration in the face of rapid technological advancement. To investigate current concerns and trends, I will compile information from a range of sources, such as scholarly journals and industry reports. For instance, Pierre Bornet provides insightful insights in his Forbes piece "The Symbiosis of People and Technology," which examines the beneficial coexistence of technology and people. Furthermore, by examining the complex interactions between human and machine consciousness, David Gamez's book "Human and Machine Consciousness" explores the ethical and philosophical ramifications of artificial intelligence. In the end, this research hopes to offer direction for negotiating the challenges of human-machine cooperation, imagining a time when technology will improve human welfare while maintaining moral principles.

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A Natural Grapefruit Derivative that Selectively Destroys Breast Cancer Cells

Student Author(s): Coren O'Brien, Junior (Biology)

Faculty Mentor(s): Yashomati Patel (Biology)

Breast cancer is the second leading cause of cancer deaths among women and is the most common cancer diagnosed worldwide. It has been well documented that cancer cells alter cellular metabolism. Cancer cells have increase glucose uptake and perform aerobic glycolysis which generates energy and provides precursors required for rapid proliferation. One of these changes in cellular metabolism is an increased reliance on lactic acid fermentation, which generally provides less energy; however, can be efficient with the proper balance between lactate production and aerobic respiration. We have found that Naringenin (NG), a grapefruit flavanone, induces cell apoptosis in MCF-7 Tamoxifen resistant breast cancer. In these cells, LDH (Lactate Dehydrogenase) gene expression and lactate concentrations are elevated while ATP production is significantly reduced. A possible mechanism for this result is that naringenin may alter the protein levels of LDH, catastrophically upsetting the balance between lactate production and ATP synthesis. Since pyruvate is a precursor of the citric acid cycle and oxidative phosphorylation, an absence of pyruvate would be detrimental to the cell's production of ATP and cause cell death. Our research into characterizing the role of naringenin on LDH may enable the eventual use of Naringenin as a breast cancer treatment.

Analysis of Silicon Transporter Genes in Tef

Student Author(s): Maggie O'Daniel, Post Baccalaureate (Biology)

Faculty Mentor(s): Ayalew Osen (Biology)

Silicon (Si) is an essential mineral nutrient that improves abiotic and biotic stress tolerance and crop productivity. The Osen team previously found that Si application significantly improves biomass and grain yield in tef (*Eragrostis tef*). They also isolated and functionally characterized two homologs of the Si transporters, EtNIP1 and EtNIP2, in *Xenopus* oocytes. EtNIP1 showed a Si influx transport activity, while EtNIP2 does not mediate Si influx. In this study, we analyzed the expression of the EtNIP1 gene in tef grown in a hydroponic solution containing 0 or 3 mM NaSiO₃. Our findings showed that expression of the EtNIP1 was not affected in the roots and shoots of control plants for three weeks. Similarly, EtNIP1 expression was not affected in shoots of Si-treated seedlings. In roots, EtNIP1 expression decreased between day 7 and day 21. There was no difference in total Chlorophyll content between Si-treated and control plants, while the carotene content was slightly higher in shoots of control plants compared to roots and shoots of treated plants. A study is ongoing to determine the cellular localization of the EtNIP1 gene. The EtNIP1 has the potential to improve Si accumulation and stress tolerance in crops such as rice.

Unveiling Disproportionality: Exploring the Overrepresentation of BIPOC Students in Special Education

Student Author(s): Mason Odom, Junior (Teacher Education and Higher Education)

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Faculty Mentor(s): Jessica Abell (Residential Colleges)

Despite legal mandates ensuring a "Free and Appropriate Public Education" for all, the overrepresentation of Black, Indigenous, and People of Color (BIPOC) students in special education programs maintains educational inequities. This systemic bias deprives affected students of important opportunities and instruction, hindering their long-term prospects and continuing cycles of inequality. This paper investigates the over-referral of BIPOC students to special education, drawing from books such as *Disproportionality in Education and Special Education: A Guide to Creating More Equitable Learning Environments* by Amity Noltemeyer and Caven McLoughlin, and the journal article "How and Why Context Matters in the Study of Racial Disproportionality in Special Education" by Adai A. Tefera and Gustavo E. Fischman. These sources offer insight into the underlying factors contributing to this disproportionality and propose various solutions to address these disparities. By enacting these solutions, schools can create equitable learning environments that uphold principles of fairness and accessibility. Addressing the disproportionate referral of BIPOC students to special education is essential for dismantling systemic barriers and promoting educational equity.

Interaction Of Microplastics with Aluminum and Sulfamethoxazole and its Impact on Hydroponically Grown Barley (*Hordeum vulgare*)

Student Author(s): Mohammad Omar, Senior (Biology)

Faculty Mentor(s): Ayalew Osen (Biology)

This study investigates the intricate dynamics of aluminum (Al) toxicity on barley (*Hordeum vulgare*), a pivotal stressor in acidic soils that severely impacts the growth and productivity of this crop. We explored the combined and single effects of Al toxicity alongside environmental contaminants, microplastics (MP), and the antibiotic sulfamethoxazole (SMX), on the physiological and biochemical responses of barley. Though a controlled experimental setup involving various treatments in hydroponic conditions, this research assesses the impact on plant growth parameters including root and shoot length, fresh and dry biomass, and antioxidant enzyme activities. Our findings reveal a complex interplay between Al toxicity and the presence of MPs and SMX, with a notable mitigation effect of MPs on Al toxicity. This unexpected outcome suggests that MPs may play a role in enhancing barley's tolerance to Al toxicity, challenging previous understandings of soil contaminant-plant interactions, and highlighting the complexity of environmental stressors on plant growth. Conversely, the presence of SMX did not significantly alter barley's response to Al toxicity but demonstrated phytotoxic effects, underscoring the need for further investigations into the mechanisms behind these interactions. Further study will investigate the molecular and biochemical responses of barley to Al, PA and SMX.

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Garden Cyanotype

Student Author(s): Olivia Overton, Senior (Art)

Faculty Mentor(s): Leah Sobsey (Art), Tara Webb (Theater)

In Garden Cyanotype I have created a visual exploration of nature through photograms on fabric. This piece uses stems, flowers, leaves and other findings from the UNCG CVPA Pollinator Garden. I was interested in utilizing the process of cyanotype by creating an artwork that was interdisciplinary and captured the essence of the space. After a little over a year of working hands-on in the pollinator garden, I have expanded my knowledge of native North Carolinian flora and gone through many different stages of incorporating it into my art. Through thoughtful composition and rich blue tones, I hope to evoke the sense of being around lush plant life as well as tell a story of growth.

