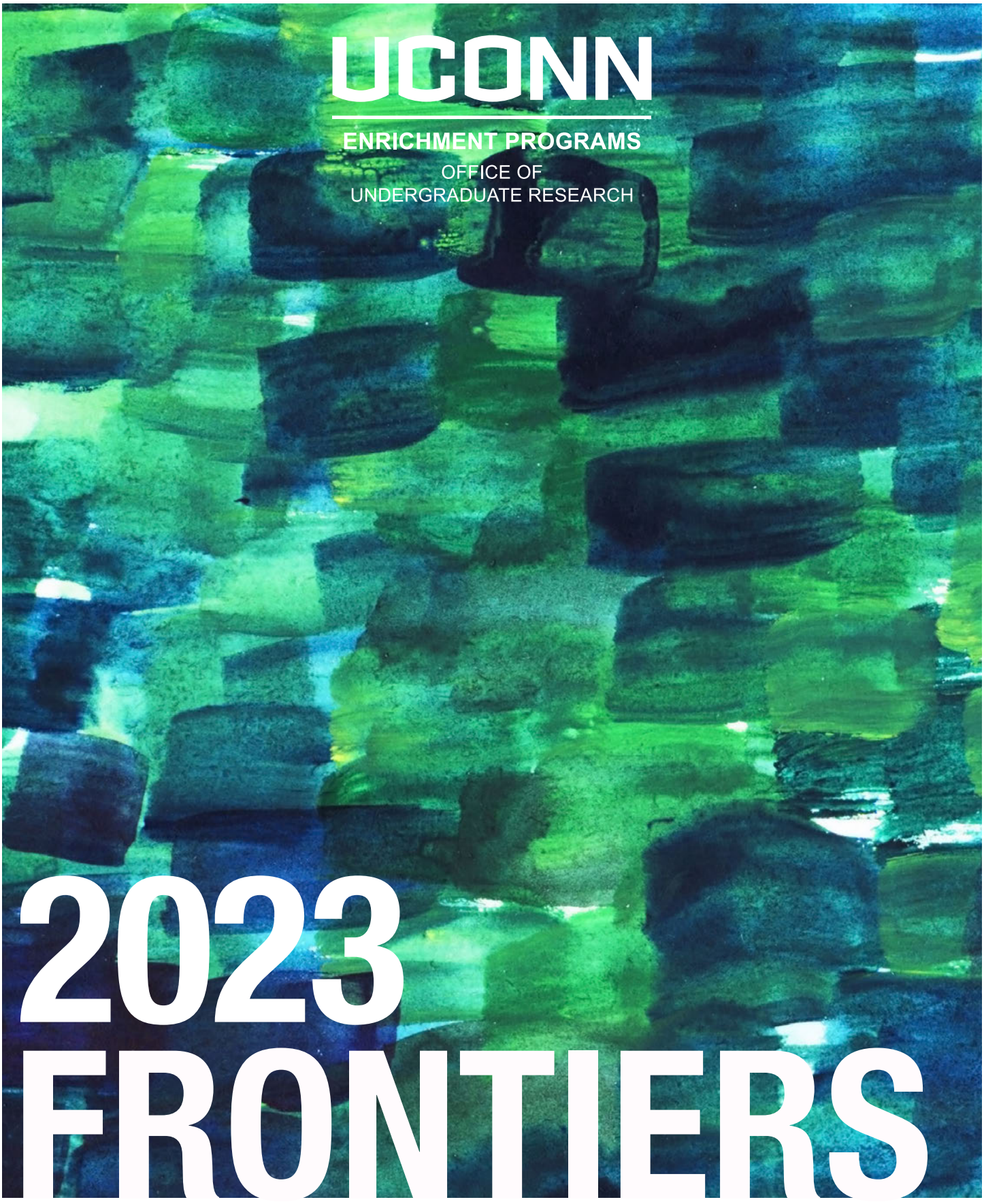
UGRADRESEARCH.UCONN.EDU/FRONTIERS2023



2023 FRONTIERS

UNDERGRADUATE RESEARCH ONLINE EXHIBITION

Welcome

to the 2023 Frontiers Online Exhibition! This year, the online exhibition is offered alongside in-person exhibitions at Storrs and Stamford, providing students opportunities to share their projects in different modalities. For the online exhibition, students prepared posters and short video presentations. Links to those materials, hosted on the Portfolium e-portfolio platform, are included in this exhibition program alongside the individual project listings. We invite you to view and comment on the projects in Portfolium.

We thank students, faculty mentors, and staff colleagues for their patience, support, and positivity as Frontiers moved to a hybrid modality. We are pleased to have this opportunity to celebrate students' ideas, questions, explorations, discoveries, and creations in ways that keep UConn Nation safe, healthy, and connected.

- UConn Office of Undergraduate Research

About Frontiers in Undergraduate Research

The Frontiers Exhibition is a multidisciplinary forum showcasing undergraduate research, scholarship, and creative projects at the University of Connecticut. Frontiers 2023 is the twenty-sixth annual Frontiers event sponsored by the Office of Undergraduate Research (OUR) and the third that includes an online exhibition. Across modalities, well over 200 students are sharing their engagement in experiential learning at Frontiers this year.

