UGRADRESEARCH.UCONN.EDU/FALLFRONTIERS2021

UNDERGRADUATE RESEARCH HYBRID EXHIBITION

Welcome

to the 2021 Fall Frontiers Hybrid Exhibition! While this fall marks the return of an in-person exhibition of students' research and creative projects, it also represents the continuation of the online engagement opportunities initiated during the Covid-19 pandemic. In addition to a traditional poster exhibition at Storrs, we invited students to submit posters and short video presentations for compilation in this hybrid exhibition program. Links to those materials, hosted on the Portfolium e-portfolio platform, are included in the program alongside the individual project listings.

In addition to viewing and commenting on the projects in Portfolium, we invite you to participate in a live, online presentation session to hear from student researchers and ask questions about their projects and experiences. Details about the live session are available on page 3 of this program.

We are pleased to have this opportunity to celebrate students' ideas, questions, explorations, discoveries, and creations in multiple modalities this year.

- UConn Office of Undergraduate Research

About Frontiers in Undergraduate Research

The Fall Frontiers Poster Exhibition is a multidisciplinary forum showcasing undergraduate research, scholarship, and creative projects at the University of Connecticut. Fall Frontiers complements the longstanding spring Frontiers exhibition, providing an additional opportunity for student researchers to share their exciting work. This is the ninth fall event sponsored by the Office of Undergraduate Research (OUR) and the first held in a hybrid modality. This year's exhibition includes 45 projects shared in person and 26 shared online.

Students' projects span the disciplines. The projects presented reflect the invaluable contributions of research mentors, including graduate students, postdoctoral scholars, staff, and faculty members. We hope you enjoy learning about our students' innovative projects at this year's exhibition!

About the Office of Undergraduate Research

The Office of Undergraduate Research (OUR) is a resource for students interested in enriching their undergraduate experience through participation in research, scholarship, and creative activity. OUR provides information and advising to assist students in identifying relevant opportunities, as well as several funding programs to support students and their faculty mentors.

Many of the Frontiers presenters have received financial support for their projects; OUR awarded over $630,000 in 2020-21 in support of students' research and creative endeavors. These awards are funded by OUR with generous support from the Office of the Provost, the Office of the Vice President for Research, the deans of the schools and colleges, and donations from alumni, parents, and other friends of UConn and undergraduate research.

Acknowledgments

The Office of Undergraduate Research wishes to thank the deans of the represented schools and colleges, the Office of the Provost, the Office of the Vice President for Research, and generous donors to OUR and the Honors Program for their support of undergraduate research through contributions to OUR funding programs. In addition, we thank the following individuals for their support:

Andrew Agwunobi
Interim President, University of Connecticut

Carl Lejuez
Provost and Executive Vice President for Academic Affairs

Michael Bradford
Vice Provost for Faculty, Staff, and Student Development

Jennifer Lease Butts
Associate Vice Provost for Enrichment Programs & Director of the Honors Program

OFFICE OF UNDERGRADUATE RESEARCH STAFF

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BOLD Program Director & Advisor

Jodi Eskin
Program Coordinator & Advisor

Rowena Grainger
Assistant Director for Research & Fellowship Programs, Enrichment Programs

PEER RESEARCH AMBASSADORS

Michelle Antony ’23 (CLAS)
Poorna Balakumar ’23 (CLAS, CAHNR)
Alex Clonan ’22 (ENG)
Claire Fresher ’22 (ENG)
Kynza Khimani ’22 (CLAS)
Mahima Mehta ’22 (CLAS)
Lauren Rudin ’22 (CAHNR)
Stephanie Schofield ’23 (CLAS)
Elisa Shaholli ’23 (CLAS)
Drew Tienken ’22 (CLAS)
Humza Zaidi ’22 (CLAS)
Chloe Zampetti ’22 (CAHNR)

Event Program

IN-PERSON EXHIBITION

Wednesday, October 20, 2021 • 5:00-7:00pm

Wilbur Cross North Reading Room, Storrs

LIVE, ONLINE PRESENTATION SESSION

Friday, October 22, 2021 • 4:30-5:30pm

s.uconn.edu/ff21live

Charlotte Chen '24 (Materials Science and Engineering, ENG; Biological Sciences, CLAS)
Antibacterial Modified Silk Surfaces for Use in Urinary Catheters

Maria Katsetos '22 (Biological Sciences, CLAS)
Design and Development of Transcutaneous Glucose Sensors

Sabrina Uva '22 (Human Development and Family Sciences, CLAS)
The Effect of Anti-Racism Engagement on the Psychological Adjustment Among Emerging Adults during the COVID-19 Pandemic

Xinming Zhou '22 (Cognitive Science, CLAS)
How Prior Experience Shapes Accented Speech Adaptation

VIEWING PROJECTS IN PORTFOLIUM

The following controls are available to you when viewing projects in Portfolium.