Coping Style as a Moderator Between Anxiety Sensitivity and Alexithymia in Trauma Survivors

Student Author(s): Mason Page, Junior (Psychology), Briana Tabor, Senior (Psychology), Shae Nester, Graduate Student (Psychology)

Faculty Mentor(s): Blair Wisco (Psychology)

Trauma survivors often demonstrate anxiety sensitivity (i.e., fear of anxiety-adjacent sensations), which may lead to emotional problems, especially for those who avoid internal experiences (e.g., emotions, bodily sensations). We hypothesize that anxiety sensitivity will be associated with alexithymia (i.e., difficulty noticing, labeling, and feeling emotions), especially among those with high emotion-focused disengagement coping (EFDC). Trauma-exposed undergraduates (n=135) completed the Anxiety Sensitivity Index, Coping Strategies Index, and Toronto Alexithymia Scale. Anxiety sensitivity was positively associated with alexithymia ($\beta=0.36$, $p=.002$). There was no significant effect of EFDC ($\beta=0.17$, $p=.270$) or anxiety sensitivity X EFDC interaction ($\beta<0.01$, $p=.724$). Interventions targeting anxiety sensitivity among trauma-exposed individuals could reduce alexithymia.

Strain and Growth Condition Studies to Enhance the Production of Verticillin A and Verticillin D

Student Author(s): Devyani Patel, Senior (Biochemistry)

Faculty Mentor(s): Nicholas Oberlies (Chemistry)

Verticillin A and verticillin D are fungal metabolites that are highly cytotoxic (nM) against cancer cells, making them drug leads for cancer treatment. Being that we have access to a library of fungi that produce these compounds, the goal of our project was to determine which strains of fungi and growth conditions were ideal for the highest production of verticillin A and D. This would allow for the extraction and isolation of gram-scale quantities of the compounds. To do so, five fungal strains were assessed for verticillin production. Of those, strains, MSX59553 and MSX51257 were the best

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producers of verticillin A and verticillin D, respectively. Then, these two fungal strains were grown on rice and oatmeal to compare the production on different media. The results showed that the oatmeal media induced a higher production of the verticillins as compared to rice, making it the better solid media for large-scale cultures.

Grogan Research Capstone

Student Author(s): Zakeiryh Perry, Sophomore (Business Administration)

Faculty Mentor(s): Will Dodson (Residential Colleges)

My research dives into the realm of sustainable fashion practices in workplace settings, exploring how companies are embracing eco-friendly approaches to clothing choices. Sustainable fashion is all about making clothes and accessories in a way that's kinder to the planet and people. It's about using methods that don't harm the environment too much, like cutting down on pollution and waste. Also, it's about treating workers fairly and making sure they're safe. So, it's basically trying to make fashion eco-friendlier and more ethical, from how things are made to how they're sold. With environmental concerns on the rise, fashion's impact on our planet has become a hot topic. I aim to understand the efforts made by organizations to minimize this impact and promote responsible fashion decisions. By analyzing scholarly articles, industry reports, and case studies, I hope to uncover practical strategies that contribute to a more sustainable fashion landscape in corporate environments. Ultimately, my research seeks to highlight the importance of integrating eco-friendly practices into workplace fashion choices. The sources provided below gives an insight into the evolving landscape of fashion and its intersection with environmental sustainability, offering more diverse opinions on the topic of sustainable fashion.

Running Toward a Healthier Future: Why Running is One of the Best forms of Exercise Therapy

Student Author(s): Julia Plunk, Sophomore (Political Science)

Faculty Mentor(s): Will Dodson (Residential Colleges)

Running is one of the most popular and highly executed sports throughout the globe. From marathons to daily active movements, running is a way for many to detach from reality and focus in on achieving various physical and mental goals. Exercise therapy is a method that is tailored to help you both mentally and physically with restoring and bringing back functionality, mobility, and well-being into your everyday life. To understand why running is a valuable exercise tool, I argue that running is one of the best forms of exercise therapy because it is easily accessible, it improves your health, and it is a healing journey. Throughout my life I have always been very active, and for the past couple of years I have been an avid runner. I use running to feel all kinds of emotions (good and bad), and I can use it to test my limits. By using sources such as the book Running is my therapy, scholarly journals, and websites I will understand the important mental (reducing depression and runner's high) and physical (improved health and fitness) aspects that result from running. This

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research will help to debunk any myths about the negative effects that running has on the body, and it will highlight the importance and place value on running.

Weaving Strength and Well Being: A Novel Interview Approach for Improving Mental Health in Montagnard Elders and Youth

Student Author(s): Ariel Pocock, Post Baccalaureate (Biology)

Faculty Mentor(s): Catherine Bush (Biology), Sharon Morrison (Public Health Education)

The Montagnards, diverse indigenous tribes of the Central Highlands of Vietnam, aided the United States during the Vietnam War. After the war, many Montagnards immigrated to the US to escape persecution. Today, Montagnard community members experience lower rates of education/ income, food insecurity, and poor mental and physical health. This research team conducted the first mental health screening of 26 Montagnard adults in 2020, finding that 33% reported depression and anxiety; 17% reported symptoms of PTSD; and 13% indicated suicidal ideation. The Montagnard Community Advisory Committee has identified elder care and mental health as immediate priorities. Research suggests that purposeful communication between elders and youth may improve mental health outcomes. To improve mental health across generations, a novel interview process was designed that included a mental health screening and interview prompts to facilitate understanding, reflection, and decreased stigma surrounding mental health. Each interview (10 in total) paired a youth and elder community member together. The goals were (1) to decrease levels of depression and anxiety among participants by using specific prompts to foster connection and intergenerational empathy, and (2) to provide opportunities to share challenges and reflect on community strengths. Preliminary results show that 58% of participants reported decreased levels of sadness and worry compared to pre-interview screenings, while 42% reported unchanged levels. 100% of participants reported heightened positive emotions towards their interview partners. This study indicates that intergenerational mental health can be improved in communities at little cost by purposefully creating safe spaces for conversation.

What to Do with Your Old Jeans? Investigating Gen Z College Students' Consumption and Disposal Behavior Toward Jeans

Student Author(s): Taylor Pougés, Senior (Consumer Apparel & Retail Studies)

Faculty Mentor(s): Jin Su (Consumer Apparel & Retail Studies)

The rise of fast fashion trends in the apparel industry has encouraged rapid consumer consumption behaviors that negatively impact the environment. Denim jeans, in particular, have a significant detrimental impact on the environment because of the specialized textile and garment production and finishing processes. Since denim jeans are an American staple and have become the single most common form of everyday attire, it is of paramount importance to develop and implement sustainable practices through the production, consumption, and disposal processes. Equal responsibility falls on leading denim brands and consumers to actively address the issue. As Gen Z

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emerges as the sustainability generation, they hold considerable power to enforce change. Analyzing the perceptions and consumption behaviors of this consumer segment will assist apparel brands in developing strategies to effectively advertise and spread information on their sustainable business practices. This study employs the qualitative research approach and analyzes the interview data collected from 20 Gen Z college students. The study provides valuable and up-to-date information on Gen Z college students' consumption and disposal behaviors toward denim jeans.

