



Concord University
The 15th CU Research Festival

April 12, 2024

Jean and Jerry L. Beasley Student Center
State Room and Ballroom

The 14th CU Research Festival

Schedule of Events

Friday, April 12

Student Center - State Room

9:00 AM Welcoming and Opening Remarks in State Room

(coffee and refreshments available)

9:10 - 11:45 AM Student Paper (Oral) Session in State Room

12:00 PM Introduction of the Keynote speaker: Dr. Karen Griffiee

Keynote Address: Dr. Erik Augustson

"Mary Shelly's Frankenstein: Why Making Your World
More Complicated Might be a Good Thing"

Student Center - Ballroom

12:00 - 3:00 PM Graduate and Professional School Fair

1:00 - 2:30 PM Student Poster Session in Ballroom

2:30 PM Tik Tok Party in Ballroom



Dr. Erik Augustson

*Clinical Psychologist & Vice-President of Programs
Foundation for a Smoke-Free World*

Dr. Erik Augustson has a PhD in Clinical Psychology from the University of New Mexico and completed a subsequent postdoctoral fellowship in Behavioral Medicine from the University of Alabama at Birmingham Medical School. In addition, he completed a second postdoctoral fellowship with the National Cancer Institute/ National Institutes of Health where he received a Masters in Public Health with a focus on Epidemiology and cancer prevention. Erik has made significant contributions throughout his career within academic, clinical medicine, federal government, and private sectors. For the past two decades, he has sought to increase the impact of population-level/public health interventions within domestic and international settings. This includes developing and leading the large-scale U.S. Department of Health and Human Services mobile health and behavior change program, the Smokefree.gov initiative. He currently serves as the Vice President of Programs at the Foundation for a Smoke Free World where he oversees funding of research and education grants, largely in low and middle-income countries.

Paper Session • State Room • 9:00 AM - 11:45 AM

9:10 AM

Exploration of a Potential Remnant Old-Growth Deciduaous Forest in Flat Top, WV
Andrew Trump and Dr. Tom Saladyga

Due to their unique qualities, habitats, and environmental benefits, old-growth forests deserve preservation despite their scarcity in eastern North America. The main objective of this project is to determine whether a section of forest in Flat Top, WV is a remnant stand of old-growth forest. We cored and measured trees for DBH in a 15 m radius plot, and we measured CWD along the 6 transects. 105 live and 17 dead trees were measured, an overall average of 205.2 m3/ha was calculated, old-growth characteristics, such as microtopography, gnarly limbs and bark, and a vertically heterogeneous canopy, were present throughout the study area, and the oldest tree as of yet dates to the 1830s. In the coming weeks, the 12 remaining trees will be cored and analyzed in the same manner since weather conditions and time constraints have prevented us from coring and analyzing all 24 trees.

9:23 AM

Fire Chronology of a Mixed Pine-Oak Forest at Kanawha State Forest
Madison Cornett and Dr. Tom Saladyga

Fire is an important aspect of the health of mixed pine-oak forests within the Appalachian region. Small-scale frequent fires have promoted diversity in these forests for centuries, however, suppression of fire since the early twentieth century has caused mesophication of mixed pine-oak forests. In this study, 33 samples of cross-sections of various pine species were collected from Kanawha State Forest. Twelve of these samples were sanded, crossdated, and scanned to record drought and fire years. The recorded fire years were then used to create a fire chronology of the sites. The fire chronology will highlight prominent, reoccurring fire years from the twelve samples. The results of this study will be compared to another study at Kanawha State Forest. This research will be continued through the fall semester to crossdate all 33 samples to create a larger fire chronology.

