Research Experiences for Undergraduates Symposium
Alexandria, VA • October 27–28, 2019

Council on Undergraduate Research
Washington, DC
About the cover (clockwise): REU student Taylor Burns measures a flounder as part of her experiment (photo by E. Woodward, UNC Institute of Marine Sciences); REU participant Jerry Harness operates the main telescope at the Prairie View Solar Observatory (photo by PVSO); the team from Grand Valley State University's REU at the Mathematical Association of America’s “Math Jeopardy” (photo by MAA)

Copyright ©2019 Council on Undergraduate Research

Council on Undergraduate Research
734 15th Street NW • Suite 850
Washington, DC 20005
www.cur.org

Printed in the United States of America
# Table of Contents

Planning Committee and CUR National Office Staff ........................................... 2

Program Schedule ............................................................................................... 3

Student Posters ..................................................................................................... 6

Speakers’ Biographies ......................................................................................... 30

Student Opportunities .......................................................................................... 33

Faculty Opportunities .......................................................................................... 34

Conference Hotel Map ........................................................................................ Inside Back Cover
Planning Committee

Liljana Babinkostova, professor
Department of Mathematics
Boise State University

John Hranitz, professor
Department of Biological and Allied Health Sciences
Bloomsburg University

Valentin Soloiu, Allen E. Paulson Distinguished Chair
Department of Mechanical Engineering
Georgia Southern University

CUR National Office Staff

Lindsay Currie
Executive Officer

Robin Howard
Senior Director, Membership Services and Business Operations

Tavia S. Cummings
Director for Meetings and Institute Services

Pamela Dodge
Manager for Organizational Administration

Janae Douglas
Membership Coordinator

Elizabeth Foxwell
Manager for Editorial Projects and Communications

Liz Fray Hains
Manager for Student Programs

Chobe Herndon
Office Assistant
2019 REU Symposium Schedule
Westin Alexandria—October 27–28, 2019

Sunday, October 27

1:00 pm–3:00 pm  Registration and Check-in
                Location: Edison D

3:00 pm–4:15 pm  Welcome and Keynote Presentation
                Location: Edison D

                Lindsay Currie, Executive Officer, Council on Undergraduate Research

                Keynote Presentation:
                DaNa L. Carlis, National Oceanic and Atmospheric Administration
                Research, Meteorologist / Weather Portfolio Advisor and Program
                Manager

4:15 pm–4:30 pm  Orientation to the next day’s activities
                Location: Edison D

4:30 pm–6:00 pm  Faculty Reception
                Location: Hopkins

                Student Reception
                Location: Wright

6:00 pm–

                Dinners—explore Alexandria (students will have the opportunity to
                join groups for dinner—sign up during registration and check-in)
Monday, October 28, 2019

Poster Sessions

7:00 am–8:00 am  Breakfast

8:30 am–9:30 am  Poster Session 1
   Physics; Engineering I; Mathematical Sciences

9:30 am–9:45 am  Switch Groups/Break

9:45 am–10:45 am  Poster Session 2
   Computer and Information Science and Engineering; Engineering II

10:45 am–11:00 am  Switch Groups/Break

11:00 am–12:00 pm  Poster Session 3
   Astronomical Sciences; Biological Sciences I; Earth Science

12:00 pm–12:15 pm  Switch Groups/Break

12:15 pm–1:15 pm  Poster Session 4
   Biological Sciences II; Chemistry

1:15 pm–1:30 pm  Switch Groups/Break

1:30 pm–2:30 pm  Poster Session 5
   Materials Research; Atmospheric Sciences and Geospace; Social, Behavioral, and Economic Sciences; Education and Human Resources

2:45 pm–3:15 pm  Closing Session

---

Have some time before or after presenting your poster?

Be sure to check out professional development sessions (see next page), or attend another poster session to speak with other students engaged in research in other disciplines!
Monday, October 28, 2019

Professional Development Sessions

Session 1|9:00 am–10:00 am
For Students: 
**Interview Techniques to Stand Out from the Crowd** — Patrick Algyer, CVA, Chief Strategist and Founder, Encore Engagement Solutions
Room: Wright

For Faculty: 
**NSF REU Program Update** — R. Corby Hovis, Program Director, Education and Human Resources
Room: Banneker

Session 2|10:15 am–11:15 am
For Students: 
**Undergraduate Scholarships through the Barry Goldwater Scholarship and Excellence in Education Foundation** — John Mateja, President, Barry Goldwater Scholarship and Excellence in Education Foundation
Room: Wright

For Faculty: 
**REU and RET: Impacts on Undergraduate Students, Graduate Student Mentors and Teachers** — Alisa Leckie, Interim Assistant Dean for Partnerships and Outreach, and Associate Professor, Georgia Southern University
Room: Banneker

Session 3|11:45 am–12:45 pm
For Students: 
**Writing a Personal Statement** — Janice DeCosmo, Associate Vice Provost for Undergraduate Research; Associate Dean of Undergraduate Academic Affairs, University of Washington; President, Council on Undergraduate Research
Room: Wright

For Faculty — Visits to NSF: Please schedule directly with your program director.

Session 4| 1:15 pm–2:15 pm
For Students: 
**Preparing for Professional Life: Resume Building and Networking** — Rebecca Jones, Associate Professor, Department of Chemistry & Biochemistry, George Mason University
Room: Banneker

For Faculty — NSF Visits: Please schedule directly with your program director
Poster Session 1
Location: Edison D

NSF Division: Physics

Poster Number: 1
Title: Spectroscopic Characterization of Tetragonal Tin Dioxide
Presenter(s): Ben Concepcion
REU Site: REU Site in Physics at Howard University
Host Institution: Howard University
Grant Number: 1659224
Principal Investigator / Faculty Mentor: Prabhakar Misra

Poster Number: 2
Title: Extinction Monitor for Mu2e-II
Presenter(s): Cassandra Little
REU Site: Summer Undergraduate Research in Physics and Astrophysics at the University of Michigan
Host Institution: University of Michigan
Grant Number: 1852239
Principal Investigator / Faculty Mentor: Myron Campbell

Poster Number: 3
Title: Synthesis and Characterization of AlFe2-xCoxB2
Presenter(s): Jesus Botello-Esquivel
REU Site: Physics at Miami University
Host Institution: Miami University
Grant Number: 1757575
Principal Investigator / Faculty Mentor: Herbert Jaeger | Mahmud Khan

Poster Number: 4
Title: A Deep Learning Approach to Source Localization and Seabed Classification using Pressure Time-Series from a Vertical Line Array
Presenter(s): Mason C. Acree
REU Site: Physics at Brigham Young University
Host Institution: Brigham Young University
Grant Number: 1757998
Principal Investigator / Faculty Mentor: Jean-Francois Van Huele | Traci Neilsen

Poster Number: 5
Title: A Wedge Mechanical Polishing Procedure for TEM Preparation of Skyrmion Materials
Presenter(s): Avery Perrine
REU Site: Center for Emergent Materials Research Experience for Undergraduates
Host Institution: OSU
Grant Number: 1420451
Principal Investigator / Faculty Mentor: David W. McComb
Poster Number: 6
Title: Studying Spatially Extended Gamma-Ray Sources with VERITAS
Presenter(s): Gabriela Torrini
REU Site: An Inclusive REU Program in Physics and Astronomy at the University of Utah
Host Institution: University of Utah
Grant Number: 1659494
Principal Investigator / Faculty Mentor: Jordan Gerton | David Kieda

Poster Number: 7
Title: Aging Inconsistencies of Ferroelectric Partially Deuterated Potassium Dihydrogen Phosphate
Presenter(s): Otto Schwarm
REU Site: From the Cosmos to the Living Cell—Scientific Tools and Best Practices for Successful Careers in Physics
Host Institution: University of Illinois at Urbana-Champaign
Grant Number: 1659598
Principal Investigator / Faculty Mentor: Matthias Grosse Perdekamp | Eugene Colla