Students' projects span the disciplines, with some pursued by individuals and others by groups of student collaborators. 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 by viewing the online 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 $560,000 in 2021-22 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:

Radenka Maric
President, University of Connecticut

Anne D'Alleva
Provost and Executive Vice President for Academic Affairs

Jeffrey Shoulson
Senior Vice Provost for Academic Affairs

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

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PEER RESEARCH AMBASSADORS

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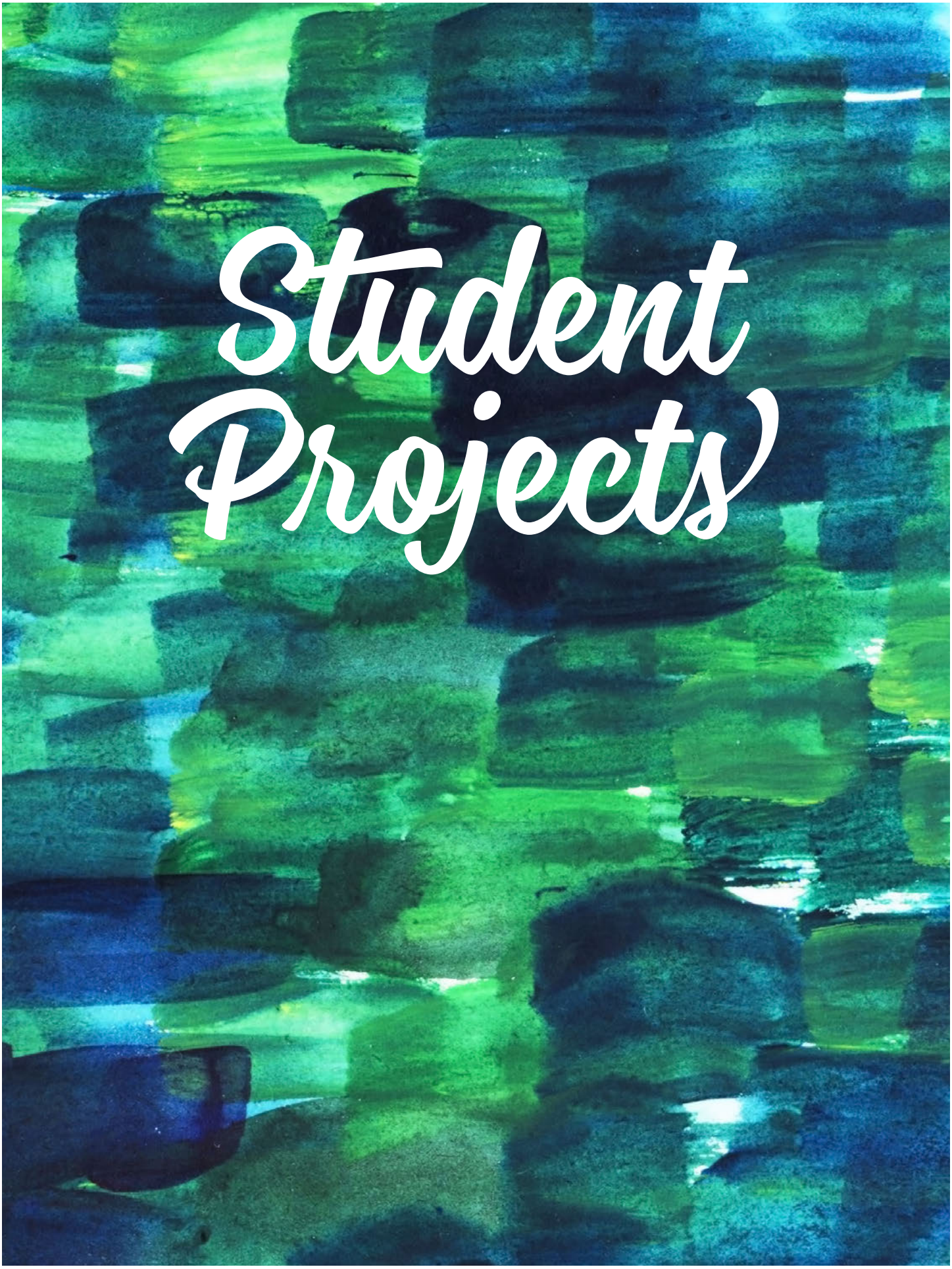
Anabelle Bergstrom ’25 (CLAS)
Erik Choi ’23 (CLAS)
Alex Clonan ’22 (ENG, CLAS)
Kira Cuneo ’23 (ENG)
Alyssa Daniels ’23 (CLAS)
Alexandra Goldhamer ’23 (CLAS)
Paul Isaac ’23 (CLAS, CAHNR)
Jerome Jacobs ’23 (CAHNR)
Ayushi Patel ’23 (CLAS)
Stephanie Schofield ’23 (CLAS)
Elisa Shaholli ’23 (CLAS)