9:36 AM

Does Birth Control Heighten Anxiety and Depression?
Csayja Barber-Whitelow and Dr. Jill Nolan

In 2023, there has been little research done between hormonal contraception and its influence on mental health, though it has been prescribed since the 1960s. As 65% of women use a form of birth control, I would like to see if this could be a factor to why women are twice as likely to be diagnosed with an anxiety disorder compared to men, and if it is a factor why there are approximately 12 million women experience clinical depression each year. I hypothesize that hormonal contraception does heighten anxiety and depression in individuals. To support my hypothesis, I will analyze and compare individuals' forms of contraceptives along with having the participants complete an online anxiety and depression test. I am expecting to see heightened levels of anxiety and depression in individuals who take the form of hormonal contraception, over individuals who do not take any hormonal contraception.

10:00 AM

Impact of Inclusion: LGBTQIA+ Works in American Literature Courses at Appalachian Universities
Holly Graham and Dr. Michelle Gompf

Recently the debate for inclusive curriculum has surged across the United States with some states mandating LGBTQ+ inclusive curriculum and others creating laws specifically prohibiting it. This paper examines the impact of inclusive curriculum on students in the community and, more specifically, how professors of American literature classes might play a role in making college campuses safer and more comfortable for LGBTQ+ students by creating more inclusive syllabi. To determine if LGBTQ+ literature has been excluded from American Literature courses, I

Paper Session • State Room • 9:00 PM - 11:45 AM

compiled syllabi from various colleges in Appalachia that will remain unnamed to protect the privacy of the faculty at those institutions. After compiling a list of the texts on the syllabi and drawing from previous research on why inclusive curriculum is important for LGBTQ+ students, I formed an argument encouraging those who create syllabi to be mindful of who they are excluding from their reading lists.

10:13 AM

Perspectives: Vietnamese American Narratives, A Collective Voice
Grace King and Dr. Tina Powell

Refugees are seen through an unfavorable lens, especially those as a result of the Vietnam War. The war in Vietnam created a connection between the United States and Vietnam bound by war and the consequences thereof. This article analyzes the memories of the Vietnam War from two narratives. Ly Le Hayslip and Lan Cao are contemporary authors, who share their personal experiences and struggles. Scholars criticize Cao's book for historical fictional aspects, since these scholars prefer an autobiographical narrative that shares her experiences from the exodus of war. Hayslip and Cao's narratives capture the collective voices of refugee's experiences. These refugee narratives show displacement and loss of identity through powerful expressions of rhetoric and thematic practices based on their own refugee experiences.

10:26 AM

Environmental Narratives Changing Public View
Taylor Glancy and Dr. Tina Powell

Literature can be used to change a person's mind, and it can be done in many ways. Environmentalists are no different in their pursuit to influence society. Environmentalism is an area of literature in which the environment is the central focus of the narrative. This study focuses on a few authors and their methods to convince the public that nature needs to be conserved.

10:39 AM

Music & Anxiety
Katelyn Fitzwater and Dr. Manjunath Burdekar

This study will be focused on the effects of music on anxiety. The goal of this study is to determine whether music can help reduce anxiety levels, especially in college students. The study will be conducted by having two groups of college students completing a puzzle. One group will listen to music while they complete the puzzle, and the other group will not. After this, they will complete the State-Trait Anxiety Inventory (STAI). The group that did not listen to music will act as the control group which will allow us to compare the scores of the control group and the group that listens to music to see if there is a change in their anxiety.

11:00 AM

Active Hexose Correlated Compound Modulates the Cytokine Production of Cold-Stress during Chlamydia muridarum Genital Infection
Kristen Rolan and Dr. Tesfaye Belay

The influence of stress on the pathogenesis of Chlamydia trachomatis genital infection remains unexplored. Cold-induced stress (CIS) suppresses the immune system and leads to increased intensity of Chlamydia muridaum in mice. We feed mice with active hexose correlated compound (AHCC) that may restore the function of the immune system and reduce C. muridarum shedding from the genital tract. The specific functions of dendritic cell subsets in our stress model are not defined. We determined the production of cytokines by macrophages, DCs, and CD4+T cells in the AHCC-fed stressed mice by ELISA. AHCC-feeding led to lower production of IL-13, IL-10 and higher IL-12 and IFN-???. AHCC-feeding to stressed and non-infected mice showed a similar pattern of cytokine production to.

that of infected mice. Overall, we have observed AHCC-feeding leads to enhanced Th1 and Th2 cytokine production. Overall, AHCC-feeding did not discriminate the production of Th2 cytokines suggesting further studies are warranted.