Poster Number: 8
Title: Measuring Diffusion Length in Single Crystal Halide Perovskites
Presenter(s): Spencer Weeden
REU Site: UC Davis Physics REU Program
Host Institution: UC Davis
Grant Number: 1852581
Principal Investigator / Faculty Mentor: Nicholas Curro | Dong Yu

NSF Division: Engineering

Poster Number: 9
Title: Separation of Azeotropic Hydrofluorocarbon Mixtures Using Ionic Liquids
Presenter(s): Abby Harders
REU Site: IDEA Incubator for Porous Materials: Integrating Discovery, Engineering, and Art
Host Institution: University of Kansas
Grant Number: 1852308
Principal Investigator / Faculty Mentor: Mark Shiflett

Poster Number: 10
Title: Localized Bioimpedance Measurements during Adduction and Abduction of the Vocal Folds in Healthy Participants
Presenter(s): Alexis Ramirez
REU Site: Engineering Sensors, Systems, and Signal Processing for Speech Pathology
Host Institution: The University of Alabama
Grant Number: 1852161
Principal Investigator / Faculty Mentor: Todd Freeborn
Poster Number: 11
Title: Evaluating Dependence of Mechanical Properties of Human Brain Tissue on Vasodilation Using Magnetic Resonance Elastography
Presenter(s): Mary Kramer
REU Site: Frontiers in Biomedical Imaging
Host Institution: University of Illinois at Urbana-Champaign
Grant Number: 1757837
Principal Investigator / Faculty Mentor: Andrew M. Smith | Bradley P. Sutton

Poster Number: 12
Title: Collision Avoidance System for Multicopter UAVs Using Optical Flow
Presenter(s): Natallia Urieva
REU Site: Research Experience for Undergraduates in UAV Technologies
Host Institution: California State Polytechnic University, Pomona
Grant Number: 1560478
Principal Investigator / Faculty Mentor: Subodh Bhandari

Poster Number: 13
Title: Exploring the Relationship between Birth Defects and Air Pollutants in Nueces County
Presenter(s): Riley Ramirez
REU Site: Integrating Research in Sustainable Energy and the Environment across Disciplines (IR-SEED)
Host Institution: Texas A&M University–Kingsville
Grant Number: 1757812
Principal Investigator / Faculty Mentor: Hua Li

Poster Number: 14
Title: Photoacoustic Spectroscopy for Measurements of Cytochrome-C-Oxidase
Presenter(s): Karen Rius
REU Site: Wellman-HST Summer Institute for Biomedical Optics
Host Institution: Massachusetts General Hospital
Grant Number: 1852430
Principal Investigator / Faculty Mentor: Walfre Franco

Poster Number: 15
Title: Synthesis, Characterization, and Application of Activated Carbon Prepared from Diverse Algae Precursors
Presenter(s): Dylan Koch
REU Site: Environmental Engineering Solutions for Pollution Prevention
Host Institution: University at Buffalo–State University of New York
Grant Number: 1852243
Principal Investigator / Faculty Mentor: John D. Atkinson

Poster Number: 16
Title: Identifying Vulnerable Networks in Mouse Models of Late Onset of Alzheimer's Disease
Presenter(s): Jordan Shuff
REU Site: REU for Meeting Grand Challenges
Host Institution: Duke University
Grant Number: 1659615
Principal Investigator / Faculty Mentor: Carmen Rawls | Alexandra Badea
Poster Number: 17
Title: Hybrid Energy Storage System for Powered Wheelchairs
Presenter(s): Michelle Jamie Karabin
REU Site: American Student Placements in Rehabilitation Engineering (ASPIRE)
Host Institution: University of Pittsburgh—Human Engineering Research Laboratories (HERL)
Grant Number: 1560174
Principal Investigator / Faculty Mentor: Rory A. Cooper

Poster Number: 18
Title: Imprintable Shape Memory Polymer Glassy Thermosets
Presenter(s): Bryan Schellberg
REU Site: Advancing Human Health from Nano to Network
Host Institution: University of Rochester
Grant Number: 1559970
Principal Investigator / Faculty Mentor: Beth Olivares | Mitch Anthamatten

Poster Number: 19
Title: Effect of Posttranslational Modifications on Claudin-19 Tight Junction Protein
Presenter(s): Carolina Almonte
REU Site: Interactive Biomaterials
Host Institution: Syracuse University
Grant Number: 1757749
Principal Investigator / Faculty Mentor: James Henderson | Shikha Nangia

**NSF Division: Mathematical Sciences**

Poster Number: 20
Title: Mathematical Modeling and Optimal Control for Malaria Transmission Using Sterile Mosquitoes Technique and Bed Nets
Presenter(s): Logan Rose
REU Site: Computational Modeling and Simulation in the Applied Sciences
Host Institution: Middle Tennessee State University
Grant Number: 1757493
Principal Investigator / Faculty Mentor: Wandi Ding

Poster Number: 21
Title: Mathematical Modeling of Intermittent Androgen Suppression Therapy in Prostate Cancer
Presenter(s): Justin Bennett
REU Site: Applied Mathematics and Computational Modeling in the Greater Phoenix Area
Host Institution: Arizona State University
Grant Number: 1757663
Principal Investigator / Faculty Mentor: Wenbo Tang | Yang Kuang

Poster Number: 22
Title: A Family of Multi-Dimensional Continued Fractions: TRIP Maps
Presenter(s): Rose Dong
REU Site: Williams College SMALL
Host Institution: Williams College
Grant Number: 1659037
Principal Investigator / Faculty Mentor: Thomas Garrity
Poster Number: 23
Title: A Network Flow Model of Non-Cash Value Transfer in Illicit Transactions
Presenter(s): Nicholas P. Silva
REU Site: Security Printing and Anti-Counterfeiting Technology
Host Institution: South Dakota School of Mines and Technology
Grant Number: 1852336
Principal Investigator / Faculty Mentor: Grant Crawford | Saurav Kumar Dubey

Poster Number: 24
Title: The Ring Learning with Errors Problem: Smearing Condition and Spectral Distortion
Presenter(s): Ariana Chin
REU Site: Complexity across Disciplines
Host Institution: Boise State University
Grant Number: 1659872
Principal Investigator / Faculty Mentor: Liljana Babinkostova

Poster Number: 25
Title: Material Wear Data Science
Presenter(s): Julianna Bernardi
REU Site: Research Experiences for Undergraduates in Industrial Mathematics and Statistics
Host Institution: Worcester Polytechnic Institute
Grant Number: 1757685
Principal Investigator / Faculty Mentor: Burt S. Tilley | Randy Paffenroth

Poster Number: 26
Title: Sum Index and Difference Index of Simple Graphs
Presenter(s): Kedar Karhadkar | Eugene Henninger-Voss | Emily Robinson
REU Site: Research Challenges of Experimental and Computational Mathematics
Host Institution: Moravian College
Grant Number: 1852378
Principal Investigator / Faculty Mentor: Nathan Shank | Eugene Fiorini

Poster Session 2
Location: Edison D

NSF Division: Computer and Information Science and Engineering

Poster Number: 1
Title: Unmanaged Aerial Robot Navigation for Exploring Unknown Environments Using Reinforcement Learning
Presenter(s): Jacob Adkins
REU Site: Mathematical Modeling in Environmental, Biological, and Other Sciences
Host Institution: Bethune-Cookman University
Grant Number: 1755561
Principal Investigator / Faculty Mentor: Seenith Sivasundaram | Juan Calderon
Poster Number: 2
Title: Deep Geometric Recovery for Dimension Reduction
Presenter(s): Jessica Bader
REU Site: Data Science Research for Healthy Communities in the Digital Age
Host Institution: Worcester Polytechnic Institute
Grant Number: 1852498
Principal Investigator / Faculty Mentor: Elke Rundensteiner

Poster Number: 3
Title: Automated Dynamic Detection of Self-Hiding Behavior
Presenter(s): Luke Baird
REU Site: Networked Cyber-Physical Systems
Host Institution: Wichita State University
Grant Number: 1659396
Principal Investigator / Faculty Mentor: Vinod Namboodiri | Zhiyong Shan