Exploring the Differential Effects of Sport Participation on Cognitive Control in 9–10-Year-Olds

Student Author(s): Mariana Quinonez-Medina, Senior (Kinesiology)

Faculty Mentor(s): Dereck Monroe (Kinesiology)

This study investigated the connection between children's participation in sports and cognitive control. First, we hypothesized that greater sport participation would be associated with better cognitive control. Second, we hypothesized that greater proportional participation in sports carrying a risk of concussion would be associated with worse cognitive control. Total sport participation was calculated with the Sports and Activities Questionnaire by ABDC study. Each sport was classified as low-risk a moderate-risk or a high-risk for concussion. Cognitive control task used Dimensional Change Card Sort. Proportional risky sport participation was greater in males than females ($t(8900)=5.04$, $p<.001$) and among those with a history of TBI than those without ($t(1576.8)=-2.32$, $p=.021$). Regressions revealed that LFPSS was positively associated with total sport participation ($B=0.016$, $p<.001$) but inversely related to proportional risky sport participation ($B=-0.135$, $p<.001$). Better DCCS performance was positively associated with total sport participation $B=0.133$, $p<.011$). Greater proportional participation in high-risk risk sports among children is notable. The inverse relationship between LFPSS and proportional participation in risky sports was unexpected but may be explained by the high number of individual sports comprising our high-risk categories. Conditioning the effects of total and risky sport participation through regressions, our findings suggest that the benefits of total sport participation for cognition outweigh the potential risks in the near-term, but only when measured by the DCCS.

Third Places Foster Community Interaction, Civic Discourse, and Social Wellbeing

Student Author(s): Zoe Redmond, Sophomore (Sociology)

Faculty Mentor(s): Will Dodson (Residential Colleges)

Third places are free or inexpensive, walkable, social spaces for conversation and catching up, drinking coffee or grabbing lunch with a friend, meeting new people, or simply enjoying the company of others. Alas, in suburban America, third places have diminished in popularity due to the privatization and monetization of leisure and social interaction. In order to revitalize the American public and replenish the social, mental, and physical wellbeing of communities and individuals, third places should make a come-back in our everyday lives. Ray Oldenburg, former professor of

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sociology at the University of West Florida, coined the term in his book, "The Great Good Place" published 1989. He talks about how Americans are vastly unsatisfied with their "home-to-work-and-back-again shuttle." Places we go to now like shopping malls and department stores often reduce social interaction to a transaction, paying sums of money, and needing a car to get there. The reemergence of third places will foster community and social wellbeing and create a stronger democracy from a grassroots level.

Empowering Environmentalism from Home

Student Author(s): Robert Rice, Sophomore (Biology)

Faculty Mentor(s): Jessica Abell (Residential Colleges)

This research abstract explores innovative strategies to combat the environmental repercussions of agriculture-related nano-objects on soil microbial communities. Motivated by a personal commitment to finding accessible and inventive ways to contribute to environmental preservation from home, the study endeavors to bridge theoretical research with practical solutions as suggested in the provided sources. Drawing upon insights from scholarly articles such as "The Invisible Threat: Assessing the Reproductive and Transgenerational Impacts of Micro and Nano Plastics on Fish" by Lawler and Nisbet, and "Environmental Effect of Agriculture-Related Manufactured Nano-Objects on Soil Microbial Communities" by Smith and Johnson, the research seeks to identify tangible interventions that mitigate the adverse effects of nano-object contamination in agriculture. Additionally, Naomi Klein's book "How to Change Everything: The Young Human's Guide to Protecting the Planet and Each Other" serves as a catalyst for exploring grassroots solutions and community-driven initiatives. By synthesizing these diverse sources, the study aims to propose practical recommendations for individuals and communities to take proactive measures in environmental stewardship. Through this investigation, we anticipate uncovering novel approaches that empower individuals to contribute meaningfully to environmental conservation, aligning with the ethos of proactive engagement advocated in the literature. The survey conducted within the dorm yielded diverse insights. The majority of respondents expressed satisfaction with the cleanliness and maintenance of common areas, though a notable minority highlighted concerns regarding noise levels during nighttime hours. Additionally, there was a consensus on the need for improved communication channels between residents and dorm management regarding maintenance requests and policy updates. Furthermore, respondents showed interest in more communal events and opportunities for social interaction within the dorm community. Overall, the survey highlighted a mix of contentment and areas for potential improvement in dorm life.

Beat of the Campus: Understanding How Music Impacts College Students' Daily Lives and Social Relationships

Student Author(s): Nickolas Riggins, Sophomore (Psychology)

Faculty Mentor(s): Will Dodson (Residential Colleges)

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My project delves into the impact of music on individuals' daily lives and perceptions. Music holds a profound influence on people, shaping their emotions and moods in various ways. I aim to explore the diverse ways individuals integrate music into their routines and how cultural and contextual factors influence musical preferences and social dynamics. My thesis statement asserts that music plays a multifaceted role in emotional expression, cultural identity, and social connection, highlighting its significance in human experience. I am intrigued by this topic due to my background in psychology and personal passion for music. Music has always been a central aspect of my life, and I am fascinated by its ability to evoke powerful emotions and foster connections between individuals. In my research, I have found various primary and secondary sources useful, including scholarly articles, books, and qualitative studies exploring the psychological and sociocultural aspects of music. One particularly insightful source is "The Power of Music: A Research Synthesis on the Impact of Actively Making Music on the Intellectual, Social, and Personal Development of Children and Young People" by Susan Hallam. This research provides valuable insights into the diverse ways music impacts individuals across different stages of life. Through my research, I anticipate uncovering deeper insights into the intricate relationship between music and the human experience. I believe my findings will not only enhance our understanding of the psychological and sociocultural dynamics of music but also have practical implications for promoting well-being and fostering connections within communities. Ultimately, I hope my research will contribute to a greater appreciation of the profound influence of music in my life and have a better understanding for others.

Making the Metaphysical Physical: An Inquiry Into How the Haft Peykar, The Conference of the Birds, and Sufi Mysticism Represent Transcendence

Student Author(s): Calliope Rodriguez, Sophomore (Classical Studies)

Faculty Mentor(s): Will Dodson (Residential Colleges)

Within the Haft Peykar and The Conference of the Birds the respective poets are capable of constructing a metaphor for the metaphysical/spiritual journey their characters make as they approach transcendence. The philosophy that these constructed landscapes produce is applicable to daily life in our time. In this essay I address how these poets address core philosophical questions about one's self and one's life through the advanced poetic use of symbolism and allusion. It is my belief that the concepts that these authors support deserve to be studied in western curriculum due to the fact that they remain pertinent in this modern era.

Evaluating the Influence of an Additive Genetic Score of Serotonin Variants with Recent Life Stress on Personality Variables in Emerging Adults

Student Author(s): Karime Ruiz-Saldana, Junior (Public Health Education), Viviane Oyinwola, Senior (Biology), Ally Grillo (Graduate student majoring in psychology)

Faculty Mentor(s): Suzanne Vrshek-Schallhorn (Psychology)

Prior work has linked personality traits with single serotonergic (5HT) genetic variations (Sen et al., 2004). However, whether a serotonergic multilocus genetic profile score (MGPS) previously

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implicated in depression might be associated with these traits is untested. We predicted that a 5HT MGPS would interact with IP but not non-IP chronic stress to predict each trait such that a higher 5HT MGPS will predict higher neuroticism, but lower agreeableness and conscientiousness in the context of high IP chronic stress. 141 Participants provided DNA for sequencing, completed personality measures, and the UCLA Life Stress Interview to assess chronic stress. Regression(s) tested main effects and interactions of 5HT MGPS with chronic stress on conscientiousness, agreeableness, and neuroticism. Significant interactions were decomposed with simple slope tests at $M \pm 1$ SD. IP chronic stress main effect predicted neuroticism. 5HT MGPS did not moderate the relationship between IP chronic stress and any of the three traits. 5HT MGPS interacted with non-IP chronic stress to predict agreeableness and neuroticism after adjusting for covariates. Further, non-IP chronic stress was significantly associated with neuroticism at low MGPS, but not with neuroticism at high MGPS. We detected effects of a 5HT MGPS and non-interpersonal chronic stress with aspects of personality.