VIEWING PROJECTS IN PORTFOLIUM

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

Standard View

Fullscreen View


Student
Projects

Exploratory Study of Sleep Disturbance in Breast Cancer Survivors Through Examination of Estrogen Related Factors (Age, Medication, Gut Microbiome) and Non-Estrogen Related Factors (Anxiety and Leisure Activity)
Katherine Aceves '23 (Nursing, NUR), Rowe Scholar
Advisor: Michelle Judge, Associate Professor, Nursing
Online Materials: https://portfolium.com/entry/secondary-analysis-of-gsd-within-bcs

The secondary analysis utilized baseline data collected by a previous larger study, to evaluate sleep disturbance amongst breast cancer survivors (BCS). Sleep disturbances amongst breast cancer patients may exacerbate other hardships that survivors face such as pain, anxiety/worry, and depression (Lowrey-Allision, et al. 2017). The predictive variables analyzed in this study for sleep disturbance amongst BCS include age, estrogen therapy, and alpha diversity within the gut microbiome. Other factors were also considered such as lifestyle, general medical history, and psychiatric history in order to evaluate for other variables that may have an affect on sleep disturbances amongst this cohort.

Gender and Transnationalism in Kuchipudi Dance
Poorna Balakumar '23 (Molecular and Cell Biology & Individualized Major: Asian Arts, Culture and Feminism, CLAS), University Scholar
Advisor: Matthew Cohen, Professor, Dramatic Arts
Online Materials: https://portfolium.com/entry/gender-and-transnationalism-in-kuchipudi-dance

Since ancient times, dance and drama have been an important part of Indian society and culture; however, the study of Indian dance has always existed only in the aesthetic realm rather than in the context of historical, economic and political discourse. The ethnography of Indian dance as an embodied, gendered form of performance provides important insight into the politics of racialization, transnationalism and gender. During my final three semesters, I explored different representations of gender in Indian theatre and performance, focusing on the revival of classical Indian dance forms in the 20th century and the transnational experience of first-generation women learning classical Indian dance under the male gaze.

Asymmetric Histone Inheritance and Transposon Derepression in the Drosophila Male Germline
Emma Kristine Beard '24 (Molecular and Cell Biology, CLAS)
Advisor: Mayu Inaba, Assistant Professor, Cell Biology
Supported by: Health Research Program
Online Materials: https://portfolium.com/entry/h3-inheritance-and-transposon-derepression

During asymmetric stem cell division in Drosophila testes, histone H3 is inherited asymmetrically. When H3 inheritance is randomized by expressing a mutant form of H3, H3T3A, flies exhibit germline defects. We found that compared to H3 flies, H3T3A flies had an increase in transposon region activation. The piRNA pathway is responsible for transposon repression in the germline, and interference with this pathway led to increased transposon expression visualized by staining double stranded breaks.

Molecular Dynamics Simulations to Investigate Stability of Lysozyme under Different Freezing Rates
Ryan Bellucci '23 (Chemical Engineering, ENG)
Advisor: Bohdisattwa Chaudhuri, Professor, Pharmaceutical Sciences
Supported by: OUR Conference Presentation Award
Online Materials: https://portfolium.com/entry/md-simulations-to-analyze-lysozyme-stability

This presentation represents the opportunity I had to participate in research in the School of Pharmacy. We created models of protein drugs in order to analyze the reasons they may become unstable during the freezing and storage process. This work gives great insight into previously undiscovered interactions in the Lysozyme protein.

Hope over Fear: The Feelings That Animated Franklin D. Roosevelt and His America, 1932-45
Katherine Bergherr-Hall '24 (Anthropology, CLAS)
Advisor: Frank Costigliola, Distinguished Professor, History
Supported by: SHARE Award
Online Materials: https://portfolium.com/entry/hope-over-fearfranklin-roosevelt-frontiers23

Through the guidance of Frank Costigliola, I analyzed newspapers, radio broadcasts, and letters sent from the public to Franklin Roosevelt. This research provided numerous outlooks on FDR's relations to the public, often rooted in emotion. I also discuss how I developed significant proficiency in research skills.

Case Study: Schizophrenia in Young Adults with Autism Spectrum Disorder
Marissa Birmingham '24 (Cognitive Science, CLAS), LSAMP Scholar
Advisors: Inge-Marie Eigsti, Professor, Psychological Sciences; Deborah Fein, Distinguished Professor, Psychological Sciences
Online Materials: https://portfolium.com/entry/schizophrenia-and-autism-in-young-adults

While screening potential research participants with early symptoms of autism as part of a larger longitudinal study, our team saw a few participants who exhibited auditory and visual hallucinations. This motivated us to learn more about the history behind the connection between schizophrenia and autism. In this study, we present two case studies of participants who have both schizophrenia and autism.