11:13 AM

Testing Generative-AI's Ability to Complete Introductory Computer Science Assignments
Adrian Spaulding and Mr. Lonnie Bowe

In the past year, there has been an influx in publicly available generative AI models. These models, called Large Language Models (LLMs), are trained on publicly given or found data and are often unable to cite sources, meaning they are subject to potential plagiarism. These models have the ability to answer academic questions and generate computer code. They can be used by students to participate in behaviors that are considered academically dishonest. ChatGPT is a well known LLM. This project focuses on ChatGPT's ability to solve problems from introductory computer science courses using projects given at Concord University. The project assesses ChatGPT's successes and failures and provides suggestions on how educators can design their assignments to resist these models.

11:26 AM

Self-Care Through Creativity: Turning Anxiety into Art
Destiny Endicott and Dr. Manjunath Burdekar

Art therapy is a growing field that focuses on improving quality of life through creative means. Research provides various types of art therapy that can significantly reduce levels of anxiety and depression. However, there is little research on whether certain art mediums alleviate anxiety more so than others. By conducting an experiment involving undergraduate college students as participants, I will examine the effects of different art forms on anxiety. Possible implications of future research could suggest the involvement of certain art making styles in contexts that can be more beneficial to individuals and society.

11:39 APM

Social Buffering: The Effects of the Presence of Another Person on the Participant's Heart Rate
Matthew Lester and Dr. Rodney Klein

Social buffering is the reduction of stress responses experienced by an individual while another individual is present. This reduction varies based on the relationship between the individuals. I used a horror video game to induce stress in the participants and measure their heart rate while they played. I hypothesize that the participants playing the horror video game with a friend will have lower heart rate variability than the participants who play the horror video game with a stranger or while alone. This research can help us understand how our social relationships can affect our physiological stress responses and how the presence of others can benefit us during stressful situations.



- Concord University**
- Masters of Business Administration
- Masters in Health Promotion
- Masters in Athletic Training
- Masters in Social Work
- Physician's Assistant Program

Edward Via College of Osteopathic Medicine

Radford University

University of Charleston

Virginia Tech University

West Virginia School of Osteopathic Medicine

West Virginia State University

West Virginia University



Poster Session • 1 - 2:30 PM

1	Characterization of CD4+ t-cell subsets in a stressed mouse model during Chlamydia muridarum genital infection	Katrina Davis and Dr. Tesfaye Belay
2	"Most Riotous Town of the Eighteenth Century": The Impact of Violence in Massachusetts on the American Revolution	Holly Graham and Dr. Jonathan Berkey
3	Using Computer Vision and Bluetooth Peripherals to Solve the Rubik's Cube	William Jackson and Lonnie Bowe
4	3D Protein Project: human Fibrinogen-like protein 1	Madison Addair, Dr. David Chambers, and Rafael Castaneda-Saldana
5	Variations in the Microbiome of Drinking Water at Concord University	Josie Crawford, Sydney Phipps, And Dr. Kim Cahmbers
6	Effects of Microtubule-Targeted Drugs Within Mammalian Cells	Josie Crawford, Nicole Rutherford, and Dr. Kim Chambers
7	The Effects of Soil pH on the Germination Rate of the Plant Species Brassica rapa and Tegetes erecta	Lucas Doss and Dr. Douglas Creer
8	Exploring the Coupling Reaction to make a Bio-active Natural Product	Sierra Lilly and Dr. Young B. Kim
9	Effects of Music on Perception	Trey Comer and Dr. Rodney Klein
10	Capabilities of American Colonial and British Forces at the Battles of Lexington and Concord	Jon Hill and Dr. Jonathan Berkey
11	How melatonin negatively impacts the human body	Austin Amtower, Dr. Jill Nolan, and Dr. Kelli Mann
12	The Effect of Poor Education on American Students & What Is Being Done About It	Taylor Eversoll and Dr. Stephen Pridgen
13	Beta-2 Adrenergic Receptor Deficiency in a Stress Mouse Model Leads to a Reduced Organ Load of Chlamydia muridarum in the Genital Tract	Cydney Vineyard and Dr. Tesfay Belay
14	Cultural Competancy	Shannon Phipps, Marin Fiddler, and Dr. Martha Snider
15	The Effects of Bisphenol B in the Environment	Kylee Stacy and Dr. Darla Wise
16	The effects of Bisphenol B on a monocot plant	Kylee Stacy and Dr. Douglas Creer