Effect of Light Pollution of Sleep Quality

Student Author(s): Sebastian Russell, Sophomore (Psychology)

Faculty Mentor(s): Will Dodson (Residential Colleges)

A relatively new and increasingly prominent technology is blue light and bright all-night streetlights. It is very common for those of us with smartphones, computers, or televisions to use these devices up until or during sleep. My research project will look into the effects of these technologies on our sleep quality. It is my current thesis that the presence of blue light and ambient light before and during sleep negatively impacts sleep quality both acutely and over long-term exposure. Sleep is an extremely important part of your body's regulatory processes and our bodies will quickly let us know when our sleep is being impacted. A book titled "The Social Epidemiology of Sleep" by Dustin Duncan ed. has a chapter that discusses different ways to help mitigate the loss of sleep quality to external factors. It also explains some of the effects of key topics such as blue light and ambient lights such as that from streetlamps. The research has already shown me information on the measure of the impact of blue light which greatly differed from my expectations. Through this project, I'd like to be able to help others better the quality of their own sleep and wellbeing.

How ESAs Affect Mental Health

Student Author(s): Cassandra Saunders, Sophomore (Psychology)

Faculty Mentor(s): Will Dodson (Residential Colleges), Sarah Colonna (Residential Colleges)

Emotional support animals (ESA) have become increasingly popular in recent years, with more and more people seeking their companionship to help alleviate emotional distress. These animals are not service animals and are not trained to perform specific tasks for their owners, but their presence provides comfort and support to those suffering from mental health issues. However, the growing trend has also given rise to concerns about fraudulent ESA certifications and the potential for abuse

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of the system. This research project seeks to explore the benefits and drawbacks of emotional support animals and to examine the current legal and societal landscape surrounding these animals. Using primary and secondary sources, we will analyze the experiences of both ESA owners and businesses that have encountered emotional support animals. Furthermore, we will investigate existing legislation related to ESA and how it has impacted the mental health and well-being of individuals who have benefited from the companionship of emotional support animals. Ultimately, this research will aim to provide a comprehensive understanding of the impact of emotional support animals on individuals and society as a whole. By examining the pros and cons of ESA ownership, this research may help shed light on ways to improve legislation surrounding emotional support animals and ensure that individuals with legitimate needs can have access to these valuable support systems while also curbing potential abuses.

Corsets: Exploring History and Theatrical Mobility

Student Author(s): Sophie Shahan, Senior (Theatre)

Faculty Mentor(s): Amy Holroyd (Theatre)

Through a process of historical research, costume rendering, pattern drafting, sewing, and many other costume elements, this project will explore the history of the corset, how the corset can be altered to fit different body types, and how the corset can be adapted for use in theatrical scenarios. Using three models, one BFA Acting student and two MFA Acting students at UNC Greensboro, three corsets will be designed and created, with one each corset having varying types of boning and fabrics, including plastic boning, steel spiral boning, and steel boning, all of which are utilized to give the corset structure. These corsets will have historical elements, as well as theatrical modifications. All these corsets will be created following similar steps, including historical research, design renderings, bodice block drafting, pattern creation, mock-ups, and final fashion fabric.

Academic Stress and Anxiety on College Students' Psychological Well-Being

Student Author(s): Zaebiah Shepard, Sophomore (Biology)

Faculty Mentor(s): Will Dodson (Residential Colleges)

Choosing to attend college is a huge commitment and transformation in your life, especially if you decide to live on campus away from home and your family. Balancing work and a new adjustment can be stressful as seen in college students as they are trying to balance their academic schedule and their psychological needs, such as connection, self-identity, self-esteem, etc., and being an adult on their own. I'm arguing that academic stress and anxiety in college students has an impact on students' psychological well-being by using sources such as the *Psychological Need Satisfaction and Academic Stress in College Students: Mediator Role Of Grit and Academic Self-Efficacy* article from the *European Journal of Psychology of Education*. I am interested in this topic because as a college student myself, I am always busy and stressed out from school, and I have been working on prioritizing my mental health and well-being first. Even though school is important to me, I want to

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feel accomplished (aside from getting my degree) and happy in life, that I'm sure other college students can relate too. Hopefully, this research sheds light on how important it is to balance work and life. It is important to prioritize getting an education, but it is also important to live and enjoy what life has to offer.

What Makes a Museum Experience Good?

Student Author(s): Mallory Shouse, Junior (Arts Administration)

Faculty Mentor(s): Will Dodson (Residential Colleges)

Museums showcase the very finest works of art and allow people from all walks of life to view artwork they may otherwise not have the opportunity to see. However, many museums have failed to connect with audiences or engage their attention, and this has worsened through the COVID-19 pandemic. As an aspiring Arts Administrator who hopes to work in museums one day, I want to examine how museums can improve their audience engagement. I also bring up narratives of representation and the problem of socioeconomic disparity in museums. This relates to audience engagement because there are fewer opportunities for low-income individuals to enjoy museum experiences because museums prioritize high-income audiences; especially those who are willing to donate money to the museum or pay membership fees. I will examine institutions such as the Mattress Factory, Superblue Miami, and Wonderspaces and Color Factories, which are popping up everywhere, why that is a good thing, and what makes these spaces great examples for other museums to consider when revising their programming. Additionally, I reference blog posts about what these spaces are like to get real accounts from people who have been to these museums. In conclusion, museums that break the mold, invite viewers to interact with and touch the artwork, and value novelty over safety will always have devoted visitors who return to see what's new because they felt impacted by their experience.

CVPA Pollinator Garden Project: Floral Motifs

Student Author(s): Penny Shrewsbury, Senior (Arts Administration)

Faculty Mentor(s): Leah Sobsey (Art), Tara Webb (Theater)

During the Summer of 2023, I began working alongside our faculty mentors to help cultivate the CVPA pollinator garden in UNCG's Peabody Park. The aspiration for the garden to be used as a source of natural dyes and art materials for the School of Art and Theater. Seeking to capture the essence of the garden's beauty in a tangible form, I turned to the art of crochet. I found inspiration in the intricate patterns and colors of the flowers that graced the landscape. Through the rhythmic motion of crocheting, I translated the vibrant hues and beauty of the flower into intricate floral motifs.