Single-Cell Time Lapse Imaging Analysis Reveals that Erythropoietin Does Not Impact Fate Determination of the Megakaryocyte Erythroid Progenitor
Shakthi Boobalan '23 (Physiology and Neurobiology, CLAS)
Advisors: Vanessa Scanlon, Assistant Professor, Center for Regenerative Medicine and Skeletal Biology; Joanne Conover Professor, Physiology and Neurobiology
Supported by: SURF Award
Online Materials: https://portfolium.com/entry/understanding-how-blood-cells-are-made

Hematopoiesis is the process by which our bodies create various blood cells, including leukocytes (white blood cells), erythrocytes (red blood cells), and megakaryocytes (platelets). The megakaryocyte-erythroid progenitor (MEP) is a progenitor cell capable of differentiating into either a red blood cell or platelet, and our lab is interested in understanding the different factors that impact which cell the MEP differentiates into. This work can be put toward regenerative medicine research that aims to produce synthetic blood for patients who are unable to receive blood transfusions due to hyperactive immune systems, and to better understand the etiology of various blood-related disorders such as sickle cell anemia.

Maternal Perspectives on Pandemic Parenting
Denise Brown '23 (Biological Sciences, CLAS)
Advisor: Margaret Briggs-Gowan, Professor, Psychiatry
Supported by: Health Research Program
Online Materials: https://portfolium.com/entry/maternal-perspectives-on-pandemic-parenting

Covid-19 affected each and every one of us differently. This project aims to identify one area in which the pandemic caused major changes in people's lives, specifically pregnant women.

Understanding the Associations Between Social and Emotional Expression, Communication, and Relationships in Individuals with Eating Pathology
Alyssa Daniels ’23 (Physiology and Neurobiology, CLAS), BOLD Women's Leadership Network Scholar
Advisor: Amy Gorin, Interim Vice Provost for Health Sciences & Professor, Psychological Sciences
Supported by: BOLD Women’s Leadership Network & OUR Conference Presentation Award
Online Materials: https://portfolium.com/entry/exploring-asd-and-ed-as-mediated-by-alexithymia

There is a skewed population of women on the autism spectrum in treatment for eating disorders compared to the general population. As such, this research project aimed to identify whether alexithymia (the inability to understand and identify emotions in oneself and others) mediates the relationship between autism spectrum disorder (ASD) and eating disorders (ED). The data suggests alexithymia is a statistically significant mediating factor in the relationship between ASD and ED.

Removal of Rights Inspiring Social Change in a Post World War II Argentina
Trevor Donahue ’25 (Anthropology & Environmental Studies, CLAS)
Advisor: Françoise Dussart, Professor, Anthropology
Online Materials: https://portfolium.com/entry/anthropology-3028w-poster-presentation

This anthropological research was conducted under Dr. Françoise Dussart in the Anthropology Department at UConn. This research was conducted by Trevor Donahue in Anthropology of Aboriginal Australia and Indigenous Rights, where it is explored how the political and social world in Argentina is impacted following World War II, with a primary focus on children's rights. The research follows the Grandmother Movement, and explores the fields of kinship, social connections, power, and role of the state.

BioSymmetrix
Krishna Chinmai Dongar ’24 (Biomedical Engineering, ENG)
Advisor: Liisa Kuhn, Professor, Biomedical Engineering
Supported by: Health Research Program
Online Materials: https://portfolium.com/entry/biosymmetrix-the-design-of-3d-breast-forms

My project at Biosymmetrix involves 3D printing breast prosthetics for women who went through mastectomy. Our solution involves using laminar flow extrusion printing to create a customized, breathable, and lightweight.

Studying Cortical Circuitry with GEVI Voltage Imaging
Abigail Edelstein ’24 (Biological Sciences, CLAS)
Advisor: Srdjan Antic, Associate Professor, Neuroscience
Supported by: Health Research Program
Online Materials: https://portfolium.com/entry/studying-cortical-circuitry-with-gevi-imaging

Studying cortical circuitry with genetically encoded voltage indicator imaging. AMPA receptor, NMDA receptor, and voltage gated calcium channel blockers were introduced to further study the behavior of the cortical circuit.

A Failure to Communicate: Curricular Analysis Reveals Major Deficits in Science Communication Coursework at R1 Universities in the United States
Andrew Elmowitz ’23 (Physiology and Neurobiology, CLAS)
Advisor: John Redden, Associate Professor, Physiology and Neurobiology
Supported by: OUR Conference Presentation Award & Biological Sciences Undergraduate Research Travel Award
Online Materials: https://portfolium.com/entry/failure-to-communicatedeficits-in-scicomm-courses

An in-depth curricular analysis of the 146 research-intensive universities in the United States reveals deficits in science communication coursework. Primarily, Biology departments were analyzed, however, communication, writing, journalism, English, and other life sciences departments were as well. This study addressed whether leading universities are adequately preparing the next generation of researchers and healthcare workers to communicate effectively with the public.