Standard View

Fullscreen View


Student
Projects

ONLINE PRESENTATIONS

Heat Stress in Equines - Effects on Tendon Health
Katherine Bacolas '22 (Animal Science, CAHNR; Finance, BUS)
Advisor: Sarah Reed, Associate Professor, Animal Science
Supported by: OUR Supply Award
Online Materials: https://portfolium.com/entry/effects-of-leg-protection-on-equine-tendon-temp

My project measured the effects of heat stress on equine tendons. I reviewed the available literature that discussed the effects of heat stress on tendon health. Then, with the help of Dr. Reed, I conducted a filed test using blue-tooth thermometers to measure external tendon temperature of polo ponies as they were ridden during a lesson in both tendon boots and polo wraps.

A Politician's COVID-19 Approval Ratings: How Public Officials are Being Held Accountable for Their Handling of COVID-19
Kempton Campbell '23 (Political Science, CLAS)
Advisor: Matthew Singer, Associate Professor, Political Science
Supported by: SHARE Award
Online Materials: https://portfolium.com/entry/holding-politicians-accountable-for-covid-19

How will public officials will be held accountable for their handling of the COVID crisis? Will governor approval fall in states where the outbreak is largest or where the economic downturn is deepest? We have also seen some governors experience a jump in popularity equivalent to a "rally around the flag" effect as public attention focuses on their leadership, but how widespread is that? Finally, did President Trump's accountability rise or fall in states where outbreak is most widespread/the recession has been deepest?

Antibacterial Modified Silk Surfaces for Use in Urinary Catheters
Charlotte Chen '24 (Materials Science and Engineering, ENG; Biological Sciences, CLAS), Holster Scholar
Advisor: Kelly Burke, Associate Professor, Chemical and Biomolecular Engineering
Supported by: Holster Scholars Program
Online Materials: https://portfolium.com/entry/antibacterial-silk-based-surfaces

In Dr. Kelly Burke's lab, brush-like polymers have been grafted from silk surfaces, forming a structure like bristles of a toothbrush. These polymers can be modified to have both chemical properties and mechanical properties that can physically and chemically prevent bacterial adhesion and reduce bacterial viability, something that is needed in urinary catheters, which account for over 30% of all hospital acquired infections worldwide.

Visualization of Rule-Based Modeling
Chandrika Dhavala '23 (Biomedical Engineering, ENG)
Advisor: Michael Blinov, Associate Professor, Genetics and Genome Sciences
Supported by: Health Research Program
Online Materials: https://portfolium.com/entry/visualization-of-rule-based-modeling

This project aimed to create a new visualization for rule-based modeling by taking text data about biomolecules and converting them into images. It utilizes the BNGL output received from Virtual Cell to create new railroad diagrams that represent each biomolecule.

The Evolution of Manchester's Main Street
Brendon Dukett '23 (History & Political Science, CLAS)
Advisor: Fiona Vernal, Associate Professor, History
Supported by: SHARE Award
Online Materials: https://portfolium.com/entry/the-evolution-of-manchesters-main-street

This project works to explore the developmental changes and characteristics of Manchester's Main Street. Pictures of storefronts, newspaper ads, and various other primary sources work to describe the transformation of Main Street. Together, Main Street works not only to show the attitudes of a single road, but can go farther to understand the attitudes of Manchester.

Piecing Together Identities: Susan Hudson, Contemporary Quilt Art and Interrogations of Violence
Ellie Fitzgerald '22 (Art History, SFA; IMJR: Arts Administration, CLAS)
Advisor: Alexis Boylan, Professor, Art History
Supported by: SHARE Award
Online Materials: https://portfolium.com/entry/contemporary-quilt-art-and-violence

This video presentation was created for the Hunter Museum's Piecing Together Identities Spring 2021 Student Symposium. Specifically, I describe and explore the work of contemporary quilt artist Susan Hudson to demonstrate the kinds of complications and violence that the medium can address, contrary to normative, sanitized, idealized notions of quilting.

Caribbean Mosaics
Sydney Gray '22 (History & Africana Studies, CLAS)
Advisor: Fiona Vernal, Associate Proffered, History & Africana Studies
Supported by: SHARE Award
Online Materials: https://portfolium.com/entry/caribbean-mosaics

This project explored the diasporic social networks of West Indian communities in Hartford and New York between the 1930s and 1950s. My research asked what kinds of networks were adaptable and thus portable, and which networks were newly formed in the diaspora.