Poster Number: 4
Title: Anomaly Detection of Security, Privacy Attacks Disrupting Users Immersive Experience in Virtual Reality Learning Environments
Presenter(s): Benjamin Frailey
REU Site: REU in Consumer Networking Technologies
Host Institution: University of Missouri–Columbia
Grant Number: 1659134
Principal Investigator / Faculty Mentor: Prasad Calyam

Poster Number: 5
Title: Eye Tracking as an Input Modality for Individuals with Vision Impairments
Presenter(s): Natalie Maus
REU Site: Computational Sensing for Human-Centered AI
Host Institution: Rochester Institute of Technology
Grant Number: 1851591
Principal Investigator / Faculty Mentor: Cecilia O. Alm | Kristen Shinohara

Poster Number: 6
Title: Augmenting Social-Communicative Behaviors between Hearing Parents and Deaf Children
Presenter(s): Yoona Oh
REU Site: Computational Methods for Understanding Music, Media, and Minds
Host Institution: University of Rochester
Grant Number: 1659250
Principal Investigator / Faculty Mentor: Ajay Anand | Zhen Bai

Poster Number: 7
Title: Sustainable Energy and Localized Future (SELF) Dataset Development
Presenter(s): Francesca Giardine
REU Site: Summer Undergraduate Program in Engineering Research at Berkeley (SUPERB)
Host Institution: UC Berkeley
Grant Number: 1659833
Principal Investigator / Faculty Mentor: John Canny | Daniel Kammen
Poster Number: 8
Title: Privacy Preserving Inference with Convolutional Neural Network Ensemble
Presenter(s): Alexander Xiong
REU Site: Research Experience for Undergraduates in Big Data Security and Privacy
Host Institution: California State Polytechnic University, Pomona
Grant Number: 1758017
Principal Investigator / Faculty Mentor: Tingting Chen

Poster Number: 9
Title: Machine Learning for Energy Segmentation and Forecasting
Presenter(s): Dominique Smith
REU Site: Sensor, Signal and Information Processing (SenSIP) Devices and Algorithms
Host Institution: Arizona State University
Grant Number: 1659871
Principal Investigator / Faculty Mentor: Andreas Spanias

Poster Number: 10
Title: Creating A Human-Like Agent Model for Interactive Negotiation Tasks
Presenter(s): Tristan Onek
REU Site: Research in Interactive Virtual Experiences
Host Institution: University of Southern California (Institute for Creative Technologies)
Grant Number: 1852583
Principal Investigator / Faculty Mentor: Ron Artstein | Gale Lucas

Poster Number: 11
Title: Tweets as a Predictor of Primary Political Outcomes
Presenter(s): Sarah Townsend
REU Site: Big Data Analytics at Oklahoma State University
Host Institution: Oklahoma State University
Grant Number: 1659645
Principal Investigator / Faculty Mentor: Christopher Crick | KM George

Poster Number: 12
Title: Towards Silent Speaker Recognition Based on Micro-Doppler Signature of Articulatory Movement Using mmWave Radar
 Presenter(s): Jenna Ryan
REU Site: Research Experiences in Pervasive Computing for Smart Health, Safety, and Well-Being
Host Institution: Temple University
Grant Number: 1757533
Principal Investigator / Faculty Mentor: Jamie Payton | Bo Ji

Poster Number: 13
Title: The Power of the Merge: Using Communication Complexity to Understand Circuit Complexity
Presenter(s): Shoshana Simons
REU Site: DIMACS REU in Algorithms from Foundations to Applications
Host Institution: Rutgers University
Grant Number: 1852215
Principal Investigator / Faculty Mentor: Lazaros Gallos | Robert Robere
Poster Number: 14
Title: IoT-Enabled Smart Mobility Devices for Aging and Rehabilitation
Presenter(s): Nafisa Nawal Mostofa
REU Site: Research Experiences on Internet of Things (IoT)
Host Institution: University of Central Florida
Grant Number: 1852002
Principal Investigator / Faculty Mentor: Damla Turgut

Poster Number: 15
Title: Risk Assessments and Measurements of Privacy Leaks within Google’s Ads Data Hub
Presenter(s): Miguel Fuentes
REU Site: Research in Industrial Projects for Students
Host Institution: Institute for Pure and Applied Mathematics
Grant Number: 1440415
Principal Investigator / Faculty Mentor: Susana Serna

Poster Number: 16
Title: A Comparison of the Reliability between Traditional Machine Learning Techniques and Deep Learning in the Classification of Breast Cancer
Presenter(s): Jacob Richard
REU Site: Software Safety and Reliability: Research and Application
Host Institution: University of Texas at Dallas
Grant Number: 1757828
Principal Investigator / Faculty Mentor: W. Eric Wong

NSF Division: Engineering

Poster Number: 17
Title: Exploring New Cathode Materials to Enable High-Energy Magnesium Batteries
Presenter(s): Elyssa Ferguson
REU Site: Nanoscale Materials Science and Engineering at Vanderbilt University
Host Institution: Vanderbilt University
Grant Number: 1560414
Principal Investigator / Faculty Mentor: Clare McCabe | Cary Pint

Poster Number: 18
Title: Characterization of Neural Differentiation by Dendrogram Visualization of Single Cell Time Course Analysis
Presenter(s): Malikah Ajose
REU Site: Multi-Scale Systems Bioengineering
Host Institution: University of Virginia
Grant Number: 1560282
Principal Investigator / Faculty Mentor: Timothy E. Allen | Eli Zunder
Poster Number: 19
Title: Allelic Specificity Landscapes of Peptide/HLA Complexes Using a Comparative Modeling Approach with Backbone Flexibility
Presenter(s): Hailey Wallace
REU Site: Rosetta Commons REU: A Cyberlinked Program in Computational Biomolecular Structure & Design
Host Institution: Johns Hopkins University
Grant Number: 1659649
Principal Investigator / Faculty Mentor: Jeff Gray | Nikoloas Sgourakis

Poster Number: 20
Title: Computational Mutagenesis and Analysis to Optimize the Structure of ABA Receptor PYR1
Presenter(s): Justin Nwafor
REU Site: Rosetta Commons REU: A Cyberlinked Program in Computational Biomolecular Structure & Design
Host Institution: Johns Hopkins University
Grant Number: 1659649
Principal Investigator / Faculty Mentor: Jeff Gray | Timothy Whitehead

Poster Number: 21
Title: Characterizing Skeletal Microstructure with High-Resolution Nondestructive 3D X-Ray Microscopy
Presenter(s): Katie Baldridge
REU Site: NNCI: North Carolina Research Triangle Nanotechnology Network (RTNN) REU
Host Institution: North Carolina State University
Grant Number: 1542015
Principal Investigator / Faculty Mentor: Jacob Jones | Jacque Cole

Poster Number: 22
Title: Structural Analysis of CFRP Adhesive Bonds with Embedded Electrodes
Presenter(s): Daniel Cantrell
REU Site: REVAMP: Research Experience for Student Veterans in Advanced Manufacturing and Entrepreneurship
Host Institution: Georgia Tech Manufacturing Institute, Georgia Institute of Technology
Grant Number: 1359019
Principal Investigator / Faculty Mentor: Chuck Zhang | Billyde Brown

Poster Number: 23
Title: Electrical-Based Screening of Radiation Failure Modes in Transistor-Based Memory for Space Applications
Presenter(s): James Cannon
REU Site: UTChattSat: An Interdisciplinary CubeSat Research and STEM Education Platform at the University of Tennessee at Chattanooga
Host Institution: University of Tennessee at Chattanooga
Grant Number: 1757777
Principal Investigator / Faculty Mentor: Daniel Loveless
Poster Number: 24
Title: Innovative Combustion Strategy with n-butanol for the Drastic Engine Reduction of NOx and Soot Emissions
Presenter(s): Cesar Carapia
REU Site: Research in Green-Engineered New Transportation Technologies (URGENT)
Host Institution: Georgia Southern University
Grant Number: 1262947
Principal Investigator / Faculty Mentor: Valentin Soloiu