Extraction of CBD From Personal Care Products Followed by Liquid Chromatography Coupled With UV Detection
Jacob Esposito ’23 (Chemistry, CLAS)
Isabella McGrath ’23 (Environmental Sciences, CLAS)
Rachel Murphy ’24 (Physiology and Neurobiology, CLAS)
Advisor: Anthony Provatas, Assistant Research Professor, Chemistry & Center for Environmental Sciences and Engineering
Online Materials: https://portfolium.com/entry/extraction-of-cbd-from-personal-care-products

In 2019, Connecticut legalized all CBD hemp products. For CBD hemp products to be legal, they must contain 0.3% or less of tetrahydrocannabinol (THC). A product made with hemp can also contain only CBD without having any THC at all. We tested a handful of personal care products that have claimed and advertised to have CBD from hemp to see if there were traces of CDB were within these products.

Was Devon Allen Unjustly Disqualified at the 2022 World Track and Field Championships?
Owen Fiore ’23 (Individualized Major: Data Science, CLAS)
Advisor: Jun Yan, Professor, Statistics
Online Materials: https://portfolium.com/entry/devon-allens-disqualification

An analysis of reaction time data in the men's 110 meter hurdles to determine whether or not Devon Allen was unjustly disqualified from the 2022 World Track and Field Championships. A generalized linear mixed model and ranked-sum tests are employed in our investigation.

The Attenuation of Diet-Induced Obesity and Exacerbation of Anxiety Through Locus Coeruleus Chemoactivation
Alexandra Goldhamer ’23 (Molecular and Cell Biology & Human Rights, CLAS), University Scholar
Advisor: Natale Sciolino, Assistant Professor, Physiology and Neurobiology
Supported by: SURF Award & UConn IDEA Grant
Online Materials: https://portfolium.com/entry/locus-coeruleus-stimulation-and-food-intake

My project focuses on the inhibitory projections from the locus coeruleus to the lateral hypothalamic area that have been implicated in the pathogenesis of obesity. My project examines the effects of stimulating this circuit on appetite and food intake with the goal of developing effective, targeted treatment methods.

A Structured Life Review Intervention to Improve Life Satisfaction in Home Health Service Patients
Leah Graf ’23 (Nursing, NUR), University Scholar
Advisors: Juliette Shellman, Professor, Nursing; Millicent Malcolm, Associate Clinical Professor, Nursing
Supported by: SURF Award
Online Materials: https://portfolium.com/entry/a-structured-life-review-intervention

My research project aims to determine the feasibility of using Structured Life Review in the homecare population to increase life satisfaction and ego-integrity, as well as decrease depressive symptoms. I explored the use of this intervention in older adults aged 65 and older enrolled in a homecare program.

Structural Differences and Protein Dynamics Brought by Variant Pro220Leu in Elastin
Zyaja Huggan ’24 (Mechanical Engineering, ENG)
Advisor: Anna Tarakanova, Assistant Professor, Mechanical Engineering & Biomedical Engineering
Online Materials: https://portfolium.com/entry/structural-differences-and-protein-dynamics

Elastin is a protein that is in charge of the elasticity of tissues and organs. Variant Pro220Leu, is a mutation that is known to cause structural changes in this protein. Research on the mutation can provide further insights on how the mutation will affect patients health.

Late-Life Depression and Markers of Immunosenescence
Medha Illindala ’25 (Physiology and Neurobiology, CLAS)
Advisor: Breno Diniz, Associate Professor, Center on Aging
Supported by: Health Research Program
Online Materials: https://portfolium.com/entry/late-life-depression-and-immunosenescence

Previous research has linked late-life depression and cellular senescence through common signaling pathways, especially through phenotype factors secreted by immune cells. This research examined the expression levels of cell cycle regular genes known to be involved in senescence. The expression levels were tested in the immune cells of patients with LLD and non-depressed controls. We found that p21 expression was significantly reduced in patients with LLD.

Exploring the Role of Kctd6 in Regulating the Shh Signaling Pathway
Varsha Irvathraya ’23 (Molecular and Cell Biology, CLAS)
Advisor: Rahul Kanadia, Associate Professor, Physiology and Neurobiology
Supported by: UConn IDEA Grant
Online Materials: https://portfolium.com/entry/role-of-kctd6-in-the-hh-signaling-pathway-1

My project explores the role of Kctd6 in the Hh signaling pathway by observing the effect of simultaneous Kctd6 and Shh expression on Gli1 expression.

Waste Matters: The Beginnings of Devised Theatre
Will Jenkins ’23 (Theatre Studies, SFA)
Advisor: Lindsay Cummings, Associate Professor, Dramatic Arts
Supported by: SHARE Award
Online Materials: https://portfolium.com/entry/waste-matters-the-beginnings-of-devised-theatre

This project focuses on the beginning development of a new devised theatrical piece, "Waste Matters." With a focus on environmental justice, our relationship with waste, and our ever changing planet, we wanted to find a way to explore these complex ideas in a theatrical space.