Inquiry into the Impact of COVID-19 on Individual Dietary Behaviors and Food Choices in Italy, Australia, and the Philippines
Jerome Jacobs '23 (Allied Health Sciences, CAHNR), Holster Scholar
Advisor: Molika Chea, Lecturer, Nutritional Sciences
Online Materials: https://portfolium.com/entry/fall-frontiers-2021-covid-19-and-nutrition

Since the COVID-19 pandemic broke out in 2019, the global population has accommodated various mandatory and voluntary regulations such as social distancing and facial mask wearing in public spaces. Due to COVID-19's physical constraints, people also have to alter ways in which we eat, cook, and do grocery shopping, resorting to using online ordering and delivery services. Therefore, I have become interested in learning more about the impact of COVID-19 on individual changes in dietary behaviors and food choices, as well as looking deeper into whether there might be any specific patterns of such behavioral changes among people from different countries or regions around the world. Therefore, I conducted this research to answer 'what are the immediate impacts of the COVID-19 pandemic on individual changes in dietary behaviors and food choices?' and 'are there any similarities and/or differences in COVID-influenced dietary behaviors and food choices among people from different parts of the world? If so, why?' I analyzed specific cases from Italy, Australia, and the Philippines to examine these questions on a global level.

Systematic Review on Health Disparity Issues in Connecticut County and U.S. Summary Reports from 2010 to 2020
Jerome Jacobs ’23 (Allied Health Sciences, CAHNR), Holster Scholar
Advisor: Keat Sanford, Pre-Medical Advisor, Office of Pre-Professional Advising
Supported by: Rowe Scholars Program
Online Materials: https://portfolium.com/entry/systematic-review-on-health-disparity-issues-in-ct

My research focuses on analyzing long-term, health disparity issues in Connecticut (CT) and in the U.S. to identify effective advocacy strategies and health policy implications. By systematically examining major trends of Health Outcomes and Health Factors, as determined in the Community Health Rankings Model by the University of Wisconsin Population Health Institute, I examined each county’s strengths and weaknesses from the CT Country Summary Reports from 2010 to 2020, and then selected three CT counties, representing different levels of health disparities. I then compared the CT data with the same measures in the U.S. Summary Reports for the last six years, focusing on what worked and what seemed to be persevering health disparity issues.

The Design of Magnetically Responsive Charge-Transfer Emission Probes to Enhance Fluorescence Guided Surgery
Samuel Johnson ’22 (Chemistry, CLAS), University Scholar
Advisor: Tomoyasu Mani, Assistant Professor, Chemistry
Supported by: UConn IDEA Grant
Online Materials: https://portfolium.com/entry/magnetic-field-effects-exploration

The goal of this project is to create affordable, organic biomedical probes based for fluorescent guided surgery (FGS). The probes will act to improve current tumor recognition in FGS by introducing a novel method to tune florescent intensity via an external magnetic field, improving contrast against background florescence.

Design and Development of Transcutaneous Glucose Sensors
Maria Katsetos ’22 (Biological Sciences, CLAS)
Advisor: Fotios Papadimitrakopoulos, Professor, Chemistry & Institute of Materials Science
Supported by: TIP Fellowship
Online Materials: https://portfolium.com/entry/development-of-transcutaneous-glucose-sensors

Some estimates rank diabetes as high as the 3rd leading cause of death in Americans. The development of the Glucowizzard™, a fully-implantable and minimally-invasive continuous glucose monitoring (CGM) device, may revolutionize the treatment of diabetes and vastly improve a diabetic's quality of life. My project entails designing, constructing, and testing the transcutaneous glucose sensors to be incorporated in the CGM device and assisting in animal trials.

Effects of Creative Movement Interventions on Restricted and Repetitive Behaviors of Children with Autism Spectrum Disorder
Avadhut Khade ’22 (Economics, CLAS)
Advisor: Sudha Srinivasan, Assistant Professor, Kinesiology
Online Materials: https://portfolium.com/pp/A25D0ABC-D6E3-4D13-9294-4FFE05773B3F

We analyzed the effect of a novel movement-based intervention for 11 children with Autism Spectrum Disorder (ASD) on repetitive and negative behaviors. Each child completed 16 sessions with early and late sessions being analyzed. Due to the onset of COVID-19, some children were seen through an online modality while some were seen face to face.

Numerical Identification of Chaos in Dynamical Nonlinear Models by using COPASI
Jennifer Kim ’23 (Biomedical Engineering, ENG)
Advisor: Pedro Mendes, Director, Center for Cell Analysis and Modeling
Supported by: Health Research Program
Online Materials: https://portfolium.com/pp/64CD3BBC-5023-4234-B5F9-A802535CFB3E

Chaos is a type of motion found in nonlinear dynamical systems that is highly sensitive to initial conditions. While many biological systems described in literature have been analyzed for the presence of chaotic dynamics, there are still many that are yet to be discovered. The strategy adopted here is based on the Shimada-Benettin algorithm to numerically calculate the Lyapunov exponent (LE) spectrum of ODE models; which is then coupled with a numerical optimization algorithm to search for regions in parameter space that have positive LEs, indicating that they contain strange attractors.