Poster Session • 1 - 2:30 PM

17	Kaiju Simulator	Brooke Cline, Logan Brooks, Sean Fannin, Jade Hudgins, Colton Lane, Adrian Spaulding, and Lonnie Bowe
18	Sonic Hedgehog Protein	Sarah Angell and Dr. Rafael Castaneda-Saldana
19	Transfecting Constructed Recombinant Plasmid into Mammalian Cells to Aid in Observing Effects of Microtubule-Targeted Drugs	Kendra Karnes, Reese Turner, and Dr. Kim Chambers
20	Analyzing Temperature Effects on Lower Extremity Muscular Performance	Michael Dupont, Dr. Douglas Creer, and Dr. Jill Nolan
21	Measuring Empathy	Morgan Coulter and Dr. Rodney Klein
22	Long-Term Birth Control Usage on Conception	Hope Arthur, Dr. Jill Nolan, and Dr. Kelli Mann
23	The Effect of the Hofmeister Series of Sodium Salts on the Thermodynamics of Caffeine Partitioning	Kendal Bliss and Dr. Rodney Tigaa
24	Antimicrobial Effects of Natural Compounds in Garlic and Turmeric on Three Pathogenic Bacteria	Allison Dunbar and Dr. Douglas Creer
25	Antimicrobial Effects of Active Compounds in Garlic and Turmeric on Three Pathogenic Bacteria	Allison Dunbar and Dr. Douglas Creer
26	Role of Cxcl12a on habenular axon projection in Danio rerio	Elizabeth Warner and Dr. Sara Roberson
27	Does Fibromyalgia Effect Muscle Fatigue?	Madison Bohan, Dr. Jill Nolan, and Dr. Kelli Mann
28	Effects of Physical Activity on Memory	Madison Dye and Dr. Rodney Klein
29	What topics do the Federalist Papers Prioritize?	Abby Stovall and Dr. Jonathan Berkey
30	Bonfire Security Anti-Malware	Caleb Scott, Brady Ellison, Jared Grubb, Dylan Long, Jacob Mullins, and Lonnie Bowe
31	3D Protein Project: Glyceraldehyde-3-phosphate dehydrogenase	Taylor Glancy and Dr. Rafael Castaneda-Saldana
32	Evaluating cannibidol (CBD) expectancy on acute stress and anxiety in healthy adults	McKenna Wrobel, Dr. Kelli Mann, and Dr. Jill Nolan