Environmental Dependence of Star Formation Efficiency in Spiral Galaxy NGC 4254
Neal Krishna ’23 (English, CLAS; Physiology and Neurobiology, CLAS)
Advisor: Chris Faesi, Assistant Professor, Physics
Supported by: OUR Conference Presentation Award
Online Materials: https://portfolium.com/entry/high-resolution-kennicutt-schmidt-law-in-ngc-4254

The rate at which star formation happens within galaxies is thought to be linearly correlated with molecular gas prevalence though a relationship called the Kennicutt-Schmidt Relationship (Kennicutt 1998). In galaxies external to the solar neighborhood, however, there is little information on how this relationship holds at scales relative to the scales at which star formation happens (Giant Molecular Cloud sizes, ~10^2 pcs). With the onset of high-resolution data from the MUSE and ALMA telescopes, we examine the Kennicutt-Schmidt relationship in NGC 4254, a grand design spiral galaxy near the Virgo cluster.

Implementing and Culturally Adapting a Family Education Program for Lost to Intervention in Early Hearing Detection and Intervention: Undergraduate Training & Reflections Post Publication
Emily LaSpada ’23 (Speech, Language, and Hearing Sciences, CLAS)
Ashley Cortes ’24 (Cognitive Science, CLAS)
Jennifer Lopez ’23 (Psychological Sciences, CLAS)
Advisor: Torri Ann Woodruff-Gautherin, Research Associate, Speech, Language, and Hearing Sciences
Online Materials: https://portfolium.com/entry/implementing-and-adaptingtraining-and-reflections

This presentation is written from the perspective of bilingual student implementers and their training facilitator, reflecting on their experiences in training, facilitating and adapting a family education program titled Swaddling Ear to Ear to be culturally and linguistically relevant to Spanish-speaking communities after its development in Spoken English (Woodruff-Gautherin & Cienkowski 2022). This program provides access to information regarding Early Intervention (EI) services for families whose children have been identified as D/deaf or Hard of Hearing by collaboratively developing actionable steps towards enrollment. Through this program, participants engage in hands-on activities through a dedicated webpage covering key content in EI including goal setting, establishing accessible contacts and recording notes in a take-home workbook that can be brought to providers.

Implementing a Family Education Program for Lost to Intervention: Undergraduate Training and Reflections
Emily LaSpada ’23 (Speech, Language, and Hearing Sciences, CLAS)
Advisors: Kathleen Cienkowski, Associate Professor, Speech, Language, and Hearing Sciences; Torri Ann Woodruff-Gautherin Research Associate, Speech, Language, and Hearing Sciences
Supported by: OUR Conference Presentation Award
Online Materials: https://portfolium.com/entry/student-implementer-training-and-reflections

According to 2020 CDC measures 38.6% of children identified with hearing differences did not receive early intervention services and support with the most known reported reason being 'parents declined'. This presentation is written from the perspective of a student implementer, reflecting on the experience of training and facilitating a family education program aimed toward providing parents and families with support by collaboratively developing actionable steps towards enrollment in early intervention services. Student insights will include the facilitators' growth in comfort level with audiological information, flexibility in adapting the presentation of information to be the most relevant and family centered, and the furthering of understanding in the use of counseling for future patients.

Original Musical Production
Travis Lavigne ’24 (Music Education, ED; Composition, SFA)
Advisor: Kenneth Fuchs, Professor, Music
Supported by: UConn IDEA Grant
Online Materials: https://portfolium.com/entry/original-musical-production

For this project, I composed and produced my own original musical. The project culminated in three live performances, and a full recording of the production.

How Do Sediment Additions to Submerging Saltmarshes Alter Methane Dynamics?
Chase Mack ’23 (Environmental Sciences & Political Science, CLAS)
Advisor: Beth Lawrence, Associate Professor, Natural Resources and the Environment
Supported by: SURF Award
Online Materials: https://portfolium.com/entry/how-sediment-additions-to-saltmarsh-alter-methane

Saltmarshes are crucial in storing carbon, yet little is known about their methane dynamics. With sea level rise pressuring these intricate ecosystems along the coast, one method of mitigation is adding sediment to the surface. The climate crisis is pushing managers to consider greenhouse gases, making it imperative to understand how a potent greenhouse gas like methane reacts to sediment additions and sea level rise.

Reversion of Analytical Flow in Mass Spectrometry for Detection and Separation of Various Bacterial Lipid Classes
Heather MacKinnon ’24 (Molecular and Cell Biology & Spanish, CLAS)
Advisors: Anthony Provatas, Assistant Research Professor, Chemistry & Center for Environmental Sciences and Engineering; Frank Nichols Professor, Periodontology
Online Materials: https://portfolium.com/entry/reversion-of-analytical-flow-in-mass-spectrometry

This project is about the reversion of analytical flow in mass spectrometry for detection and separation of various bacterial lipid classes.