VSD Characterization Using Patch Clamp Electrophysiology
Devin Kot-Thompson ’22 (Biomedical Engineering, ENG; Spanish, CLAS)
Advisor: Corey Acker, Assistant Professor, Center for Cell Analysis and Modeling
Supported by: Health Research Program
Online Materials: https://portfolium.com/entry/vsd-characterization-patch-clamp-electrophysiology

This summer I worked with Dr. Acker on characterizing the behavior of voltage sensitive dyes. These experiments were performed using Patch Clamp Electrophysiology.

The Relationship between Pain, Obesity and Sleep in Adolescents
Sara Loniewski ’22 (Allied Health Sciences, CAHNR)
Advisor: Melissa Santos, Assistant Professor, Pediatrics
Supported by: Health Research Program
Online Materials: https://portfolium.com/entry/pain-obesity-and-sleep-in-adolescents

What is the relationship between pain, sleep and obesity in adolescents? The objective of this research project was to examine the relationship between chronic pain, sleep and pediatric obesity over time from participants of a weight management program at Connecticut Children's Medical Center in Hartford, CT.

The Role of USP11 in EMT and Fibroblast Activation in Kidney Cells
Stephanie Makowski ’23 (Molecular and Cell Biology, CLAS)
Advisor: Yanlin Wang, Professor, Medicine
Supported by: Health Research Program
Online Materials: https://portfolium.com/entry/the-role-of-usp11-in-emt-and-fibroblast-activation

I researched the USP11 protein and its role in EMT and Fibroblast Activation, which are pathways that contribute to Chronic Kidney Disease. This protein was found to upregulate these two pathways in vitro and increase in concentration in the mouse model for Chronic Kidney disease (also known as the UUO model).

Validation of Integrated Electrodermal Activity, Electrocardiogram, and Electromyography Recording System
Riley McNaboe ’22 (Biomedical Engineering, ENG; Spanish, CLAS), LSAMP Scholar
Advisor: Hugo Posada-Quintero, Assistant Professor, Biomedical Engineering
Supported by: SURF Award
Online Materials: https://portfolium.com/entry/validation-of-integrated-trimodal-device

This project seeks to validate the functionality of an integrated electrodermal activity (EDA), electrocardiogram (EKG), and electromyography (EMG) recording system. As these signals all have proven to quantify pain levels in patients, the trimodal system, consisting of a single device that captures all three signals, is designed to provide the means to better study and treat such pain. In validating the accuracy and sensitivity of the prototyped device, further work can be done to create a fully functional system.

Lubricin Delivery System via Biomimetic Nano-Matrix for Treatment of Age-Related Macular Degeneration
Avin Sapowadia ’21 (Molecular and Cell Biology, CLAS)
Advisor: Yupeng Chen, Associate Professor, Biomedical Engineering
Supported by: SURF Award
Online Materials: https://portfolium.com/entry/treatment-of-eye-disease-by-lubricin-nano-matrix

We have developed a Janus-base Nanotube (JBNT) and Lubricin nano-matrix (NM) which can stabilize lubricin for long-term function and localize (adhere) on human umbilical vein endothelial cells (HUVECs) to reduce inflammation and inhibit VEGF expression. This work is novel as this is the first time to use a JBNT NM to fabricate and stabilize the lubricin protein. This work is also significant that it lays down a foundation of developing a JBNT/lubricin NM as an effective therapeutic treatment for Age-Related Macular Degeneration (AMD).

Contingency Management Interventions for Unemployed Hazardous Drinkers
Areej Sayeed ’23 (Physiology and Neurobiology, CLAS)
Advisor: Carla Rash, Associate Professor, Medicine
Supported by: Health Research Program
Online Materials: https://portfolium.com/entry/health-research-program

Unemployment remains a significant concern in the United States, and research indicates that one-third of unemployed persons drink at hazardous levels, adversely impacting their health and abilities to find jobs. Reinforcement (or contingency management) interventions are effective in reducing substance use, and they can be applied to increase job-seeking activities as well. This study is designed to reduce hazardous drinking and enhance active participation in job-seeking activities among those with job loss. It will evaluate the independent and combined effects of reinforcing negative breathalyzer samples and job-seeking activities to identify the simplest and most cost-effective approach to improving outcomes in this population.

BTN Proteins: A Structural and Functional Review
Benson Shi ’21 (Molecular and Cell Biology, CLAS)
Advisor: Andrew Wiemer, Associate Professor, Pharmaceutical Sciences
Online Materials: https://portfolium.com/entry/btn-proteins-a-structural-and-functional-review

This project will look into the literature about BTN proteins. A structural look at dimerization and interactions between members of the BTN family will be used to understand the mechanisms behind its function. An understanding of structure and function is necessary for productive future research.