Poster Session • 1 - 2:30 AM

33	Affects of Magnetism on Plant Growth	Malerie Hendrick and Dr. Douglas Creer
34	Exploring for Rare-Earth Elements in Coal from the Beckley Exhibition Coal Mine	Andrew Trump, Andrew Boehler, Colton Lane, and Dr. Stephen Kuehn
35	ACL Prevalence in Different Genders	Chase Dotson, Dr. Jill Nolan and Dr. Kelli Mann
36	Expression of Chemokine Ligands cxcl12a and cxcl12b in the Habenular Region in Danio rerio (zebrafish)	Amber Thomas and Dr. Sara Roberson
37	The Mental Part in Sports	Kevin Howard and Dr. Jill Nolan
38	3D Printing Project: Hemoglobin	Serenity Brooks and Dr. Rafael Castaneda-Saldana
39	Game Development - Unreal Engine 5	Gene Weatherly and Lonnie Bowe
40	The Effects of Coloration in Backward Masking Procedures on Iconic Memory	Destiny Endicott and Dr. Rodney Klein
41	Tetracycline Antibiotic Resistance in Soil Samples	Lia Jennings, Dr. Darla Wise, and Dr. Douglas Creer
42	Xylitol as an Oral Health Aid	Sidney Karnes, Dr. Jill Nolan, and Dr. Kelli Mann
43	Using 3D Printing to Enhance Learning	Sidney Karnes and Dr. David Chambers
44	Effects of Isotopic Substitution and Molecular Structure on Stretching Frequency	Kayla McCraw and Dr. Rodney Tigaa
45	Factors Affecting Parasite Load in Northern Dusky Salamanders	Kayla McCraw and Dr. Douglas Creer
46	3D Protein Project: p53 Protein	Skyler Mounts and Dr. Rafael Castaneda-Saldana
47	Transfection of Cells Expressing GFP-human- α -tubulin Fusion Protein	Amelia Muscari, Skyler Mounts, and Dr. Kim Chambers
48	3D protein printing: 1mpe	Amelia Muscari, Dr. David Chambers, and Dr. Rafael Castaneda-Saldana
49	The Effects of Different Salinity Concentrations on the Germination Process of the Beach Sunflower (Helianthus Debilis)	Sean Monro, Dr. Douglas Creer, and Dr. Darla Wise

Poster Session • 1 - 2:30 AM

51	WDS Performance Investigation of New Ge Crystal	Hunter Midkiff, Andrew Thymius, Serentiy Shrewsbury, Gene Weatherly, and Dr. Stephen Kuehn
52	Microwave Synthesis of Carbon Quantum Dots from Citric Acid and Urea and their Fluorescence Tuning	Hunter Midkiff and Dr. Rodney Tigaa
53	Testing Microtubule Drugs with GFP and Alpha-Tubulin in Mammalian Cells	Jasmine Palmer, Chloe Lee, and Dr. Kim Chambers
54	Progression of Long-Term Complications in Insulin-Dependent Diabetes Mellitus	Tyler Watson, Dr. Kelli Mann, and Dr. Jill Nolan
55	Shoulder ROM & Strength and its Relationship with Arm Injuries in Baseball Players	Christopher Satcher and Dr. Douglas Creer
56	3D Protein Project: Tumor-infiltrating Lymphocytes	Kaitlyn Copley and Dr. Rafael Castaneda-Saldana
57	The Effect of Music on Memory	Katelyn Fitzwater and Dr. Rodney Klein
58	Characterizing Solar Cell and Observing the Performance under Different Lighting Conditions	Ciersten Rose and Dr. Rodney Tigaa
59	Microtubule Observation After GFP Transfection	Logan Williams, Riley Bowyer, Malerie Hendrick, and Dr. Kim Chambers
60	3D Protein Project: Insulinase	Katelyn Hall, Dr. Rafael Castaneda-Saldana, and Dr. David Chambers
61	Mental Health Affects on Physical Health	Taylor Leach, Dr. Jill Nolan, and Dr. Kelli Mann
62	Examining a Microtubule-Targeting Cancer Treatment using GFP tagged α -Tubulin Plasmid in Mammal Cells	Dakota-Jack Spurgin, Zoey Snider, and Dr. Kim Chambers
63	Effect of Exogenous Gibberellic Acid on Ambrosia Corn Germination	Dakota-Jack Spurgin and Dr. Douglas Creer
64	Testosterone Replacement Therapy in Post-Menopausal Women to Delay Osteoporosis	Dakota-Jack Spurgin and Dr. Jill Nolan
65	CU Students' Sense of Belonging and the Impact of Social Support	Caroline Telano and Dr. Rodney Klein
66	The Mozart Effect	Luke Ruhnke and Dr. Rodney Klein