Acceleration of Nonradiative Charge Recombination Reactions at Larger Distances in Kinked Donor-Bridge-Acceptor Molecules
Amrita Makhijani ’23 (Healthcare Management, BUS)
Advisor: Tomoyasu Mani, Assistant Professor, Chemistry
Online Materials: https://portfolium.com/entry/acceleration-of-nonradiative-charge-recombination

Photoinduced electron transfer in donor−bridge−acceptor (D−B− A) molecular systems can occur via tunneling over long distances (rDA) of well over 10 Å. We commonly observe decreasing rates of electron transfer with increasing distances, a result of a decrease in the electronic coupling of the donor and acceptor moiety. In the study of D−B−A molecules with Ru(bpy)32+ as a bridge/core, Kuss- Petermann and Wenger observed the opposite trend; a maximum rate constant of electron transfer was observed at an intermediate electron transfer distance.

Liking Myself: A New Chamber Opera
Sarah Marze ’23 (Vocal Performance & Music Composition, SFA)
Advisor: Dmitriy Glivinskiy, Assistant Professor In Residence, Music
Supported by: OUR Supply Award
Online Materials: https://portfolium.com/entry/liking-myself-a-new-chamber-opera

In collaboration with librettist Alize Rozsnyai, I composed a 30-minute chamber opera for soprano, violin, cello, percussion and piano. The opera centers on Eris, a social media influencer who realizes her followers are disappearing. To what extreme lengths will Eris go to keep her audience's attention?

The Importance of Reading to Infants in the NICU
Megan Mendoza ’23 (Nursing, NUR)
Advisor: Sharon Casavant, Assistant Professor, Nursing
Online Materials: https://portfolium.com/entry/the-importance-of-reading-to-infants-in-the-nicu

This is an EBP project that aims to increase the frequency of reading to infants in the NICU and decrease the risk of poor language outcomes and cognitive delays in preterm neonates. It includes the implementation of a parent information board about the topic, as well as a learning module for nurses that included a pre- and post-survey.

Calculating Thyroid Hormones (T3 and T4) in Whale Blow by Quadrupole Time of Flight /Tandem Multiple Reaction Monitoring Mass Spectrometry
Rachel Murphy ’24 (Physiology and Neurobiology, CLAS)
Advisor: Anthony Provatas, Assistant Research Professor, Chemistry & Center for Environmental Sciences and Engineering
Online Materials: https://portfolium.com/entry/calculating-thyroid-hormones-in-whale-blow

Concentrations of T3 and T4 Thyroid Hormones from whale blow samples were extracted using Quadrupole Time of Flight coupled with Multiple Reaction Monitoring High Resolution Mass Spectrometry. This poster details the method design for sample extraction and quantification of the specific analytes from given samples of inhaled condensate.

Understanding the Relationships Between Parents’ History of Adverse Childhood Experiences (ACEs) and Chaos in the Household
Karla Palma ’23 (Nursing, NUR)
Advisor: Eileen Condon, Assistant Professor, Nursing
Online Materials: https://portfolium.com/entry/adverse-childhood-experiences-and-household-chaos

The aim of this study is to examine the relationship between parent’s history of adverse childhood experiences, potentially traumatic experiences that occur to individuals before the age 18, and the amount of household chaos.

Whom Do You Trust?: A Look into the Effects of Political Polarization on One’s Trust in the Federal Government
Gabriella Pattavina ’23 (Political Science, CLAS)
Advisors: Jeffrey Ladewig, Associate Professor, Political Science; Matthew Singer Professor, Political Science
Online Materials: https://portfolium.com/entry/whom-do-you-trust

A look into the effects of political polarization on a constituent's trust in the federal government.

Optimizing Municipal Wastewater Treatment through Biological Modeling and Simulation
Katherine Pettersen ’23 (Chemical Engineering, ENG)
Advisor: Burcu Beykal, Assistant Professor, Chemical Engineering
Online Materials: https://portfolium.com/entry/modeling-for-wastewater-treatment-optimization

The objective of this project was to utilize GPS-X software to model and simulate a municipal wastewater treatment plant. The software was used to simulate different scenarios by inputting data on wastewater composition and treatment processes to predict treatment performance. The model's accuracy was validated using COD and TSS outputs, demonstrating the capability of the software to accurately predict treatment plant performance.

Christian World Views Study on Bereaved Individuals
Emma Ratnavel '23 (Physiology and Neurobiology, CLAS)
Advisor: Crystal Park, Professor, Psychological Sciences
Online Materials: https://portfolium.com/entry/christian-worldviews-and-adjustment-after-loss-3

This study analyzes christian worldviews and adjustment after loss. The study analyzes the effects of bereavement on heart rate variability within individuals with christian worldviews.

Centering Writing
Ruth Salazar '24 (Psychological Sciences & Human Development and Family Sciences, CLAS)
Advisor: Tom Deans, Professor, English & Director, Writing Center
Supported by: OUR Conference Presentation Award
Online Materials: https://portfolium.com/entry/centering-writing-project

Centering Writing is a class that started in the UConn Writing Center among the writing center staff to allow a free, flexible writing space where the staff can participate in enhancing the Writing Center environment. Centering Writing allowed staff to create and present any writing piece among peers. I am not a writer, but once I entered the class, I wrote about my experiences in a new way that I was proud of and presented the writings to peers, friends, and family.