Validating Machine Learning Based Damage Prediction Models
Aaron Spaulding ’21 (Mathematics, CLAS; Electrical Engineering, ENG),
Advisor: Diego Cerrai, Assistant Professor, Civil and Environmental Engineering
Supported by: SURF Award
Online Materials: https://portfolium.com/entry/validating-machine-learning-based-models

Machine learning models trained on spatially correlated data may exhibit stronger than actual performance with traditional validation methods that ignore spatial correlations. We investigate this relationship using custom models optimized for tree-failure prediction in Southern Europe.

Treating Ischemic Stroke with Novel miRNA Inhibitors
Sarah Swetz ’23 (Medical Laboratory Sciences, CAHNR)
Advisor: Rajkumar Verma, Assistant Professor, Neuroscience
Supported by: Health Research Program
Online Materials: https://portfolium.com/entry/treating-ischemic-stroke-with-mirna-inhibitors

MicroRNAs (miRNAs) are differentially expressed after ischemic stroke and by blocking or enhancing these miRNAs, we can control their expression and effects. Through the study of an in vitro cell line based system, miRNA inhibitors are being studied as a potential treatment for ischemic stroke, with specific emphasis on the efficacy of PNA and gamma PNA inhibitors in the HEK 293 cell line.

The Effect of Anti-Racism Engagement on the Psychological Adjustment Among Emerging Adults During the COVID-19 Pandemic
Sabrina Uva ’22 (Human Development and Family Sciences, CLAS)
Advisor: Annamaria Csizmadia, Associate Professor, Human Development and Family Sciences
Supported by: SURF Award - Robert and Elizabeth Subkowsky Award
Online Materials: https://portfolium.com/entry/the-effect-of-anti-racism-engagement-on-the-psycho

The objective of this study was to understand if anti-racism engagement lowers emerging adults’ anxiety, stress, and depression while increasing their psychological well-being and self-esteem. Undergraduate students from all UConn campuses (N=497) completed an online survey via Qualtrics in the Spring of 2021. Preliminary findings revealed significant associations between anti-racism engagement activities and anxiety; and that college students engaged in anti-racism more on an interpersonal level than through organized activities.

How Prior Experience Shapes Accented Speech Adaptation
Xinming Zhou ’22 (Cognitive Science, CLAS)
Advisor: Emily Myers, Professor, Speech, Language, and Hearing Sciences & Psychological Sciences
Supported by: Institute for the Brain and Cognitive Sciences (IBACS) Undergraduate Research Grant
Online Materials: https://portfolium.com/entry/how-experience-shapes-accented-speech-adaptation

Previous research suggests that laboratory training may enhance the ability to perceive non-native speech, but little is known about the role of daily exposure in the perception of this event. The purpose of this study is to examine the relationship between the previous accentuated experience participants received and their performance in the accented English speech sounds they never heard of.

Moved to Action: A Longitudinal Assessment of Skills- and Contact-Based Interventions to Promote Positive Bystander Behavior in Palestinian-/Jewish-Israeli Intergroup Contexts

Malak Zureiqi '22 (Psychological Sciences, CLAS)
Advisor: Alaina Brenick, Associate Professor, Human Development and Family Sciences
Supported by: SHARE Award
Online Materials: https://portfolium.com/pp/B1CF8BF7-727E-418C-989F-1F7F86FC7C1F

This project involves a longitudinal assessment of both skills- and contact-based interventions with the hopes of promoting positive bystander behaviors in Palestinian-/Jewish-Israeli intergroup contexts. It is significant because it discusses data collected from middle schoolers living in the high-conflict region.

IN-PERSON PRESENTATIONS

These students participated in the in-person Fall Frontiers poster exhibition and are listed in order of their assigned board numbers. In cases in which the students have also shared project materials online, links to those materials are provided.

1. Fitbit-Derived and Self-Reported Sleep Quality and Gestational Weight Gain in Women with Overweight or Obesity
Lauren Rudin, Exercise Science
Advisor: Molly Waring, Associate Professor, Allied Health Sciences

2. Flexibility in Timing: The Uneven Meter of Romanian 'Soroc' Music
Maria Mandoiu, Music & Anthropology
Advisor: Daniel Goldberg, Assistant Professor in Residence, Music

3. An Islamic Perspective on the Refusal of Treatment
Fatima Abu Bakr, Individualized Major: Medical Ethics and Genetics
Advisor: Thomas Bontly, Associate Professor, Philosophy

4. Keney Park Revitalization Project
Maddie Chasse, Urban and Community Studies & Ecology and Evolutionary Biology
Advisor: Phil Birge-Liberman, Associate Professor in Residence, Urban and Community Studies

5. An Analysis of Adherence and Barriers to Medication-Assisted Treatment (MAT) for Opioid Use Disorder in Connecticut
Abigail Leander, Allied Health Sciences
Advisor: Beth Russell, Associate Professor, Human Development and Family Sciences

