



2021 Summer Undergraduate Research Fund (SURF) Awards

Congratulations to the 56 undergraduate SURF Award recipients for Summer 2021! These UConn students were selected from an exceptionally strong group of applicants representing diverse areas of academic inquiry.

Thank you to the research advisors and other faculty members who supported SURF applicants, to the faculty who served on the selection committee, and to the many generous supporters who make this program possible.

Anthony Antony '23 (Physiology and Neurobiology & Spanish, CLAS)

Project Title: Examining the Effects of Amino-Nogo on ItgaV Expression and Axon Regeneration in Mouse Retinal Ganglion Cells

Faculty Mentor: Dr. Feliks Trakhtenberg, Neuroscience

Michelle Antony '23 (Molecular and Cell Biology, CLAS)

Project Title: EGFR Signals in the Chondroprogenitor Response to Articular Cartilage Injury

Faculty Mentor: Dr. Caroline Dealy, Reconstructive Sciences, Orthopedic Surgery & Cell Biology

Benjamin Arora '22 (Mathematics, CLAS)

Project Title: Expected Complexity of Reduced Convex Hulls

Faculty Mentor: Dr. Jeremy Teitelbaum, Mathematics

Amy Backal '22 (Molecular and Cell Biology, CLAS)

Project Title: The Effect of Fibrodysplasia Ossificans Progressiva (FOP) on the Tongue

Faculty Mentor: Dr. David Goldhamer, Molecular and Cell Biology

Poorna Balakumar '23 (Molecular and Cell Biology & Classics and Ancient Mediterranean Studies, CLAS)

Project Title: The Role of Hydrogen Peroxide as a Virulence Mechanism of *Mycoplasma pneumoniae* In Vivo

Faculty Mentor: Dr. Steven Geary, Pathobiology and Veterinary Science

Etem Beskovic '22 (Allied Health Sciences, CAHNR)

Project Title: Effects of Cyclosporine on Engraftment of Skeletal Progenitor Cells in Osteogenesis Imperfecta Murine Mice

Faculty Mentor: Dr. Ivo Kalajzic, Reconstructive Sciences & Genetics and Genome Sciences

Eli Collins '22 (Linguistics/Psychology, CLAS)

Project Title: Queer Affirmation and the Emo Scene of the 2000s

Faculty Mentor: Dr. Margaret Breen, English

Jessica Daley '22 (Nursing, NUR)

Project Title: How Kangaroo Care Influences Neurobehavioral Outcomes in Neonates

Faculty Mentor: Dr. Xiaomei Cong, Nursing

Ashiti Damania '23 (Molecular and Cell Biology, CLAS)

Project Title: Validation of RGC Subtypes Via Molecular Markers Using Single-Cell RNA Sequencing

Faculty Mentor: Dr. Feliks Trakhtenberg, Neuroscience

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Samuel Degnan-Morgenstern '22 (Chemical Engineering, ENG)

Project Title: Design of Scientific Machine Learning Models of Molecular Transport in Solid Tumors

Faculty Mentor: Dr. Matthew Stuber, Chemical and Biomolecular Engineering

Morgan Dougherty '22 (Animal Science, CAHNR)

Project Title: Investigation of Altered Reproductive Efficiency of Ewes Born to Poorly-Fed Mothers

Faculty Mentor: Dr. Steven Zinn, Animal Science

Marley Forbes '22 (Psychological Sciences, CLAS)

Project Title: Perceptions of College LGBTQ+ Student Organizations

Faculty Mentor: Dr. Kimberly Chaney, Psychological Sciences

Brian Fox '22 (Molecular and Cell Biology, CLAS; Management Information Systems, BUS)

Project Title: Defining C1QL1 Protein Signaling in Oligodendrocyte Progenitor Cell Differentiation for Central Nervous System Remyelination with Implications for Multiple Sclerosis

Faculty Mentor: Dr. David Martinelli, Neuroscience

Kiara Gambuzza '22 (Psychological Sciences, CLAS)

Project Title: Theta Coherence During REM Sleep in Rodent Models

Faculty Mentor: Dr. James Chrobak, Psychological Sciences

Amelia Geist '23 (Mechanical Engineering, ENG)

Project Title: Approximated Signed Distance Functions for Topology Optimization with Geometric Primitives

Faculty Mentor: Dr. Julian Norato Escobar, Mechanical Engineering

Rachel Grella '22 (Ecology and Evolutionary Biology, CLAS)

Project Title: Does the Density of Host Plant Influence the Parasite Infection Rate on Specialist Caterpillars?