Poster Number: 25
Title: Evaluation of DNA-NT Performance for Ovarian Cancer Screening
Presenter(s): Maya Horenstein
REU Site: Summer Undergraduate Fellowship in Sensor Technologies—SUNFEST
Host Institution: University of Pennsylvania
Grant Number: 1659190
Principal Investigator / Faculty Mentor: Jan Van der Spiegel | Charlie Johnson

Poster Number: 26
Title: Mechanical Engineering of Rocket Payloads and Cold Sensors
Presenter(s): Hazel Lou Goleman
REU Site: Multimessenger Astrophysics
Host Institution: Rochester Institute of Technology
Grant Number: 1659740
Principal Investigator / Faculty Mentor: Joshua Faber | Michael Zemcov

Poster Session 3
Location: Edison D

NSF Division: Astronomical Sciences

Poster Number: 1
Title: Solid-State Nanopore for the Detection of Biosignatures on Ocean Worlds
Presenter(s): Madeline Garner
REU Site: Life in the Universe—Astronomy and Planetary Science at the SETI Institute
Host Institution: SETI Institute
Grant Number: 1758024
Principal Investigator / Faculty Mentor: Matthew Tiscareno | Kathryn Bywaters

Poster Number: 2
Title: Interplanetary Scintillation Measurements at Arecibo Observatory in Support of Parker Solar Probe 2nd Encounter (April 4, 2019)
Presenter(s): Megan Kenny
REU Site: Research in Radio/Radar Astronomy and Atmospheric Sciences at Arecibo Observatory
Host Institution: Universidad Ana G. Mendez–Cupey Campus / Arecibo Observatory
Grant Number: 1559849
Principal Investigator / Faculty Mentor: Andres Diaz | Alessandra Abe Pacini
Poster Number: 3
Title: Where is the Action? Galaxy Evolution and Environment at Redshift 1
Presenter(s): April Horton
REU Site: Astronomy in Hawaii
Host Institution: Institute for Astronomy, University of Hawaii
Grant Number: 1560413
Principal Investigator / Faculty Mentor: Nader Haghighipour | Roy Gal

Poster Number: 4
Title: Classification of X-Ray Binary Stars with Machine Learning
Presenter(s): Olive Koren
REU Site: The Keck Northeast Astronomy Consortium
Host Institution: Wesleyan University
Grant Number: 1559865
Principal Investigator / Faculty Mentor: Seth Redfield | Roy Kilgard

NSF Division: Biological Sciences

Poster Number: 5
Title: Context-Aware Word Embedding Models Significantly Improve Prediction of Human Conceptual Similarity Relationships
Presenter(s): Tyler Giallanza
REU Site: Princeton Neuroscience Institute Summer Internship Program
Host Institution: Princeton University
Grant Number: 1757554
Principal Investigator / Faculty Mentor: Edwin Clayton | Jonathan Cohen

Poster Number: 6
Title: Characterizing the Role of Piccolo Splice Variants in Calcium-Mediated Insulin Secretion in Pancreatic Beta-Cells
Presenter(s): Gerald Bush
REU Site: RENAU: Research Experience for Native American Undergraduates
Host Institution: Fort Lewis College
Grant Number: 1757953
Principal Investigator / Faculty Mentor: Megan Paciaroni | Steven D. Fenster

Poster Number: 7
Title: Fluorescent Labeling in the Mycobacterial Periplasm
Presenter(s): Alison Farinas
REU Site: Interdisciplinary Research Training across Biology, Physics, and Engineering
Host Institution: Yale University
Grant Number: 1755494
Principal Investigator / Faculty Mentor: Corey O'Hern | Hesper Rego
Poster Number: 8
Title: Analysis of CRISPR-Based Chromosome Labeling with Computer Vision and Machine Learning Techniques
Presenter(s): Erin Haus
REU Site: Training and Experimentation in Computational Biology (TECBio)
Host Institution: University of Pittsburgh
Grant Number: 1659611
Principal Investigator / Faculty Mentor: Joseph Ayoob | Jianhua Xing

Poster Number: 9
Title: Physiological and Demographic Response of the Eastern Mosquito Fish *Gambusia holbrooki* to Variations in Food Quality
Presenter(s): Samiris Suleiman Orozco
REU Site: Coastal Ecosystems: From the Everglades to Coral Reefs
Host Institution: Florida International University
Grant Number: 1852123
Principal Investigator / Faculty Mentor: Rita Teutonico | Alex E. Mercado-Molina

Poster Number: 10
Title: An Investigation of Congenital Agenesis of the *Corpus Callosum*
Presenter(s): Alexis Delgado
REU Site: Scientific Computing for Structure in Big or Complex Datasets
Host Institution: University of Miami
Grant Number: 1659144
Principal Investigator / Faculty Mentor: Burton Roseberg | Lucina Uddin

Poster Number: 11
Title: Habitat Heterogeneity and Fish Communities Relative to Debris Dams in East Fork Indian Creek, Menifee County, KY
Presenter(s): Thomas Rafael Bustamante
REU Site: Disturbance Ecology in Central Appalachia
Host Institution: Eastern Kentucky University
Grant Number: 1559980
Principal Investigator / Faculty Mentor: David Brown | Sherry Harrel

Poster Number: 12
Title: Escape from Sal-catraz: Evading Antibody-Mediated Motility Arrest
Presenter(s): Elizabeth Weyer
REU Site: Networked Projects in Cell and Molecular Biology at the Wadsworth Center
Host Institution: Wadsworth Center
Grant Number: 1757170
Principal Investigator / Faculty Mentor: Matthew Kohn | Nicholas Mantis
Poster Number: 13
Title: Effects of Environmental Biotic Factors on Seedling Survival
Presenter(s): Dayna De La Cruz
REU Site: Harvard Forest Program in Forest Ecology: Ecological Data-Model Fusion and Environmental Forecasting
Host Institution: Harvard University
Grant Number: 1459519
Principal Investigator / Faculty Mentor: Aaron Ellison | Jaclyn Matthes

Poster Number: 14
Title: Why Are You Hungry? The Story of Upd2/Leptin and You
Presenter(s): Lorenzo Smith
REU Site: BioTechnology Sequencing-Based Undergraduate Research Experience (BIT SURE)
Host Institution: North Carolina State University
Grant Number: 1659225
Principal Investigator / Faculty Mentor: Patricia Estes

Poster Number: 15
Title: Visible Light Induced H2 Production in a Recombinant Escherichia coli Coupled with Vanadosilicate AM-6 Photocatalyst
Presenter(s): Bianca Boschetti
REU Site: Multisite REU in Synthetic Biology
Host Institution: Simmons University
Grant Number: 1852150
Principal Investigator / Faculty Mentor: Jennifer Canfield | Mariam Ismail

Poster Number: 16
Title: Lizard Egg Predation by Marsh Crabs: Effects of Microhabitat and Crab Density on Egg Survival
Presenter(s): Andrew DeSana
REU Site: Warm-Water Aquatic Ecology
Host Institution: Auburn University
Grant Number: 1658694
Principal Investigator / Faculty Mentor: Alan Wilson | Daniel Warner

Poster Number: 17
Title: Genetic Variation in Pre-Dawn Stomatal Conductance in Switchgrass (Panicum virgatum): Climate and Trait Associations
Presenter(s): Tia Brown
REU Site: Research Experiences for Undergraduates in Coastal Biology on Florida's First Coast
Host Institution: University of North Florida
Grant Number: 1852488
Principal Investigator / Faculty Mentor: Matthew R. Gilg | Michael Aspinwall
Poster Number: 18  
**Title:** Host Plants Alter Wing Patterns in Nymphalid Butterflies  
**Presenter(s):** Shalom Entner  
**REU Site:** Ecology and Evolutionary Biology at the University of Virginia’s Bland Experimental Farm  
**Host Institution:** University of Virginia  
**Grant Number:** 1659816  
**Principal Investigator / Faculty Mentor:** Kyle Haynes | Rebecca Forkner

Poster Number: 19  
**Title:** Optogenetic Activation of Rho Family GTPases in *Drosophila* Axon Guidance  
**Presenter(s):** Robert Shackelford | Jordon Winn  
**REU Site:** REU Program in Molecular Genetics and Cell Biology  
**Host Institution:** The University of Chicago  
**Grant Number:** 1659490  
**Principal Investigator / Faculty Mentor:** Aaron Paul Turkewitz | Robert Carrillo