6. The Role of Social-Information Processing in Same- Versus Cross-Race Bullying
Andrea Gonzalez Mendoza, Psychological Sciences & Women's, Gender, and Sexuality Studies
Advisor: Alaina Brenick, Associate Professor, Human Development and Family Sciences

7. Impact of Pain on Neurobehavioral Outcomes in Male vs. Female Preterm Infants
Kelsey MarcAurele, Nursing
Advisor: Xiaomei Cong, Professor, Nursing

8. The Effect of Casting Expectations on Racial Attitudes and Diversity in Superhero Film
Danielle Cross, Political Science & Psychological Sciences
Advisor: Felicia Pratto, Professor, Psychological Sciences

9. Mental Wellbeing and Distress in a National Sample During the COVID Pandemic: A Longitudinal Study of Risk and Resilience Factors
Bo Wicklund, Psychological Sciences
Advisor: Crystal Park, Professor, Psychological Sciences

10. Sexual and Gender Minorities' Lay Beliefs about the Effectiveness and Affordances of LGBTQ+ Student Groups that Prioritize Community or Activism Efforts
Marley Forbes, Psychological Sciences
Advisor: Kim Chaney, Assistant Professor, Psychological Sciences

11. The Senator and the Citizen: Comparing the Agendas of the U.S. Senate and Populace
Christian Chlebowski, Accounting
Advisor: Thomas Hayes, Associate Professor, Political Science
Online Materials: https://portfolium.com/entry/the-senator-and-the-citizen

12. 3D Printing: Personalizing Drug Therapy for Diabetes
Lyla White, Pharmacy Studies
Advisor: Bodhi Chaudhuri, Professor, Pharmaceutical Sciences
Online Materials: https://portfolium.com/entry/3d-printed-personalized-drug-therapy-for-diabetes

13. Socioemotional Learning for Sandy Hook
Melissa Nowak, Psychological Sciences & Human Development and Family Sciences
Advisor: Caitlin Lombardi, Assistant Professor, Human Development and Family Sciences

14. Evaluation of Predictive Models for Early Recognition of Pediatric Sepsis in the Emergency Department at Connecticut Children's Medical Center
Sharanya Chandu, Physiology and Neurobiology & Healthcare Management
Advisor: Richelle deMayo, Assistant Professor, Pediatrics
Advisor: Andrew Heggland, Assistant Professor, Pediatrics & Emergency Medicine

15. Identifying the Impact of the Arp2/3 Complex on Cellular Senescence Signaling Pathways
Shirley Guo, Molecular and Cell Biology
Advisor: Kenneth Campellone, Associate Professor, Molecular and Cell Biology
Online Materials: https://portfolium.com/entry/impact-of-arp23-complex-on-cellular-senescence

16. Enhancing the Bactericidal Efficiency of Antimicrobial Peptides Through the Conjugation of Ru(II) Complexes
Nichali Bogues, Structural Biology and Biophysics
Advisor: Alfredo Angeles-Boza, Associate Professor, Chemistry

17. Correlating Sex Steroid Hormones with Gene Expression in the Rat Lateral Amygdala
Shreya Patel, Physiology and Neurobiology & Psychological Sciences
Advisor: Linnaea Ostroff, Assistant Professor, Physiology and Neurobiology

18. Differential Gene Analysis of Gustatory Receptors in Male vs Female *Drosophila melanogaster*
Jude Icoy, Physiology and Neurobiology
Advisor: Karen Menuz, Associate Professor, Physiology and Neurobiology
Online Materials: https://portfolium.com/entry/identifying-novel-pheromone-taste-receptors

19. Influence of B Chromosomes on Gene Expression in the *Drosophila melanogaster* Germline
Paulo Belato, Molecular and Cell Biology
Advisor: Stacey Hanlon, Assistant Professor, Molecular and Cell Biology
Online Materials: https://portfolium.com/entry/belatopaulo-mcnair-scholars-summer-research-poster

20. Physiological Correlates of Synaptic Dysfunction in Alzheimer's Model Mice
Aditi Jogdand, Biomedical Engineering
Advisor: Srdjan Antic, Associate Professor, Neuroscience

21. Analysis of Postnatal Neurogenesis in a Hydrocephalic Mouse Model
Sumeet Kadian, Molecular and Cell Biology & Individualized Major: Healthcare and Society
Michael Martland, Molecular and Cell Biology
Nishant D'Souza, Nutritional Sciences
Amelia Mezger, Physiology and Neurobiology
Advisor: Joanne Conover, Professor, Physiology and Neurobiology

22. Does Dyrk1a Kinase Phosphorylate KCNQ2 Channels?
Shenelle Shaw, Molecular and Cell Biology
Advisor: Anastasios Tzingounis, Professor, Physiology and Neurobiology
Online Materials: https://portfolium.com/entry/shenelle-shaws-mcnair-poster-2021