Faculty Mentor: Dr. Robert Bagchi, Ecology and Evolutionary Biology

Alison Guy '23 (Physiology and Neurobiology & Psychological Sciences, CLAS)

Project Title: The Interconnection Between the Dorsal and Ventral Hippocampus

Faculty Mentor: Dr. Etan Markus, Psychological Sciences

Varsha Irvathraya '23 (Molecular and Cell Biology, CLAS)

Project Title: Chromosomal Rearrangement of CCND1 on the Development of Parathyroid Tumors and Hyperparathyroidism

Faculty Mentor: Dr. Jessica Costa, Center for Molecular Oncology

Paul Isaac '23 (Molecular and Cell Biology, CLAS)

Project Title: Save the Crabs: An Investigation of the Genomic and Cellular Components of the *Limulus polyphemus* Immune Response

Faculty Mentor: Dr. Rachel O'Neill, Molecular and Cell Biology

Samuel Johnson '22 (Chemistry, CLAS)

Project Title: The Design of Magnetically Responsive Charge-Transfer Emission Probes to Enhance Fluorescence Guided Surgery

Faculty Mentor: Dr. Tomoyasu Mani, Chemistry

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Nicole Khusid '22 (Physics, CLAS; Computer Science, ENG)

Project Title: Multimessenger Gravitational Wave Signals From Strongly Lensed Supermassive Black Hole Binaries

Faculty Mentor: Dr. Chiara Mingarelli, Physics

Hannah Koziol '22 (Physics, CLAS)

Project Title: Reliability of Simulated Probability Density Functions in the Galactic Center

Faculty Mentor: Dr. Cara Battersby, Physics

Abigail Leander '22 (Allied Health Sciences, CAHNR)

Project Title: Barriers to Medication-Assisted Treatment Adherence in Connecticut

Faculty Mentor: Dr. Beth Russell, Human Development and Family Sciences

Rebecca Lee '22 (Chemical Engineering, ENG)

Project Title: Development of 3D-printed Membranes for the Production of Low-Carbon Intensity Biofuels

Faculty Mentor: Dr. Jeffrey McCutcheon, Chemical and Biomolecular Engineering

Cindy Li '22 (Physiology and Neurobiology, CLAS)

Project Title: Downstream Effects of the JNK Signaling Pathway on the Mmp2 Pathway in *Drosophila melanogaster*

Faculty Mentor: Dr. Jianjun Sun, Physiology and Neurobiology

Stefan Marczuk '22 (Biological Sciences & Political Science, CLAS)

Project Title: Assessing the Efficacy of Cannabidiol in Reducing *Clostridioides difficile* Toxin Synthesis

Faculty Mentor: Dr. Kumar Venkitanarayanan, Animal Science

Riley McNaboe '23 (Biomedical Engineering, ENG; Spanish, CLAS)

Project Title: Validation of Integrated Electrodermal Activity, Electrocardiogram, and Electromyography Recording System

Faculty Mentor: Dr. Hugo Posada-Quintero, Biomedical Engineering

Uma Mehta '23 (Biological Sciences, CLAS)

Project Title: Understanding the Relationship Between Isoform D and Female Fertility

Faculty Mentor: Dr. Caroline Dealy, Reconstructive Sciences, Orthopedic Surgery & Cell Biology

Abigail Moran '23 (Physics & Applied Mathematical Sciences, CLAS)

Project Title: Identification of Binary Systems of Pulsars and White Dwarves

Faculty Mentor: Dr. Chiara Mingarelli, Physics

Briana Nosal '22 (Nutritional Sciences, CAHNR)

Project Title: The Impact of Coffee Preparation on Total Phenolic Contents in Brewed Coffee Extracts and their Contribution to the Body's Antioxidant Status

Faculty Mentor: Dr. Ock K. Chun, Nutritional Sciences

William Odell '22 (Molecular and Cell Biology, CLAS)

Project Title: Inhibitory Effect of Sugar Kelp Supplementation on Inflammation in Mice with Atherosclerosis

Faculty Mentor: Dr. Ji-Young Lee, Nutritional Sciences

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Brian Oliveira '22 (Music, SFA; Music Education, ED)

Project Title: Jazz Improvisation for the Trumpet: A Deeper Understanding of Practice, History, and Pedagogy

Faculty Mentor: Dr. Earl MacDonald, Music

Cindy Pan '22 (Molecular and Cell Biology & Philosophy, CLAS)

Project Title: Weighing-In on Weight: A Qualitative Study on an Online Weight Loss Intervention

Faculty Mentor: Dr. Sherry Pagoto, Allied Health Sciences

Shreya Patel '23 (Physiology and Neurobiology, CLAS)

Project Title: Correlating Sex Steroid Hormones with Gene Expression in the Rat Lateral Amygdala

Faculty Mentor: Dr. Linnaea Ostroff, Physiology and Neurobiology

Matthew Phillips '22 (Speech, Language, and Hearing Sciences & Psychological Sciences, CLAS)

Project Title: Exploring a Temporal Processing Deficit in People who Stutter

Faculty Mentor: Dr. Emily Myers, Speech, Language, and Hearing Sciences

Sarah Platt '22 (Biological Sciences, CLAS)

Project Title: Monoallelic Expression of the Variant Surface Glycoprotein in *Trypanosoma brucei*: Investigating the Role of Subunit CITFA7

Faculty Mentor: Dr. Arthur Gunzl, Genetics and Genome Sciences

Khaleel Rahman '22 (Biological Sciences, CLAS)