Validation of iSperm CASA Using Frozen Thawed Bovine Semen
Henry Schober '23 (Animal Science, CAHNR)
Advisor: Xiuchun Tian, Professor, Animal Science
Online Materials: https://portfolium.com/entry/validation-of-isperm-casa-using-bovine-semen

We compared iSperm-CASA with a manual hemocytometer method using frozen bull semen from straw with two dilutions (10X and 20X). We then used ANOVA to test the disparity between the two methods.

Sodium Acetate Heating System for CRISPR Based Molecular Detection
Daniel Schreiber '23 (Biomedical Engineering, ENG)
Advisor: Changchun Liu, Associate Professor, Biomedical Engineering
Supported by: Health Research Program
Online Materials: https://portfolium.com/entry/heating-system-crispr-based-molecular-detection

This project uses 3d printed parts and reusable heating pouches called HotSnapZ to heat up a metal surface for molecular based detection. The metal heatsink absorbed the heat from the HotSnapZ and directs it to the surface for heating the CRISPR molecular detection reaction.

HPV Vaccine Initiation and Follow-Through Rates
Caitlyn Shetland '23 (Molecular and Cell Biology, CLAS)
Advisor: Sharon Smith, Professor, Pediatrics
Online Materials: https://portfolium.com/entry/hpv-vaccine-initiation-and-follow-through-trends

This project seeks to compare HPV vaccine initiation and follow-through rates from 2011-2020 between males and females ages 9-14 and 15-45 using publicly available data from the National Health and Examination Survey (NHANES) database. From this data, the achievability of herd immunity by 2020 among males and females ages 9-14 and 15-45 was assessed.

Understanding The Politics of Unveiling in Contemporary Egypt
Nora Skoczen ’23 (Political Science, CLAS; Economics, CLAS)
Advisor: Hind Ahmed Zaki, Assistant Professor, Political Science
Online Materials: https://portfolium.com/entry/delving-into-past-research-of-unveiling-in-egypt

Working alongside Professor Ahmed Zaki through the summer of 2022, I worked to understand and research the complexities and understandings of unveiling among women in contemporary Egypt. While I primarily played a background role of researching past academic journal entries into unveiling, I also worked to understand how academics had broached the subject of unveiling and whether or not they had successfully understood and portrayed the subject while addressing and appreciating the different meanings, practices and transcripts of women's conscious choice to unveil. While the issue of unveiling is often portrayed in a single light, it is important when addressing unveiling among women to correctly and wholly understand the issue. By delving into specific areas involved within the larger issue of unveiling through extensive and developed research, we were better informed of the different subject areas where the subject could be addressed further and perhaps more successfully. In all, this project helped me develop invaluable research and writing skills that will undoubtedly serve me in the future.

Examining Event Related Potentials in Response to Affective Stimuli
Sheela Tavakoli ’24 (Individualized Major: Behavioral Neuroscience, CLAS)
Advisor: Damion Grasso, Associate Professor, Psychiatry
Supported by: Health Research Program
Online Materials: https://portfolium.com/entry/event-related-potentials-and-affective-stimuli

This project examines children who were and were not exposed to intimate partner violence. We utilize the electroencephalography to look into event related brain potentials (ERP's) of the children to see how they process emotion.

Dismantling Discrimination: A Qualitative Assessment of Transgender and Nonbinary Youth’s Interpersonal and Institutional School-Based Discrimination
Alexa Udell ’24 (Psychological Sciences, CLAS)
Advisor: Alaina Brenick, Associate Professor, Human Development and Family Sciences
Supported by: SHARE Summer Apprenticeship
Online Materials: https://portfolium.com/entry/assessments-of-sbd-in-tnb-youth

This project assesses measurements of school-based discrimination as well as the experiences of trans and non-binary youth in a high school setting for the purpose of determining if and how the assessments can change to better reflect the experiences of this community.

Impact of Heat and Humidity on Aspirin Tablets' Chemical Stability
Lyla White ’24 (Pharmacy Studies, PHARM)
Advisor: Bodhi Chaudhuri, Professor, Pharmaceutical Sciences
Supported by: OUR Supply Award
Online Materials: https://portfolium.com/entry/impact-of-heat-and-humidity-on-aspirin-tablets-ch

Drug stability and expiration dates are determined by data from medications in their original containers under controlled environments. However, drugs are often dispensed in amber vials or prescription adherence aids and stored in high heat and humidity environments like people's bathrooms, cars, and purses. This study aims to determine how stable aspirin tablets are under these types of conditions.

Testing an Automatic Continuously Variable Transmission for Bicycles
Ethan Wicko ’24 (Mechanical Engineering, ENG)
Advisor: Thomas Mealy, Machine Shop Engineer, Mechanical Engineering
Supported by: UConn IDEA Grant
Online Materials: https://portfolium.com/entry/testing-an-automatic-cvt-for-bicycles

Through this UConn IDEA Grant independent research project dynamometer-style bicycle testing equipment was used to test the performance of a prototype automatic continuously variable transmission of bicycles.

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