23. The Impact of Microbial Interactions on Bacterial Physiology and Antibiotic Treatment Response
Stephanie Schofield, Molecular and Cell Biology
Advisor: Wendy Mok, Assistant Professor, Molecular Biology and Biophysics

24. Make it Green, Make it Simple: A New Approach to a Valuable Class of Molecules
William Brydon, Chemistry
Advisor: Nicholas Leadbeater, Associate Professor, Chemistry
Advisor: Rachel O'Neill, Professor, Molecular and Cell Biology
Advisor: Mark Peczuh, Professor, Chemistry

25. Investigating CRK9 as a Potential Target of a Phase III Trial Drug for Human African Trypanosomiasis
Katherine Bohner, Molecular and Cell Biology
Advisor: Arthur Günzl, Professor, Genetics and Genome Sciences

26. Monoallelic Expression of the Variant Surface Glycoprotein in *Trypanosoma brucei*: Investigating the Role of Subunit CITFA7
Sarah Platt, Biological Sciences
Advisor: Arthur Günzl, Professor, Genetics and Genome Sciences
Advisor: Aoife Heaslip, Assistant Professor, Molecular and Cell Biology

27. Synthesis of Voltage Sensitive Dyes for Cell Imaging
Alexa Monroe, Molecular and Cell Biology
Advisor: Ping Yan, Assistant Professor, Center for Cell Analysis and Modeling

28. Molecular Evolution of a Tension Sensor Module
Amy Flis, Structural Biology and Biophysics
Advisor: Yi Wu, Associate Professor, Genetics and Genome Sciences

29. Geometric and Chemical Properties Governing the Assembly of Molecular Machines
Maria Menoutis, Biomedical Engineering
Advisor: Leslie Loew, Distinguished Professor, Cell Biology

30. When Water and Oil Mix: How the Solubility of Cannabis Increases Its Therapeutic Potential
Phoebe Liou, Biological Sciences
Sarah Erlingheuser, Pharmacy Studies
Advisor: Neha Chavan, Oneness Technologies

31. Efficient Pruning of Deep Neural Networks
Saumya Shah, Computer Science
Advisor: Caiwen Ding, Assistant Professor, Computer Science and Engineering

32. Black Hole Evolution over Cosmic Time Periods
Rei-Matthew Regala, Physics
Advisor: Jonathan Trump, Associate Professor, Physics

33. Development of 3D-Printed Membranes for the Production of Low-Carbon Intensity Biofuels
Rebecca Lee, Chemical Engineering
Advisor: Jeffrey McCutcheon, Professor, Chemical and Biomolecular Engineering

34. Modeling Drug Transport in Tumors Using Artificial Neural Network Surrogates
Samuel Degnan-Morgenstern, Chemical Engineering
Advisor: Matthew Stuber, Assistant Professor, Chemical and Biomolecular Engineering

35. How Do Nitrous Oxide (N2O) Greenhouse Gas Emissions Vary Among Groundwater Seeps?
Fiona Liu, Ecology and Evolutionary Biology & Natural Resources and the Environment
Advisor: Ashley Helton, Associate Professor, Natural Resources and the Environment

36. Designing a Portable Particulate Matter Monitor
Shihao Zhai, Chemical Engineering
Advisor: Kristina Wagstrom, Associate Professor, Chemical and Biomolecular Engineering
Online Materials: https://portfolium.com/entry/mcnair-summer-poster-presentation

37. Exploring the Effect of Observational Parameters on the Core Mass Function in Molecular Clouds
Alexis DeMarco, Physics
Advisor: Cara Battersby, Assistant Professor, Physics

38. Improving Binary Millisecond Pulsar Distance Measurements with Gaia
Abigail Moran, Physics & Applied Mathematics
Advisor: Chiara Mingarelli, Assistant Professor, Physics

39. Faces of Offshore Wind
Hope Dymond, Environmental Engineering
Advisor: Oksan Bayulgen, Associate Professor, Political Science
Online Materials: https://portfolium.com/entry/faces-of-offshore-wind-draft

40. Humidity Analysis on Conditions in a Lunar Habitat
Neel Chakravartty, Environmental Engineering
Advisor: Ramesh Malla, Professor, Civil and Environmental Engineering
Online Materials: https://portfolium.com/entry/humidity-analysis-on-conditions-in-a-lunar-habitat

41. Heat Analysis of Structural Walls Subjected to Extreme Temperatures on the Lunar Surface
Francesca Irish Esperida, Mechanical Engineering
Advisor: Ramesh Malla, Professor, Civil and Environmental Engineering

42. Simulation and Shape Estimation of Deformable Objects
Rebecca Villanueva, Mechanical Engineering
Advisor: Ashwin Dani, Associate Professor, Electrical and Computer Engineering
Advisor: Ramesh Malla, Professor, Civil and Environmental Engineering