Flawed Gods and Vengeful Adams: An Analysis of Artificial Lives and their Creators in

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Media

Student Author(s): Percy Sluder, Sophomore (Theatre)

Faculty Mentor(s): Will Dodson (Residential Colleges)

Humans have so many existential questions that we must accept will never get an answer. So, the idea of owing every minute aspect of your existence to one person, who you can just get up and talk to, is one that never ceases to fascinate me. In this essay, I investigate modern shows, songs, movies, and games ranging from Bladerunner to Minecraft, as well as historical fables and myths to unearth valuable context to the modern cultural conception of artificial life. I identify a few broad categories of relationships between sentient artificial life and their creators to investigate trends and interesting outliers in how dynamics and the balance of power in these relationships might shift in response to deviating desires. I argue the ability to assert one's personhood and desires is pivotal to the resulting dynamic. I hope my research will offer new perspectives into how we can navigate our own existence in relation to those who shaped us, raised us, and dictate how we move through the world.

Aria's Narrative

Student Author(s): Laniya Smith, Senior (Dance), Grayson Kelsh, Senior (Dance), Cameron Vanderhaar, Senior (Dance), Clara Kennedy, Senior (Dance)

Faculty Mentor(s): Clarice Young (Dance)

Through Aria's Narrative, our group has brought exposure to the UNCG Dance department through a combined choreographic effort that simultaneously taught a deepened choreography experience for everyone involved. Aria's Narrative is a 10-minute contemporary dance built in the fall of 2022 in a choreography class taught by B.J. Sullivan. The piece was built off of the Bach Goldberg Variations, and each dancer contributed equally to the work; the piece was then performed informally at the end of the semester. Aria's Narrative would end up being selected by faculty to represent UNCG Dance at the American College Dance Association, which is a well-renowned conference that brings collegiate dancers from all over the United States together. Aria's Narrative was carefully selected by judges in the regional conference, hosted by Sweet Briar College, to be selected to perform on the national level, hosted in Long Beach, California. URSCO funding gave us the assistance needed to make it to Long Beach, and we will be presenting our choreographic experience in addition to our experience meeting new dancers, receiving feedback from distinguished adjudicators, viewing other student and professional works, and taking classes with some of the most talented dance professors in the U.S.

Murals and Large-Scale Painting: Bridging Creative Research and Community

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Development

Student Author(s): Sara Smith, Senior (Art), Amiah Jones, Senior (Art)

Faculty Mentor(s): Mariam Aziza Stephan (Art)

Across the country private citizens and local communities are seeking muralists to help with city development, community outreach, and urban revitalization programs. Art students today want their work to engage more directly with their local communities. By expanding the skillset and marketability of the School of Art's these graduating painting students have more professional opportunities. Public art serves as an opportunity for students to synthesize their fine art, design, and entrepreneurial skills. Amiah Jones and Sarah Smith learned two types of mural enlargement: using a projector and a Doodle or Lazy Grid technique. Both of these approaches can be applied to both large fine art and public works. The opportunity to learn, experiment, practice, and integrate mural techniques and concepts of public works into personal fine art paintings broadened the scope of what these students imagined they could make and who their audience could be in the future.

ACLS Simulation and Student Self-Efficacy: A Scaffolded Approach

Student Author(s): Nicholson Sprinkle, Senior (Nursing)

Faculty Mentor(s): Debra Stanford (Nursing), Thomas McCoy (Nursing)

Pre-licensure nursing students continue to graduate from nursing school feeling unprepared to perform in a code blue (respiratory and/or cardiac arrest) situation. This study aims to determine if self-reported self-efficacy scores for participation in a code blue simulation/early Advanced Cardiac Life Support (ACLS) will increase more for students who participate in coached scaffolded pre-simulation practice sessions when compared to students who participate in self-led scaffolded pre-simulation practice sessions. Twelve prelicensure nursing students participated in the study and were randomly assigned into either one-hour coached scaffolded-style practice sessions or one-hour self-led scaffolded-style practice sessions prior to participating in 5-minute code blue simulations. Both groups received identical training materials. Self-efficacy was measured anonymously by pre-practice, post-practice, and post-simulation questionnaires. Participants in both groups reported an increase in mean self-efficacy scores. There was a 250% increase for coached versus a 140% increase for self-led groups. Implications from this study could impact code blue readiness and clinical skills education. This methodology could provide a framework for creating effective confidence-bolstering curriculums; future iterations could also examine skill competencies in self-led versus coached groups.

Ceramic Lamps from the Insula of the Menander: A Window into Local Pottery

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Production and Consumption Habits

Student Author(s): Tiffany Stephens, Senior (Classical Studies)

Faculty Mentor(s): Robyn Le Blanc (Classical Studies)

Pompeii, an ancient Roman city, was a prosperous coastal city in south-central Italy. The Roman Empire relied heavily on artificial lighting since people remained active long after the sun set. They would have needed a sort of lighting to carry out many different indoor tasks both during the day and at night. Mount Vesuvius violently erupted on August 24, 79 CE, leaving Pompeii "frozen in time" due to the deep volcanic matrix from pyroclastic flows. For this project I will concentrate on the 86 ceramic lamps cataloged by Penelope Allison from the Insula of the Menander, one of Pompeii's most excavated and well-preserved city blocks. By creating my own catalog based on the following criteria: iconography, date, size, material, production location, findspot, function of the room where they were discovered, and major decorative elements of that room I will be able to identify patterns in both the lamps and the circumstances in which they were located. This also helps identify Pompeii customer preferences by showing how individuals buy and utilize items. This project will delve into how the decoration of ceramic lamps reflects consumer preferences, the popularity of images, and which workshops are available for purchase.

The Lost Line: A Study of the Third Line at Guilford Courthouse National Military Park

Student Author(s): Tiffany Stephens, Senior (Archaeology), Rebecca Skebeck, Senior (Archaeology)

Faculty Mentor(s): Geoffrey Hughes (Anthropology)

A confrontation, lasting only a few hours, between American Major-General Nathaniel Greene and the British General Charles Cornwallis occurred on March 15, 1781. The site of this battle, considered a major turning point of the Revolutionary War, is commemorated as the Guilford Courthouse National Military Park. The conflict consisted of three skirmishes that were fought along what are commonly referred to as battle lines. The location of the third line and courthouse is still unknown and has been heavily debated by historians and archaeologists. The purpose of our research is to determine the position of the third line through examination of the caliber and spatial analysis of discovered musket balls found during an previous investigation at the site between 2011 and 2013 by Dr. Linda Stine. To determine if they were American or British, we examined the musket balls to ascertain the weapon's caliber. When the variables of the munitions are studied, it is possible to identify the type of ammunition and whether it was used by British or American forces, which will aid in determining the most likely location of the third line.