Project Title: Examining Of Satire's Efficacy in Changing Sustainability Perceptions Among Undergraduates

Faculty Mentor: Dr. Margaret Rubega, Ecology and Evolutionary Biology

Rebha Raviraj '22 (Marine Sciences, CLAS)

Project Title: Investigation of Freshwater Inputs of Microplastics in Long Island Sound

Faculty Mentor: Dr. Penny Vlahos, Marine Sciences

Rei-Matthew Regala '22 (Physics, CLAS)

Project Title: Cosmic Evolution of Blackholes over Cosmic Time Periods

Faculty Mentor: Dr. Jonathan Trump, Physics

Isabella Sanchez '22 (Nursing, NUR)

Project Title: Investigating the Anti-Arthritic Effects of Cannabidiol

Faculty Mentor: Dr. Steven Kinsey, Nursing

Avin Sapowadia '22 (Molecular and Cell Biology, CLAS)

Project Title: Lubricin Delivery System via Biomimetic Nano-Matrix for Treatment of Age-Related Macular Degeneration

Faculty Mentor: Dr. Yupeng Chen, Biomedical Engineering

Nathan Schaumburger '22 (Biological Sciences, CLAS)

Project Title: Developmental mechanism of pigment pattern formation in monkeyflowers (*Mimulus*)

Faculty Mentor: Dr. Yaowu Yuan, Ecology and Evolutionary Biology

Christine Sharabun '22 (Chemical Engineering, ENG)

Project Title: Micro-Chemical Control of Plastic Elimination via Fenton Process

Faculty Mentor: Dr. Leslie Shor, Chemical and Biomolecular Engineering

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Aaron Spaulding, Dec. '21 (Electrical Engineering, ENG; Mathematics, CLAS)

Project Title: Validating Machine-Learning Based Damage Prediction Models

Faculty Mentor: Dr. Diego Cerrai, Civil and Environmental Engineering

Stephen Stanio '22 (Molecular and Cell Biology, CLAS)

Project Title: The Mutagenic and Toxic Effects of Formamidopyrimidine

Faculty Mentor: Dr. Ashis Basu, Chemistry

Aubrey Surian '22 (Molecular and Cell Biology & Psychological Sciences, CLAS)

Project Title: Communication-Related Behavioral Effects of Cerebellar-Specific Foxp2-Knockout in a Mouse Model

Faculty Mentor: Dr. Holly Fitch, Psychological Sciences

Andrew Tienken Jr. '22 (Environmental Sciences & Political Science, CLAS)

Project Title: Evaluation of Thin-Layer Placement as a Salt Marsh Restoration Method Through Its Effects on Denitrification and Bacterial Community Structure

Faculty Mentor: Dr. Beth Lawrence, Natural Resources and the Environment

Andrew Tsao '22 (Psychological Sciences & Economics, CLAS)

Project Title: Investigating COVID-19 Vaccine Messages to Combat Vaccine Hesitancy

Faculty Mentor: Dr. Natalie Shook, Nursing

Sabrina Uva '22 (Human Development and Family Sciences, CLAS)

Project Title: The Effect of Anti-Racism Engagement on Emerging Adults' Psychological Adjustment and Academic Performance during the Coronavirus Pandemic

Faculty Mentor: Dr. Annamaria Csizmadia, Human Development and Family Sciences

Mackenzie Weng '23 (Nursing, NUR)

Project Title: Testing Anti-Inflammatory Properties of CBD in Mice Induced with LPS

Faculty Mentor: Dr. Steven Kinsey, Nursing

Nathan Wetherell '22 (Mechanical Engineering, ENG)

Project Title: Optimization of Orbital Trajectories Using a Genetically Evolved Artificial Neural Network

Faculty Mentor: Dr. Bryan Weber, Mechanical Engineering

Robert Williams '22 (Materials Science and Engineering, ENG)

Project Title: Improving Air Filtration of HEPA Filters via Graphene Application

Faculty Mentor: Dr. Douglas Adamson, Chemistry

Audrey Worth '22 (Molecular and Cell Biology, CLAS)

Project Title: Controlling Pathogen Growth in Raw and Pasteurized Milk with Commercial Bacteriophages

Faculty Mentor: Dr. Dennis D'Amico, Animal Science

Joshua Yu '23 (Molecular and Cell Biology, CLAS)

Project Title: Correlating Uptake and Intracellular Distribution of Nanoparticle Therapeutics with Cytotoxicity

Faculty Mentor: Dr. Xiuling Lu, Pharmaceutical Sciences

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Humza Zaidi '22 (Molecular and Cell Biology, CLAS)

Project Title: Identifying an Early, Novel Biomarker in the Retina for Alzheimer's Disease

Faculty Mentor: Dr. Royce Mohan, Neuroscience

Mariam Zedan '22 (Pharmacy Studies, PHR)

Project Title: Examining *Delftia tsuruhatensis* Symbiont Activity in Association with Fungus-Gardening Ants

Trachymyrmex septentrionalis Fungus Gardens

Faculty Mentor: Dr. Marcy Balunas, Pharmaceutical Sciences