Poster Number: 20  
**Title:** Characterizing the Terrestrial Flatworm *Bipalium kewense* as a Viable and Important Model Organism in Which to Study Regeneration  
**Presenter(s):** Juliana Benitez | Maja Johnson  
**REU Site:** Teamwork in Biology Inquiry: From Molecules to Organisms  
**Host Institution:** Northeastern University  
**Grant Number:** 1757443  
**Principal Investigator / Faculty Mentor:** Wendy Smith | James Monaghan

Poster Number: 21  
**Title:** Invasive Plants and Bird Nesting Success in Missouri River Riparian Forests  
**Presenter(s):** Jacob Myers  
**REU Site:** Sustainable RIVER (Remediating InVasives to Encourage Resilience)  
**Host Institution:** University of South Dakota  
**Grant Number:** 1560048  
**Principal Investigator / Faculty Mentor:** Meghann Jarchow | David Swanson

Poster Number: 22  
**Title:** Abiotic Factors Affect Habitat Quality in the Arizona Toad  
**Presenter(s):** Erasmo Rocha  
**REU Site:** Place-Based Research and Training in Biology and Environmental Science on the Colorado Plateau  
**Host Institution:** Northern Arizona University  
**Grant Number:** 1757626  
**Principal Investigator / Faculty Mentor:** Liza Holeski | Matthew O’Neill

Poster Number: 23  
**Title:** The Use of Small Unmanned Aerial Systems (sUAS) in the Referential Identification of Invasive Vegetation Within the Old Woman Creek Estuarine Reserve  
**Presenter(s):** Caleb Keoho  
**REU Site:** Addressing Environmental Challenges and Proposing Sustainable Solutions at the Lake Erie Land-Lake Interface  
**Host Institution:** University of Toledo
Grant Number: 1852245  
**Principal Investigator / Faculty Mentor:** Jeanine Refsnider | Richard Becker

**Poster Number:** 24  
**Title:** Investigating Mitochondrial Structure and Function in the Rare X-linked Intellectual Disability Disorder, MEHMO Syndrome  
**Presenter(s):** Amanda Anqueira-Gonzalez  
**REU Site:** Center for Neural Science Summer Undergraduate Research  
**Host Institution:** Center for Neural Science, New York University  
**Grant Number:** 1460880  
**Principal Investigator / Faculty Mentor:** Chiye Aoki | Eric Klann | Megan Kate Elder

**NSF Division: Earth Science**

**Poster Number:** 25  
**Title:** Role of Mechanical Properties of Sediments in the Formation of Landward versus Seaward Verging Thrust Faults at Accretionary Prisms  
**Presenter(s):** Madeline Hunt  
**REU Site:** Earth Science on Volcanic Islands (ESVI)  
**Host Institution:** University of Hawai‘i at Mānoa  
**Grant Number:** 1560196  
**Principal Investigator / Faculty Mentor:** Bridget Smith-Konter | Garrett Ito

**Poster Number:** 26  
**Title:** Decolorization Effects of Glutathione in Chlorogenic Acid-Lysine Solutions for Enhanced Consumer Acceptability  
**Presenter(s):** Kenninsy Bahena  
**REU Site:** Summer Undergraduate Research Fellowship in Earth and Environmental Sciences (SURFEES)  
**Host Institution:** Chapman University  
**Grant Number:** 1757991  
**Principal Investigator / Faculty Mentor:** Christopher S. Kim | Lilian Were

**Poster Session 4  
Location: Edison D**

**NSF Division: Biological Sciences**

**Poster Number:** 1  
**Title:** Heterotrimeric G-proteins Regulate Heat Stress Response in *Arabidopsis thaliana*  
**Presenter(s):** Anastasiya Andriyash  
**REU Site:** Research Experiences in Plant Science at the Danforth Center  
**Host Institution:** Donald Danforth Plant Science Center  
**Grant Number:** 1659812  
**Principal Investigator / Faculty Mentor:** Sona Pandey
Poster Number: 2
Title: Elucidating the Impact of Transketolase in Epilepsy
Presenter(s): Honour Williams
REU Site: Training in Redox Biology
Host Institution: University of Nebraska–Lincoln
Grant Number: 1757951
Principal Investigator / Faculty Mentor: Lovell Agwarambgo

Poster Number: 3
Title: The Effect of Muscadine Grape Extract (MGE) Treatment on Macrophage Activity in Skeletal Muscle after Injury
Presenter(s): Macaiah Sheffield
REU Site: Engineering New REU Approaches to Challenges in MultiTERM
Host Institution: Wake Forest University School of Medicine
Grant Number: 1659663
Principal Investigator / Faculty Mentor: Anthony Atala | Tracy Criswell

Poster Number: 4
Title: Does Herbivory Present a Major Cost to Temperate Nitrogen Fixing Trees across the Fixer Phylogeny?
Presenter(s): Ava Adler
REU Site: Translational Ecology for Undergraduates
Host Institution: Cary Institute of Ecosystem Studies
Grant Number: 1559769
Principal Investigator / Faculty Mentor: Alan R. Berkowitz | Sarah Batterman

Poster Number: 5
Title: Dysregulation of Chondrocyte Differentiation via Different Sources of Reactive Oxygen Species
Presenter(s): Jonathan Lewis
REU Site: Research Experiences for Undergraduates in Genetic and Biochemical Mechanisms of Prokaryotic and Eukaryotic Organisms
Host Institution: Louisiana State University–New Orleans
Grant Number: 1659752
Principal Investigator / Faculty Mentor: Fern Tsien | Martin Ronis

Poster Number: 6
Title: Assessment and Comparison of the Biofouling Communities in the Maryland Coastal Bays
Presenter(s): Sulaiman Abdul-Aziz
REU Site: Research Experience for Undergraduates in Marine and Estuarine Sciences
Host Institution: University of Maryland–Eastern Shore
Grant Number: 1757795
Principal Investigator / Faculty Mentor: Paulinus Chigbu | Brad Stevens

Poster Number: 7
Title: Surveying Historical Patterns of Vegetation Change (1929–2019) in the Upper East River Valley Using RMBL’s Archival Herbarium Records
Presenter(s): Karla Alvarado
REU Site: Research Training in Place-Based Field Research
Host Institution: Rocky Mountain Biological Laboratory
Grant Number: 1755522
Principal Investigator / Faculty Mentor: Jennifer Reithel and Ian Billick | C. F. Williams

Poster Number: 8
Title: Soil Health as Affected by Land Management
Presenter(s): Grace Johnson
REU Site: Restoring Cattle Ranches for Sustainable Land and Water Resources
Host Institution: Tarleton State University
Grant Number: 1658984
Principal Investigator / Faculty Mentor: Christopher Higgins | Barbara Bellows

Poster Number: 9
Title: Where Are My Bacterial Symbionts? An Examination of Early Life History Stages of the Solitary Ascidian Phallusia philippinensis
Presenter(s): Jessica Eddie Anjain
REU Site: Environmental Biology for Pacific Islanders
Host Institution: University of Hawai‘i at Mānoa
Grant Number: 1659889
Principal Investigator / Faculty Mentor: Michael G. Hadfield

Poster Number: 10
Title: Characterizing the Role of the mir-44 MicroRNA Family in Egg-Laying Behavior of Caenorhabditis elegans
Presenter(s): Clairine Larsen
REU Site: Interdisciplinary Undergraduate Summer Research in Biology
Host Institution: Marquette University
Grant Number: 1659595
Principal Investigator / Faculty Mentor: Allison Abbott

Poster Number: 11
Title: Phenotypic and Genome Editing Analysis of Stickleback Morphology
Presenter(s): James Wilson
REU Site: Integrating Biology from Molecules to Ecosystems
Host Institution: University of California, Berkeley
Grant Number: 1758007
Principal Investigator / Faculty Mentor: Gian Garriga | Craig Miller