The Role of Rural Religiosity in Predicting Help-Seeking Attitudes

Student Author(s): Canaan Strickland, Senior (Psychology)

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Faculty Mentor(s): Kari Eddington (Psychology)

Internalizing the stigma surrounding mental illness has long been shown to lower help seeking attitudes. However, research regarding this relationship, has neglected to examine rural populations in the US. As such, this study explored how stigma about mental illness lowers help seeking attitudes in rural populations by examining two rural constructs hypothesized to influence internalized stigma (ISMI) formation: religious fundamentalism (RF) and religious beliefs about the causes of mental illness (RBMI). The main hypotheses of this study were: RF would positively correlate with RBMI, RBMI would positively correlate with ISMI, and ISMI would inversely correlate with attitudes toward seeking professional psychological help (ATSPPH). Data were collected using self-report surveys containing four measures corresponding to the above-listed constructs. Serial mediation techniques were used to analyze all variable relationships. Within this model RF was the predictor and ATSPPH was the outcome variable. These variables were mediated by both RBMI and ISMI. Results showed RF positively correlated with RBMI, $\beta = .62$, $t(238) = 11.59$, $p < .001$, RBMI positively correlated with ISMI, $\beta = .19$, $t(237) = 2.42$, $p < .05$, and ISMI inversely correlated with ATSPPH, $\beta = -.19$, $t(236) = -3.41$, $p < .001$.

Oralism vs. Manualism in Deaf Education

Student Author(s): Skylar Sumrell, Sophomore (IDEAS (Interpreting, Deaf Education, and Advocacy Services) with a concentration in Deaf Education)

Faculty Mentor(s): Will Dodson (Residential Colleges)

In Milan, Italy, 1880, oral education for the Deaf was declared superior to manual. This resolution effectively banned the use of sign language in schools across the world. Now, almost 150 years later, the debate over Deaf education persists. There are three main approaches to Deaf education: oralism, total communication, and the bilingual/bicultural method. In order to reduce language deprivation and support a well-rounded knowledge of the English language, appropriate exposure to American Sign Language from early childhood is essential. Regardless of hearing status, all children should be seen as capable and equal in nature. By using sources such as *Communication Options in the Education of Deaf Children*, and several articles from *The Journal of Deaf Studies and Deaf Education*, I will compare, contrast, and explain these methods to determine which, in theory, provides the most access to communication and learning. Inherently, none of these methods are 'incorrect,' yet, when approached inappropriately, the effects of these methods can be detrimental.

Parental Socialization and Personal Behavioral Styles Relating to Mental and Academic Outcomes in Young Adults of Color

Student Author(s): Tiffany Tan, Senior (Psychology)

Faculty Mentor(s): Gabriela Stein (Psychology)

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Young adults of color often receive messages from their parents on handling race-related experiences, emotions, and academics. Effective and supportive ethnic-racial (ER), emotion, and academic socialization (AS) leads to better mental and academic outcomes (Hill & Tyson, 2009; Lugo-Candelas et al., 2016; Wang et al., 2020). In addition to parental socialization, a personal behavioral style involving perfectionism (Bieling et al., 2004; Frost et al., 1993) and John Henryism (James, 1994), a long-term high effort style of coping, may also predict academic grit (Doan et al., 2022). This study examined which types of parental socialization or aspects of this behavioral style were most salient for young adults' mental well-being and academic grit. Participants were 423 young adults of color. Using hierarchical regression models, higher socialization messages about cultural heritage and emphasizing teaching during academics were positively related to well-being, whereas messages supporting greater effort during academics was positively related to academic persistence. Perfectionism (i.e., striving for excellence, concern over mistakes) and John Henryism were positively associated with both outcomes. Further longitudinal research is needed to see whether having high ideals for oneself or expending high effort to cope can come at a cost.

Electronic Absorption Spectroelectrochemical Studies of Fungal Perylenequinones for Understanding Their Roles as Potential Photodynamic Agents

Student Author(s): Marcos Tapia, Junior (Chemistry)

Faculty Mentor(s): Shabnam Hematian (Chemistry)

Fungal perylenequinones (PQs) are aromatic polyketides with unique structural, redox, and photochemical properties evolved in Nature. These optimized features are responsible for their multifaceted roles in Nature which can also be exploited for medicinal and energy applications. Two sub-classes of PQs are hypocrellins and hypomyces which are differentiated by the presence of an additional ring due to an intramolecular cyclization and a less extended conjugated π -system in the latter. Our initial electrochemical studies revealed significant differences in the electron transfer or redox properties of these sub-classes. In recent years, significant interest in their photochemical properties and potential application in photodynamic therapy (PDT) has also developed. Upon irradiation with specific wavelengths of light, excited PQs react with molecular oxygen to generate reactive oxygen species (ROS) initiating necrosis and apoptosis to target cells or specific area. Here, we present our findings on the photochemical and electrochemical properties of a series of natural fungal PQs as well as their semisynthetic analogues. Our UV-vis spectroelectrochemical analysis allowed us to probe the photochemical properties of singly and doubly reduced states of PQs providing insight into their potential roles in their photodynamic functions.

Fungi-Free Purification of the Chlorination Enzyme from the Fungal Biosynthesis of

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Sporidesmin

Student Author(s): Kathryn Tarr, Post-Bachelor (Chemistry), Abigail Stubblefield, Junior (Chemistry & Biochemistry)

Faculty Mentor(s): Jason Reddick (Chemistry)

Pithomyces chartarum is a fungus found in rye grasses and is known for producing a mycotoxin natural product that can cause acute liver toxicity in livestock. This mycotoxin, Sporidesmin, is a member of the epipolythiodiketopiperazine (ETP) natural product class, and its main point of interest is the chlorine atom situated on the structure. The biosynthesis of Sporidesmin is encoded by a cluster of 21 genes called "spd." This project focuses on *spd4*, whose sequence suggests it as a homolog of a flavin-dependent halogenase. It is thus part of a broader class of enzymes that install chlorine atoms on their substrates, making it a likely candidate for installing the chlorine in Sporidesmin. We are interested in this enzyme due to its potential application as a biocatalyst in laboratory halogenation reactions. Our first goal in this project is to clone and overexpress this gene in *E. coli*, so that we can obtain the enzyme for our next studies. This research was conducted through Gibson cloning to generate the *spd4* protein fused to maltose binding protein (MBP), which will aid in folding this fungal protein in the *E. coli* host. This research proved fruitful when the recombinant DNA system containing the MBP-*spd4* gene fusion was successfully generated, and the protein was successfully purified using this system. This enzyme will provide insight into the further Sporidesmin biosynthetic pathway and our interest in its functionality as a general halogenation biocatalyst in drug discovery.

Comparison of Secondary-Structure Prediction Programs Based on Accuracy

Student Author(s): Sydney Thompson, Senior (Biochemistry)

Faculty Mentor(s): Prashanti Manda (Bioinformatics)

RNA secondary-structure prediction programs are an important tool within RNA research in understanding how viruses and diseases interact with the human body. RNAstructure, ContraFold, RNAFold, and LinearFold are the four most-cited of these tools. Here, we compare and evaluate these four programs based on a set of criteria: accuracy, time from input to output, and ease of use to determine the best software for new researchers. Each tool was tested with the RNA nucleotide sequence and the default parameters of said tool with no modifications or toggling of the controls available. The structures predicted by each of the algorithms were compared to experimentally-confirmed structures from RNACentral to determine the overall accuracy of each algorithm. Ease of use is determined by several factors including documentation, resources to use to help, and the accessibility of the original creators of the program for troubleshooting. These evaluations took place using 12 different species: *Homo sapiens*, *Sarcophilus harrisi*, *Gallus gallus*, *Amazona collaria*, *Notechis scutatus*, *Plestiodon fasciatus*, *Drosophila melanogaster*, *Drosophila willistoni*, *Pelobates cultripes*, *Ptychadena mascareniensis*, *Danio rerio*, and *Coregonus clupeaformis*. From these species, 20 samples with secondary structures found by physical means such as NMR spectroscopy were sourced in order to test how or if the accuracy of these programs diverged based

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on the prominence of species. The algorithm most recommended based on overall accuracy and ease of access is LinearFold. ContraFold is the least-recommended algorithm at this time.