43. Temperature-Dependent Optical Characterization of Sputtered Ge2Se2Te5 Thin Films by Multi-Wavelength Ellipsometry
Derek Lefcort, Electrical Engineering
Advisor: Helena Silva, Professor, Electrical and Computer Engineering

44. Mercury and Selenium Interactions in Aquatic Organisms: Global Trends and Human Health Implications
Chloe Zampetti, Natural Resources
Advisor: Jessica Brandt, Assistant Professor, Natural Resources and the Environment

45. The Development of Infographics to Communicate Risk of Ultrafine Particle Air Pollution
Kynza Khimani, Physiology and Neurobiology & Individualized Major: Global Health
Janet Wang, Chemistry
Advisor: Doug Brugge, Professor, Public Health
Online Materials: https://portfolium.com/entry/using-infographics-to-communicate-risk-from-ufps

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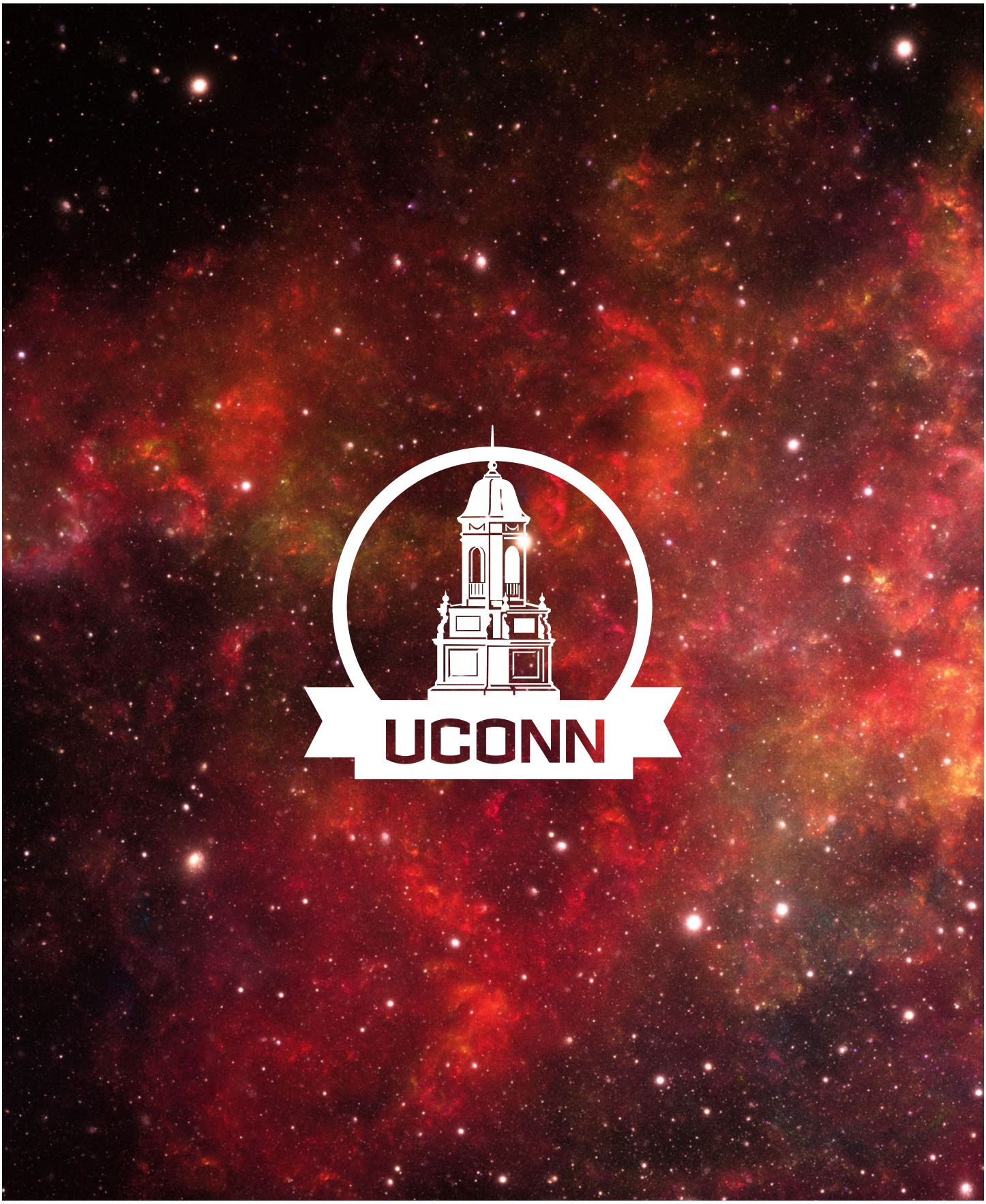

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