Poster Session • 1 - 2:30 AM

67	The Influence of Social Media on Body Image and Mood	Leah Fleming and Dr. Jill Nolan
68	Human Cardiac Myosin II and Associated Essential Light Chain	Brooklyn Gibson and Dr. Rafael Castaneda-Saldana
69	The Basic Stroop Effect	Emma Ring, Morgan Coulter, and Dr. Rodney Klein
70	The Effect of Exercise on Stress	Emma Ring and Dr. Rodney Klein
71	Examining the Relationship Between Education Level and Sunscreen Use	Kayton Perkins, Dr. Jill Nolan, and Dr. Kelli Mann
72	3D Protein Project: Red Fluorescent	Danielle Midkiff, Dr. David Chambers, and Dr. Rafael Castaneda-Saldana
73	Isolation and Identification of Breast Cancer Stem Cells Using Cell Surface Markers	Sydney Phipps and Dr. Jill Nolan
74	Analysis of Computational Chemistry Utilizing Avogadro in Comparison to Infrared (IR) and Nuclear Magnetic Resonance (NMR) Spectroscopy	Serenity Shrewsbury and Dr. Rodney Tigaa
75	Pulse In The Melody	Levone Stephens and Dr. Jill Nolan
76	How do personality traits influence individuals' social media usage patterns and behaviors?	Madison Sears, Kylee O'Dell, and Dr. Rodney Klein
77	The Impact of Clinical Diagnoses on the Halo and Horn Effects	Sarah Linkous and Dr. Rodney Klein
78	Troponin: Function and Structure	Nathan Kessler and Dr. Rafael Castaneda-Saldana
79	The Relationship Between Adolescent Sport Participation and Adult Physical Activity	Kacie Shaffner, Dr. Kelli Mann, and Dr. Jill Nolan
80	Predicting Electronic Properties of Benzoic Acid Derivatives through Molecular Modeling	Andrew Thymius and Dr. Rodney Tigaa
81	Microwave-Assisted Diels-Alder Reactions with Varying Solvent Conditions	Andrew Thymius and Dr. Rodney Tigaa
82	3D Protein Project: Pembrolizumab	Paul Wolford, Dr. Rafael Castaneda-Saladana, and Dr. David Chambers
83	Screen Time and It's Effects on Cognitive Memory	Megan Walker and Dr. Rodney Klein
84	The Role of Extracurricular Activity Involvement in the Social Outcomes of Adolescents with and without ADHD	Taylor Brown and Dr. Rosanna Breaux

Poster Session • 1 - 2:30 AM

85	3D Protein Project: Lysozyme	Katy Walkup, Dr. Rafael Castaneda-Saldana, and Dr. David Chambers
86	Is Lyme Disease More Prevalent in Rural West Virginia?	Aaron Turner, Dr. Jill Nolan, and Dr. Kelli Mann
87	3D Printing Project: Ferritin	Zoey Snider, Dr. Rafael Castaneda-Saldana, and Dr. David Chambers
88	Context of Color on Memory	Allison Fitzwater and Dr. Rodney Klein
89	3D Protein Project: Clumping Factor B	Madison Hollis, Dr. Rafael Castaneda-Saldana, and Dr. David Chambers
90	Are Concord University students aware of the local resources available to help prevent and deal with mental health issues?	Cassandra Johnson and Dr. Rodney Klein
91	Analyzing Differences in Exercise Outcomes Between Individual and Organized Groups	Megan Tanner, Dr. Jill Nolan, and Dr. Kelli Mann
92	Role of Myoglobin	Isaac Shafer, Dr. Rafael Castaneda-Saldana, and Dr. David Chambers
93	3D Protein Project: Uncomplexed Actin	Andrew Pettry, Dr. Rafael Castaneda-Saldana, and Dr. David Chambers
94	3D Protein Printing: MUC1	Sidney Karnes, Dr. Rafael Castaneda-Saldana, and Dr. David Chambers



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