Understanding the Role of Mutualistic Bacteria in Driving Coexistence Among Legume Plants in Mesic Grasslands

Student Author(s): Milan Toomer, Senior (Biology)

Faculty Mentor(s): Kimberly Komatsu (Biology)

One of the few plant species capable of converting atmospheric nitrogen into usable nitrogen without the aid of artificial fertilizers is the legume. Legume plants have nodules on their roots, a special characteristic that allows rhizobial bacteria to convert atmospheric nitrogen into nitrogen that the plant may utilize. This study intends to investigate the effects of three legume species on the development of either the same or different legume species. It is expected that legume species that specialize on particular strains of rhizobial bacteria (*Lespedeza capitata* and *Amorpha canescens*) will inhibit each other's growth, ultimately leading to a poor survival rate. On the other hand, it is hypothesized that the specialist species will be able to survive when paired with a generalist species (*Lupinus perennis*). Twenty-five replicates of each pairwise permutation of our three legume species (N=9 permutations; N=180 total plants) were planted in a greenhouse experiment to examine the interaction between plants. We found that below-ground biomass of *Amorpha* (specialist) was greater when grown with *Lupinus* (generalist) than with its own species or *Lespedeza* (specialist). Overall, our results have implications for co-existence among legume species in grassland ecosystems.

Effects of Psychosocial Predictors on Female Adolescents' Daily Physical Activity

Student Author(s): Alexa Villarreal, Senior (Public Health Education)

Faculty Mentor(s): Jaclyn Maher (Kinesiology), Jessica Dollar (Kinesiology)

Despite the benefits of physical activity (PA), many adolescents, especially girls, do not meet the daily 60-minute PA recommendation, with the interplay between individual intentions, social support, and daily PA underexplored. This study investigated how adolescent girls' (n=66, ages 12-18) daily PA intentions and perceived social support from family, friends, and teachers influenced their PA levels. Over 28 days, participants received two daily questionnaires assessing morning PA intentions and evening social support and PA levels. Results from a linear multilevel model revealed a significant interaction. On days when girls reported higher social support for PA than usual, the association between their intentions and actual PA was weaker, compared to days when girls reported less social support than usual ($\beta = 0.01$, $p = 0.04$). This underscores the complex dynamics between intentions, social support, and PA, emphasizing that efforts aiming to increase PA in adolescent girls should consider developing intervention programs adaptive to their needs in the context of their daily lives.

ABSTRACTS

The Art of Letting Go: A Journey Through Grief and Loss

Student Author(s): Jennifer Visser, Senior (Nursing)

Faculty Mentor(s): Gabriel Montague (Nursing)

For the showcase, this project delves into the profound and intricate realm of storytelling, focusing on the theme of grief as a central narrative element, explored through seven different short stories. Every story is based on personal experiences interspersed with fiction and will include topics such as loss of a parent, relationships, and coming to terms with personal illness. Grief, a universal human experience, manifests in various forms and intensities, creating a rich tapestry of emotions and coping mechanisms. This exploration aims to unravel the ways in which diverse stories navigate the depths of sorrow, loss, and resilience. The project also delves into the therapeutic potential of storytelling, highlighting how narratives can serve as a mirror to human emotions, fostering empathy, and offering solace to those grappling with grief. Through an interdisciplinary approach, this project aims to shed light on the multifaceted nature of grief in storytelling, emphasizing its power to connect, heal, and illuminate the human experience.

STEM Enrollment Gaps by Race/Ethnicity and Gender before and after the COVID Pandemic: Evidence from North Carolina Public Colleges and Universities

Student Author(s): Kendal Walker, Sophomore (Mathematics & Statistics)

Faculty Mentor(s): Dora Gicheva (Economics)

STEM undergraduate enrollment, defined as the number of STEM undergraduate courses completed, directly correlates to higher wage rates and employment rates upon graduation (Even et al., 2023; Krutsch & Roderick, 2022; (Ganley et al., 2017); however, female students earn only a quarter of all technology, engineering, and mathematics degrees (Beede et al., 2011; OECD, 2017; Delaney & Devereux, 2019), while Black and Latina/o students declare STEM majors as often as White and Asian students but switch out of STEM majors more often than White and Asian students (Xie et al., 2015; Riegle-Crumb et al., 2019). To address gender and racial gaps in STEM undergraduate enrollment, we need to understand their prevalence, but the literature currently lacks up-to-date evidence. Lacking answers, we asked the following research question: have gender and racial gaps in STEM undergraduate enrollment shifted post-pandemic? With transcript-level data from four-year and two-year North Carolina undergraduate institutions, we compare pre-pandemic and post-pandemic STEM undergraduate enrollment data for six demographics: women, men, Black, Hispanic, White, and Asian students. We calculate the average percentage by which post-pandemic STEM undergraduate enrollment has shifted from pre-pandemic STEM undergraduate enrollment for each demographic group to determine STEM undergraduate enrollment gaps by gender and race post-pandemic.

ABSTRACTS

Virtual Couture: Redefining Fashion in Gaming to Reduce Environmental Impact

Student Author(s): Tammy Wang, Senior (Consumer Apparel & Retail Studies)

Faculty Mentor(s): Jin Su (Consumer, Apparel, & Retail Studies)

The fashion industry faces significant environmental and ethical challenges, prompting a paradigm shift towards sustainability and innovation. Traditional fashion production contributes to environmental degradation, but digital fashion emerges as a green and cost-effective solution. This presentation introduces a groundbreaking concept: "League of Fashion," a transformative initiative merging digital fashion, gaming, and sustainability. By leveraging 3D printing and textiles, virtual chic becomes a viable alternative. The initiative draws inspiration from the frustration of discarded fashion sketches, redirecting that passion into the virtual universe of League of Legends. The "League of Fashion" initiative empowers fashion students, providing them with opportunities to design virtual fashion lines for in-game skins, reducing the industry's reliance on mass-producing real-life apparel. Cosplayers in the digital world play a pivotal role, incorporating sustainability through digital outfits that transcend the limitations of physical garments. Driven by a deep-seated commitment to environmental impact, this presentation aims to address the constant demand for new champion skins in League of Legends. The project envisions a future where fashion students seamlessly blend their passion for fashion and gaming, contributing to a more sustainable industry. This presentation seeks to revolutionize the fashion landscape through a harmonious blend of creativity, technology, and sustainability.