Poster Number: 12
Title: A Parasitoid Puzzle: Phylogenetic Relationships of Labeninae Wasps (Ichneumonidae)
Presenter(s): Marissa Sandoval
REU Site: Natural History Research Experiences
Host Institution: National Museum of Natural History, Smithsonian Institution
Grant Number: 1560088
Principal Investigator / Faculty Mentor: Gene Hunt | Bernardo Santos

Poster Number: 13
Title: Identifying the Key Methanogens Utilizing Quaternary Amines
Presenter(s): Alexia Page-Boyd
REU Site: Ecology of Human-Dominated Landscapes
Host Institution: Miami University
Grant Number: 1460518
Principal Investigator / Faculty Mentor: David Berg | D.J. Ferguson

Poster Number: 14
Title: Characterization of a Novel and Unexpected Class of Cobalamin-Binding Radical S-adenosylmethionine Methylases
Presenter(s): Olivia Peduzzi
REU Site: Catalysis and Motion
Host Institution: The Pennsylvania State University
Grant Number: 1659679
Principal Investigator / Faculty Mentor: Squire J. Booker

Poster Number: 15
Title: Synergistic Effects of UVA and UVB Radiation on Moon Jellyfish Proliferation and Potential Coping Mechanisms
Presenter(s): Lauren E. Johnson
REU Site: Interdisciplinary Research Experiences in Coastal Plain Science
Host Institution: Georgia Southern University
Grant Number: 1757536
Principal Investigator / Faculty Mentor: Jose C. Colon-Gaud | Laura Treible

Poster Number: 16
Title: Genetic and Molecular Basis of Social Behavior
Presenter(s): Nazaret Montejano
REU Site: Program in Molecular Biosciences at the University of Oregon
Host Institution: University of Oregon
Grant Number: 1758015
Principal Investigator / Faculty Mentor: Peter O'Day

Poster Number: 17
Title: Understanding the Relationships between Species within the Human Nasal Microbiota
Presenter(s): McKinley Croteau
REU Site: Integrated Science for Society (IS2)
Host Institution: Boston College
Grant Number: 1560200
Principal Investigator / Faculty Mentor: Babak Momeni

NSF Division: Chemistry

Poster Number: 18
Title: Detection and Quantification of Interfacial Capping Agents for Metal-Organic Frameworks via X-Ray Photoelectron Spectroscopy
Presenter(s): Angela Bui
REU Site: Membrane Biochemistry and Bioinspired Synthesis
Host Institution: Worcester Polytechnic Institute
Grant Number: 1659529
Principal Investigator / Faculty Mentor: Arne Gericke | Ronald L. Grimm
Poster Number: 19
Title: Identification of Honey Using CRAFT Interface and Cross-Referencing to Elucidate Distinctions in Sugar Composition
Presenter(s): Willmar Guzman Ulloa
REU Site: REU Training Site: Molecular Biophysics
Host Institution: Princeton University
Grant Number: 1659726
Principal Investigator / Faculty Mentor: Jannette Carey | Istvan Pelczer

Poster Number: 20
Title: Charting the Dissociation Pathway of a Manganese-Based PhotoCORM with 2D-IR Spectroscopy
Presenter(s): Alexander F. Thome
REU Site: Undergraduate Inquiry at the Forefront of Energy, Environmental, and Biochemical Research
Host Institution: University of Minnesota
Grant Number: 1851990
Principal Investigator / Faculty Mentor: Steven Kass | Aaron M. Massari

Poster Number: 21
Title: Electrostatic Influence on the Electrode/Electrolyte Interface via Electrode Surface Modification
Presenter(s): Vanessa Zambrano
REU Site: Clean Energy Bridge to Research
Host Institution: University of Washington
Grant Number: 1559787
Principal Investigator / Faculty Mentor: Christine Luscombe | Cody Schlenker

Poster Number: 22
Title: Functional Characterization of Structural Genomics Proteins in the Haloacid Dehalogenase Superfamily Using Computed Chemical Properties
Presenter(s): Manuel Pina
REU Site: Research Opportunities in Biological and Chemical Catalysis
Host Institution: Northeastern Chemistry
Grant Number: 1757078
Principal Investigator / Faculty Mentor: George O'Doherty | Mary Jo Ondrechen

Poster Number: 23
Title: Light-Induced Excited Spin State Trapping in Thiazole-Based Fe(II) Complexes
Presenter(s): Paola Lopez Rivera
REU Site: Sunshine Institute for the Interaction of Light with Matter
Host Institution: Florida State University, Department of Chemistry and Biochemistry
Grant Number: 1659661
Principal Investigator / Faculty Mentor: Edwin F. Hilinski | Michael Shatruk
Poster Number: 24
Title: Surface Ligand Engineering for Environmentally Stable All-Inorganic CsPbI₃ Perovskite Nanocrystals
Presenter(s): Rachel E. Weiss
REU Site: Undergraduate Research in Chemistry at Syracuse University
Host Institution: Syracuse University
Grant Number: 1659775
Principal Investigator / Faculty Mentor: Michael Sponsler | Weiwei Zheng

Poster Number: 25
Title: Synthesis & Palladium Catalyzed Rearrangement of N-Alloc-N-Allyl Ynamides into Complex Nitriles
Presenter(s): Reagan Dreiling
REU Site: Mountains and Minds: Next Generation Chemistry for Materials and Catalysts
Host Institution: Montana State University
Grant Number: 1852214
Principal Investigator / Faculty Mentor: Sharon Neufeldt | Matthew Cook

Poster Number: 26
Title: Plasma Activated Water (PAW): Process Development and Evaluation of Antimicrobial Properties
Presenter(s): Thomas Wells
REU Site: Utilizing Plants for Innovative Research (UPIR)-Cultivating the Next Generation of Scientists and Engineers
Host Institution: Kettering University
Grant Number: 1560169
Principal Investigator / Faculty Mentor: Lihua Wang | Susan Farha

Poster Session 5
Location: Edison D

NSF Division: Materials Research

Poster Number: 1
Title: Empirical Modeling of Trigonal Distortions in Perovskites
Presenter(s): Olivia Ann Wander
REU Site: Materials for Society
Host Institution: Boise State University
Grant Number: 1658076
Principal Investigator / Faculty Mentor: Rick Ubic

Poster Number: 2
Title: Optimization of Antimicrobial Coatings for Food Contact Surfaces
Presenter(s): Annika Hylen
REU Site: Creative Approaches to Materials Design and Processing
Host Institution: University of Missouri–Columbia
Grant Number: 1757936
Principal Investigator / Faculty Mentor: Heather K. Hunt
Poster Number: 3
Title: Investigating the Order-to-Disorder Transition Temperature for Asymmetric Core-Shell Bottlebrush Copolymers
Presenter(s): Emily Ness
REU Site: Science and Engineering in Nanomaterials
Host Institution: University of Minnesota
Grant Number: 1852044
Principal Investigator / Faculty Mentor: David Blank | Mahesh Mahanthappa

Poster Number: 4
Title: Leaching of Low Glass Transition Temperature (Tg) Polymers from Gels into Colloidal Packings
Presenter(s): Stefani Millan-Higuera
REU Site: Structure of Matter
Host Institution: Laboratory for Research on the Structure of Matter (LRSM) at the University of Pennsylvania
Grant Number: 1659512
Principal Investigator / Faculty Mentor: Arjun Yodh | Daeyeon Lee

Poster Number: 5
Title: Synthesis of Colloidal Copper Phosphide (Cu3P) Nanocrystals Using Aminophosphine Precursor
Presenter(s): Alejandro Franco
REU Site: Molecular Engineering Materials Center
Host Institution: University of Washington
Grant Number: 1719797
Principal Investigator / Faculty Mentor: Daniel Gamelin | Vincent Holmberg

Poster Number: 6
Title: Vapor Phase Polymerized PEDOT/Cellulose Paper for Application in Flexible and Disposable Supercapacitor
Presenter(s): Hendrick Lopez-Beltran
REU Site: Renewable Energy Generation and Storage
Host Institution: Binghamton University–State University of New York
Grant Number: 1658990
Principal Investigator / Faculty Mentor: Jeffrey M. Mativetsky | William E. Bernier