An Eye-Tracking Study of News Headline Reading After Reading Fake News Corrections

Student Author(s): Bayley Wellons, Post Baccalaureate (Psychology)

Faculty Mentor(s): Chris Wahlheim (Psychology)

Fake news exposure can cause inaccurate memories and beliefs about information, creating a need for effective fake news corrections. Recent studies have shown that using reminders of fake news before issuing corrections increases memory and belief accuracy. The present study replicated the benefits of fake news reminders and investigated the correlations between eye movements, fake news corrections, and memory and belief accuracy. Subjects' eyes were tracked across three experiment phases. In phase 1, subjects read real and fake news headlines and rated their familiarity with each headline and the accuracy of each headline. In phase 2, subjects read headlines on the same topics from phase 1 that were corrected with one of three correction methods. In phase 3, subjects read the same real and fake headlines from phase 1. They rated the accuracy of each headline and their memory for whether each headline was corrected in phase 2. Headlines corrected using fake news reminders were associated with the greatest change in belief and strongest memory for correction. We predict that headlines corrected using reminders will show more fixations and longer dwell time on their critical details in phase 2 compared to headlines corrected with other methods.

ABSTRACTS

Eragrostis Tef Seed Extracts Show an Ability to Modulate Important Human Immunological Mechanisms

Student Author(s): Eric Whisnant, Post Baccalaureate (Biology)

Faculty Mentor(s): Ayalew Ligaba-Osena (Biology)

Phytochemicals were extracted from various E. tef seed cultivars to evaluate their ability to modulate important immunological pathways. Seeds were ground and phytochemicals were extracted. Antioxidant activity was assessed using a glutathione (GSH) assay after treating THP-1 monocytes with E. tef extracts. To the best of our knowledge, this research is the first to study the endogenous antioxidant activity of E. tef extracts using a physiologically relevant cell model. Bioactive tef varieties were analyzed via mass spectrometry, which uncovered several candidate compounds that are potentially involved in the observed endogenous antioxidant activity. We are currently screening 81 unique tef genotypes for immunological activity and will purify varieties that express the highest bioactivity.

Climate Change and the Longleaf Pine Savanna: Effects of Freshwater and Saltwater Inundation on Schizachyrium scoparium Leaf Characteristics

Student Author(s): Miranda Williams, Senior (Biology), Cayden Hattaway, Senior (Environment & Sustainability Studies)

Faculty Mentor(s): Sally Koerner (Biology)

The longleaf pine (LLP) savanna is a highly biodiverse ecosystem native to the Southeastern United States that has been reduced to three percent of its original extent due to fire suppression and land use changes. Efforts to restore the LLP savanna often focus on the understory grass species that contribute significantly to overall ecosystem functioning. However, climate change threatens restoration efforts through the intensification of weather events such as hurricanes and tropical storms. To determine how these extreme weather events impact the understory of the LLP savanna, we are studying the effects of freshwater and saltwater inundation on *Schizachyrium scoparium*, or little bluestem, an understory grass species commonly found in this ecosystem. In September 2023, 240 plugs were planted, and a portion of individuals were inundated with either freshwater or saltwater for a week to simulate the effects of heavy precipitation and storm surge. The plants were drained over the course of a week and continued to be regularly watered. We have taken measurements of each plant's maximum leaf length, leaf thickness, and stress level nearly every week since planting, and specific leaf area (SLA) measurements will be taken during harvesting. Based on our preliminary findings, we expect to see maximum leaf length over time to, post inundation, increase at a higher rate in freshwater than control plants and decrease for saltwater plants. We expect plant stress over time and SLA to correlate strongly with rates of leaf growth.

ABSTRACTS

These measurements may correlate to higher photosynthesis rates and better overall plant health.

The Importance of Mangroves & Why We Need Them for Our Ecosystem

Student Author(s): Nissa Williams, Sophomore (Kinesiology)

Faculty Mentor(s): Jessica Abell (Residential Colleges)

Mangroves are an amazing and magical “hidden gem” to the earth, as you have beautiful tropical trees above, and many different animals that take refuge here as well. However, these mangroves are very essential to our world and tropical ecosystems. I am interested in this topic because I feel like mangroves can be heavily overlooked in our world, especially with how big of an impact they provide for us. Every day they face grave danger, as our increase in global warming is raising our sea levels, damaging these important homes. I love to learn about how our world is doing, and all the lovely places and little ecosystems that give our planet meaning and life. All of the sources I will be using are secondary sources, one being “The Importance of Mangroves” by the Nature Conservancy. This source will be good because it focuses on the Florida Mangroves. In conclusion, I know that I will be able to further my knowledge on mangroves, however this could affect the readers in a more positive way, as they may learn a lot about mangroves that they have never learned before, and that is my end goal.

Werewolf Media and It’s Uninspiring Box

Student Author(s): Artaveon Woodson, Sophomore (Theatre)

Faculty Mentor(s): Will Dodson (Residential Colleges)

In many regions of the world werewolf mythology can be found in its history even in locations where wolves were not present a were-creature myth of some kind could be found. This wide reach of werewolf mythology has created an abundance of interpretations for these creatures. Despite this, many mainstream stories surrounding this creature never seem to use this variety to their advantage. Instead, they stick to this idea of werewolves being bloodthirsty monsters who slaughter whatever enters their path. These creatures are considered “true werewolves” and any deviation from this path can be frowned upon. This reliance on a singular definition is limiting as the werewolf is a creature with a great literary value that when expanded upon by using its previous incarnations as a baseline can lead to newer ways of writing this well-known myth. By using books that researched the topic like *The Nature of the Beast: Transformations of the Werewolf From the 1970s to the Twenty-First Century* by Carys Crossen, examining stories that these werewolves are featured in, and observing public opinion on werewolf criteria I can show the disservice in preventing those to be shown as well. More diverse werewolf fiction will allow more stories of triumph over obstacles and learning to live with all parts of you rather than the usual story of a man falling to their primal urges.

How Does Pop-Culture and Media Skew Our Ideas of Romantic Relationships?

ABSTRACTS

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Student Author(s): Zlon York, Junior (Human Development and Family Studies)

Faculty Mentor(s): Will Dodson (Residential Colleges)

Sleeping beauty like many other princesses were saved by their knight in shining armor. Falling in love was easy, love at first sight if you believe in it. Many young people grew up believing that they would be either be the knight or the damsel in distress and that someone would come and save them all in the name of love, but that's not the case. Cultural and societal beliefs about romantic relationships in America are due to the media and pop culture that we ingest. The article by Tran, R. (n.d.). "Media romances skew real-world relationship standards", ultimately discusses how tv shows, social media and some statistics from experts have evaluated the truth about romantic relationships to be shown with rose-colored glasses and that these things heavily influence the younger generations. I am interested in this topic because it allows me to make connections on how our societal and pop culture influences our dating and romantic relationship development. I believe this issue matters because we are in an era where the sexes have two different ideals on romantic relationships, one sex is leaning more conservatively, and the other is leaning liberally making a distinct separation on values.

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To learn more about participating in NC DOCKS, contact Lee Phillips, URSCO Director.

BOOK INFORMATION

Cover Design



Laura Hernandez

Major: BFA - Studio Art, concentration in Painting

Graduation: May 2024

Artist Statement: *I am an undergraduate student studying in the field of Studio Arts. I am a painter that likes to create symbolic artwork's that represent an individual's experiences and emotions that are tied within one's memories.*



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