Poster Number: 7
Title: Growth and Optical Characterization of Antiferromagnetic PtMn Thin Films
Presenter(s): Lauren Gorman
REU Site: Illinois Materials Research Science and Engineering Center REU
Host Institution: University of Illinois at Urbana-Champaign
Grant Number: 1720633
Principal Investigator / Faculty Mentor: Nadya Mason | Kathleen Oolman
NSF Division: Atmospheric Sciences and Geospace

Poster Number: 8  
Title: Water Purification Methods That Can Be Used in Haiti  
Presenter(s): Kehinde Adekoya  
REU Site: Weather, Climate, and Society  
Host Institution: University of South Florida  
Grant Number: 1659754  
Principal Investigator / Faculty Mentor: Jennifer Collins | Javier Cuevas

NSF Division: Social, Behavioral, and Economic Sciences

Poster Number: 9  
Title: Agent-Based Modeling of Hand, Foot, and Mouth Disease  
Presenter(s): Alexandra Eguiluz  
REU Site: Summer Undergraduate Research for Students who are Deaf or Hard-of-Hearing in Applying Mathematical and Statistical Methods to Problems from the Sciences (REU at NTID)  
Host Institution: Rochester Institute of Technology / National Technical Institute for the Deaf  
Grant Number: 1659299  
Principal Investigator / Faculty Mentor: Bonnie Jacob

Poster Number: 10  
Title: Factors That Influence the Understanding of Regional Dialects and Nonnative Accents  
Presenter(s): Jada Hudgins  
REU Site: The Science of Language and the Language of Science  
Host Institution: Ohio State University  
Grant Number: 1757020  
Principal Investigator / Faculty Mentor: Kathryn Campbell-Kibler | Rachael Holt

Poster Number: 11  
Title: Geophysical Survey of Two Eighteenth-Century Cemeteries on St. Eustatius  
Presenter(s): Katherine Rodriguez  
REU Site: Exploring Globalization through Archaeology  
Host Institution: Texas State University  
Grant Number: 1757702  
Principal Investigator / Faculty Mentor: Todd Ahlman | Nicholas Herrmann

Poster Number: 12  
Title: The Mediating Role of Impairment on the Relationship between ADHD and Depression in Adolescents  
Presenter(s): Lizzie Wilson  
REU Site: Treatment Related Research for Youth with Social, Emotional, and Behavioral Problems  
Host Institution: Ohio University  
Grant Number: 1659455  
Principal Investigator / Faculty Mentor: Fran Wymbs | Steve Evans
Poster Number: 13
Title: Effects of Variation and Methodology in the Acquisition of Subject-Verb Agreement by Dominican Spanish-Speaking Preschoolers
Presenter(s): Yerania Poline
REU Site: Intersection of Linguistics, Language, and Culture
Host Institution: LIU-Brooklyn
Grant Number: 1659607
Principal Investigator / Faculty Mentor: Isabelle Barriere

Poster Number: 14
Title: An Interdisciplinary Examination of Critical Crash Causation Factors among Risky Drivers
Presenter(s): Maya Thirkill
REU Site: Injury Science REU Site
Host Institution: The Children's Hospital of Philadelphia
Grant Number: 1757462
Principal Investigator / Faculty Mentor: Flaura Winston | Thomas Seacrist

Poster Number: 15
Title: Sorry to Bother You: The Art of Code-Switching between African American English and Standard American English in Higher Education
Presenter(s): Brianna Bazile
REU Site: Increasing Diversity in the Linguistic Sciences through Research on Language and Social Mobility
Host Institution: University of California, Santa Barbara
Grant Number: 1757654
Principal Investigator / Faculty Mentor: Anne H. Charity-Hudley

Poster Number: 16
Title: Deterrence of Hope: US Immigration Policies and the Asylum Process in El Paso
Presenter(s): Daniel Alejandro Avitia-Pacheco
REU Site: Collaborative Research: Undergraduate Research in Immigration Policy and Border Communities
Host Institution: New Mexico State University and University of Texas–El Paso
Grant Number: 1659195
Principal Investigator / Faculty Mentor: Neil Harvey

Poster Number: 17
Title: Parental Dysfunction and Support in Ukraine
Presenter(s): Victoria Knutson
REU Site: Effects of Political Upheaval and Ethnic Discord on the Mental Health of a Population
Host Institution: Dordt College
Grant Number: 1560078
Principal Investigator / Faculty Mentor: Nathan Tintle | Luralyn Helming
**Poster Number:** 18  
**Title:** One World or Many Islands?: Collectivism/Familism Positively, but Individualism Negatively, Predict Compassion  
**Presenter(s):** Megan Wynecoop  
**REU Site:** Psychophysiology of Compassion  
**Host Institution:** Northern Arizona University  
**Grant Number:** 1659888  
**Principal Investigator / Faculty Mentor:** C. Chad Woodruff

**NSF Division: Education and Human Resources**

**Poster Number:** 19  
**Title:** The Complexity of Engaging Third Graders with Word Problems  
**Presenter(s):** Savanna Hoffman  
**REU Site:** Preparing Aspiring Teachers to Hypothesize Ways to Assist Young Students (PATHWAYS)  
**Host Institution:** Salisbury University  
**Grant Number:** 1658968  
**Principal Investigator / Faculty Mentor:** Randall Groth | Claudia Burgess

**Poster Number:** 20  
**Title:** Students’ Perspectives of Social Impact in the Physics Discipline  
**Presenter(s):** Krystina Williamson  
**REU Site:** Research Experiences for Undergraduates in Model-Based Reasoning in STEM Education at the Rochester Institute of Technology  
**Host Institution:** Rochester Institute of Technology  
**Grant Number:** 1757477  
**Principal Investigator / Faculty Mentor:** Leslie Wright | Benjamin Zwickl
Speaker Biographies

Alphabetical by last name

Patrick Algyer, CVA, is the chief strategist and founder of Encore Engagement Solutions. He has been both a member and staff member at various associations and nonprofits throughout his entire career. He specializes in disrupting the norm with the goal of making volunteers, members, and association staff successful. He is passionate about the industry and looks forward to opportunities to network and connect with peers to improve the industry and the member experience.

Liljana Babinkostova is a professor in the Department of Mathematics at Boise State University. Her research efforts concern mathematical problems in the area of cybersecurity and game theory, ranging from highly theoretical to the most practical of efforts. She routinely engages undergraduate students in her research. Babinkostova is one of the lead faculty members that developed the Idaho Conference on Undergraduate Research as well as an undergraduate research program at her institution. She currently serves as a councilor in the Mathematics Division of the American Association for the Advancement of Science–Pacific Division (AAAS-PD). She is also involved in the Idaho Diversity Network established by Idaho EPSCoR as part of its efforts in supporting STEM in Idaho. Babinkostova is the principal investigator for the NSF REU Site Complexity across Disciplines (CAD), a program in interdisciplinary mathematics research and the Research Experience in Mathematics for Young Scientists (REMYs), the MAA research program for high school students.

Meteorologist DaNa Carlis serves as a program manager at NOAA’s Office of Weather and Air Quality (OWAQ). At OWAQ, he manages the Earth Prediction Innovation Center (EPIC) and Next Generation Global Prediction System (NGGPS) programs. Carlis attended Howard University where he obtained a bachelor's of science degree in chemistry (2000), as well as a MS (2002) and PhD (2007) in atmospheric sciences. During his time at Howard, he was a research assistant in an analytical chemistry lab and a Research Experiences for Undergraduate summer intern at the City University of New York. In 2007, Carlis was the second African American male to receive his PhD in atmospheric sciences from Howard University. His dissertation focused on modeling island-scale airflow regimes over Maui and implementing semi-operational MM5 and WRF models over the Hawaiian Islands. He began his career as a graduate student in NOAA's Graduate Sciences Program through the NOAA Office of Education. He has held positions at the National Weather Service as a weather forecast model (Global Forecast System Model) developer and as a policy adviser to NOAA senior leadership. In 2016, he joined NOAA Research as weather portfolio adviser. Carlis has published papers in peer-reviewed journals and wrote the children’s book MIT: Meteorologist in Training (2016). For his scientific achievements, Carlis was inducted into the Booker T. Washington High School Distinguished Hall of Fame Class of 2018.
Lindsay Currie is the executive officer of the Council on Undergraduate Research. She has more than a decade of experience in nonprofit management and community engagement, focusing on empowering communities. She previously served as director of stakeholder engagement for the Regulatory Affairs Professionals Society in Rockville, MD (2015–summer 2019), and as CUR’s director of communications and membership (2010–2015), building membership and volunteer service significantly in both positions. She is a frequent speaker on strategies for increasing involvement by members in nonprofit organizations.

Janice DeCosmo is the associate vice provost for undergraduate research, associate dean of undergraduate academic affairs, and an affiliate faculty member in the Department of Earth and Space Sciences at the University of Washington. She is also the 2019–2020 president of the Council on Undergraduate Research. DeCosmo earned a BS in physics from the University of Iowa in 1979 and a PhD in atmospheric sciences from the University of Washington in 1991, specializing in atmosphere-ocean interaction. She oversees the UW’s Center for Experiential Learning and Diversity, which includes undergraduate research, service learning, leadership, and scholarship programs. DeCosmo developed the UW undergraduate research program, which had more than 8,000 participants in 2018, and oversees the Mary Gates Endowment for Students, a $20-million fund dedicated to supporting undergraduates to do research, scholarship, and innovative projects. Still engaged in working directly with students, she is also involved in higher education policy in the state of Washington, focused on transfer from two-year to four-year institutions and the development of new academic programs.

R. Corby Hovis is a senior program director in the Directorate for Education and Human Resources at the National Science Foundation (NSF) in Arlington, VA, where he has worked since 1997. At NSF, Hovis is the NSF-wide coordinator for the Research Experiences for Undergraduates (REU) program, the federal government’s oldest and largest grant program supporting research experiences for students. He also coordinates the participation of community colleges in NSF’s programs supporting cybersecurity education such as the Advanced Technological Education (ATE) program, which sponsors four major centers for cybersecurity education. Before coming to NSF, he served on the faculty of Valparaiso University in Indiana and as science editor at Encyclopædia Britannica in Chicago. He received his BA in physics and English from Wake Forest University and his PhD from Cornell University in astronomy and the history and philosophy of science. From September 2009 through August 2010, he served on special assignment from NSF as an American Council on Education (ACE) Fellow in the Office of the President at The Ohio State University.

John M. Hranitz is a professor in the Department of Biological and Allied Health Sciences at Bloomsburg University of Pennsylvania. In 2013, he worked with faculty and administration to create the Center for Undergraduate Research at Bloomsburg University and has served three years as its director. Hranitz also served as an interim director of the Office of Research and Sponsored Programs at Bloomsburg University for three years. Prior to joining Bloomsburg University, Hranitz was a faculty member in the Department of Biology at the University of Central Oklahoma for nine years, where his collaborations led to his participation in NSF-REU Site grants for 10 years. He earned bachelor’s and master’s
degrees in biology from Bloomsburg University and a doctorate in zoology from Mississippi State University.

**Rebecca M. Jones**, a former undergraduate researcher at The Ohio State University, earned her PhD in inorganic chemistry from the University of Cincinnati and joined the faculty of Austin Peay State University in 2004. While earning tenure at APSU, she created the Office of Undergraduate Research in 2010 and was appointed director. She relocated to George Mason University in January 2012 to become assistant director of OSCAR, where she administered student programs such as the Undergraduate Research Scholars Program and the Undergraduate Student Travel Fund. In September 2015, she transitioned to a term associate professorship in chemistry at GMU and program lead for the STEM Accelerator initiative. She serves as secretary for the Mason chapter of Sigma Xi and is an active member of the American Chemical Society, AAAS, and the Council on Undergraduate Research.

**Alisa Leckie** is an associate professor and interim dean for partnerships and outreach at Georgia Southern University. Her work focuses on program evaluation, education of culturally and linguistically diverse students, and disciplinary literacy. A past program evaluator for REU–URGENT and RET–ENERGY projects, she is conducting an evaluation on school discipline for a local school district. She is also working with local school districts to help them address the growing numbers of English learners in their classrooms through collaborative coaching and the modification of materials and assessments for emergent English learners. Leckie serves as associate chair for the university’s Institutional Review Board and co-chairs the National Youth-at-Risk Conference.

**John Mateja**, president of the Goldwater Foundation, earned his bachelor's and PhD degrees from the University of Notre Dame in nuclear physics in 1972 and 1976 respectively. Throughout his career, he has been a staunch advocate for the involvement of undergraduates in research, serving as president of the Council on Undergraduate Research in 1993. He has held faculty and administrative positions at Tennessee Technological University and Murray State University. In addition, he has held administrative positions at Argonne National Laboratory, Department of Energy, and the National Science Foundation. Mateja has been named a Fellow of the Council on Undergraduate Research and of the American Physical Society for his work to reform undergraduate education.

**Valentin Soloiu** is the Allen E. Paulson Distinguished Chair and professor at Georgia Southern University. He has 30 years of teaching and research experience in higher education and has authored more than 100 papers, 30 technical studies, and nine textbooks and instruction manuals. His research is in combustion instabilities, emissions, and NVH in internal combustion and jet engines. He is the principal investigator for NSF REU and RET grants, and his research has been supported also by the Department of Energy, Environmental Protection Agency, Federal Aviation Administration, and Oak Ridge National Laboratory. He is a Councilor in the Council of Undergraduate Research’s Engineering Division and Distinguished Associate of the ASME Engine Division (ICEF).
Student Opportunities

Posters on the Hill
Each spring, the Council on Undergraduate Research (CUR) hosts an annual undergraduate poster session on Capitol Hill. This event assists members of Congress and their staff members with understanding the importance of undergraduate research, as they interact directly with the students involved in these programs. This unique opportunity for students and faculty mentors has a positive impact on the future of federal funding for undergraduate research. Submissions for 2020 will close on November 5, 2019. For more information, please visit https://bit.ly/2020-POTH

National Conference on Undergraduate Research
The National Conference on Undergraduate Research (NCUR), established in 1987, is dedicated to promoting undergraduate research, scholarship, and creative activity in all fields of study by sponsoring an annual conference for students. For more information on this year’s event, please visit https://bit.ly/NCUR2020-Gen. NCUR 2020 will be hosted by Montana State University Bozeman on March 26–28, 2020. The deadline to apply is December 6, 2019.

Student Journal Forum
CUR offers a new online community, Student Journals, for students, faculty members, librarians, administrators, and others involved in the operation of student research journals to share best practices and information, ask and answer questions, and participate in other networking and support opportunities related to student research journals. To join this community, contact Elizabeth Foxwell (SPUR@cur.org).
Faculty Opportunities

CUR Biennial 2020
At the 2020 CUR Biennial Conference at Purdue University on June 27–30, 2020, faculty, administrators, staff, academic and community partners, and policymakers will share models of undergraduate research activities from a wide variety of settings and disciplines, organized by the following themes:

- Assessment in Undergraduate Research
- Diversity and Inclusion in Undergraduate Research
- Integrating and Building Undergraduate Research into Curriculum and Coursework
- New Models and Settings for Undergraduate Research

Abstracts may be submitted for oral and poster presentations until November 22, 2019. To submit an abstract or to learn more about the biennial conference, visit the Biennial Conference webpage (https://bit.ly/2020-CUR-Biennial-Main).

National Conference on Undergraduate Research
In addition to promoting undergraduate research, scholarship, and creative activity in all fields of study, the National Conference on Undergraduate Research (NCUR) features popular Faculty-Administrator Network (FAN) sessions, which are professional development presentations, demonstrations, and workshops related to the practice and scholarship of undergraduate research, experiential learning, and related high-impact educational practices. Especially encouraged are active, hands-on sessions and presentations focused on evidence-based best practices. The abstract submission deadline is December 6, 2019. For further details, visit the NCUR 2020 FAN Sessions webpage (https://bit.ly/2020NCUR-FanSessions).