Research Experiences for Undergraduates Symposium

Council on Undergraduate Research
Hilton, Arlington, VA
October 26-27, 2014
Council on Undergraduate Research

The Council on Undergraduate Research (CUR), founded in 1978, is a national organization of more than 9900 individual members and 670 institutional members. Our primary advocacy is in support of faculty and undergraduate students engaged in research. We achieve our vision through the efforts of our membership that is organized in 12 divisions: arts and humanities, biology, chemistry, engineering, geosciences, health sciences, mathematics and computer science, physics and astronomy, psychology, social sciences, an at-large division that serves administrators and other disciplines, and a division for directors of undergraduate research programs.

CUR believes that faculty members enhance their teaching and contribution to society by remaining active in research and by involving undergraduates in research. CUR provides support for faculty development, and our publications and outreach activities are designed to share successful models and strategies for establishing and institutionalizing undergraduate research programs. We assist administrators and faculty members in improving and assessing the research environment at their institutions. We also provide a growing number of services and programs directly engaging undergraduate students, including the National Conference on Undergraduate Research, Posters on the Hill, and the Registry of Undergraduate Researchers.

CUR’s leadership also works with agencies and foundations to enhance research opportunities for faculty and students. We also provide information on the importance of undergraduate research to state legislatures, private foundations, government agencies, and the U.S. Congress. CUR welcomes faculty, staff, students, and administrators from all academic institutions.
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Planning Committee

Anne Boettcher, Professor
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Administrative Assistant
REU Symposium Schedule
Arlington Hilton
October 26-27, 2014

Sunday, October 26
3:00-5:00 Registration and Check-In/Poster Set-Up

5:00-6:00 Welcome and Keynote
Dr. Elizabeth Ambos, Executive Officer, Council on Undergraduate Research
Jessica Wyndham, Associate Director, AAAS Scientific Responsibility, Human Rights, and Law Program
Location: Gallery I & II

6:15-8:00 Poster Session and Reception
Location: Gallery I, II, & III

Monday, October 27
7:30-9:00 Breakfast

9:15-10:15 Group 1/Workshop 1
Switch Groups/break

10:30-11:30 Group 2/Workshop 2

11:30-1:00 Lunch (Gallery I, II, & III)
Welcome by Dr. Corby Hovis, REU Program Director, National Science Foundation
Keynote: The NSF REU Program: Establishing a Lifetime of Discovery
Dr. Nicole Bennett, Program Director, Division of Undergraduate Education, National Science Foundation

1:00-2:00 Group 3/Workshop 3
Switch Groups/break

2:15-3:15 Group 4/Workshop 4

3:15-4:00 Closing Session/Wrap-up

Poster groups 1 & 2 will go to NSF atrium at 9:00. Group 1 sets up, group 2 attends poster session. Switch at 10:15.

Poster groups 3 & 4 will go to NSF atrium at 12:45. Group 3 sets up, group 4 attends poster session. Switch at 2:00.
Concurrent Workshops

Session 1/9:15AM-10:15AM

**Applying for Graduate School Support from NSF**, Dr. Tracy Kimbrel, Program Director, Graduate Research Fellowship Program, National Science Foundation
**Room:** Gallery III

**Teaching Responsible Conduct**, Dr. Julio Turrens, Associate Dean, Pat Capps Covey College of Allied Health Professions and Professor of Biomedical Sciences, University of South Alabama
**Room:** Da Vinci/Matisse

Session 2/10:30AM-11:30AM

**Effectively Leveraging an Undergraduate Research Experience on Your Resume**, Dr. Rebecca Jones, Associate Director, Office of Scholarship, Creative Activity, and Research, George Mason University
**Room:** Da Vinci/Matisse

**Post-Baccalaureate Fellowships at ASEE**, Tim Turner, Director of Fellowships and Research Opportunities, American Society for Engineering Education
**Room:** Renoir

**Faculty Facilitated Discussion**, Dr. Valentin Soloiu, Dr. Christopher Hughes
**Room:** Gallery III

Session 3/1:00PM-2:00PM

**Crafting Powerful Personal Statements**, Dr. Linda Blockus, University of Missouri
**Room:** Gallery III

**Teaching Responsible Conduct**, Dr. Julio Turrens, Associate Dean, Pat Capps Covey College of Allied Health Professions and Professor of Biomedical Sciences, University of South Alabama
**Room:** Da Vinci/Matisse

**Post-baccalaureate Opportunities in the Life Sciences**, Tiffani Fonseca, Fellowship Programs, American Society for Microbiology
**Room:** Renoir

Session 4/ 2:15PM-3:15PM

**Applying for Graduate School Support from NSF**, Dr. Joerg Schlatterer, Program Director, Graduate Research Fellowship Program, National Science Foundation
**Room:** Da Vinci/Matisse

**Faculty Facilitated Discussion**, Dr. Christine France, Smithsonian Museum of Conservation Institute and Dr. Christine Li, The City College of New York
**Room:** Gallery III
Student Poster Sessions

Sunday, October 26 | Hilton Arlington
6:15-7:00 | Session 1
All “A” posters
7:15-8:00 | Session 2
All “B” posters

Monday, October 27 | National Science Foundation Atrium
9:15-10:15 | Session 1
Astronomical Sciences; Atmospheric and Geospace Sciences; Earth Sciences; Education and Human Resources; Ocean Sciences; Polar Programs; and Social, Behavioral, and Economic Sciences
10:30-11:30 | Session 2
Biological Sciences
1:00-2:00 | Session 3
Engineering; Cyberinfrastructure; and Computer and Information Sciences and Engineering
2:15-3:15 | Session 4
Chemistry; Mathematical Sciences; Materials Research; and Physics

NSF Division: Astronomical Sciences

1A
Probing Kinematic Substructures in the Virgo Overdensity using Bright RR Lyrae from the La Silla QUEST survey
John Michael Farmer; Clemson University
REU Site: Research Experiences for Undergraduates in Astronomy at Cerro Tololo Inter-American Observatory
Host Institution: CTIO/NOAO
Grant #: 1062976
Principal Investigator: Nicole Van der Bliek; Faculty Mentor: Anna Katherina Vivas

2A
Engineering Design and Assistance for Astogeology Research
Michael D Wilburn; Los Angeles City College
REU Site: Consortium for Undergraduate Research Experience
Host Institution: Los Angeles City College/Jet Propulsion Laboratory
Grant #: 1156756
Principal Investigator: Paul McCudden; Faculty Mentor: Rohit Bhartia, JPL
3A
Constraining Dust Properties in Dense Molecular Cloud Cores
Trevor Z. Dorn-Wallenstein; Wesleyan University
REU Site: REU Site: Keck Northeast Astronomy Consortium
Host Institution: Wesleyan University
Grant #: 1005024
Principal Investigator: William Herbst; Faculty Mentor: Jeff Bary, Colgate University

NSF Division: Atmospheric and GeoSpace Sciences

4A
Calibration of a Cavity Ring Down spectrometry and Nephelometery set up for measuring aerosol optical properties
Isabel D. Colon Bernal; University of Puerto Rico - Rio Piedras
REU Site: REU Site: Collaborative Earth System Science Research - Atmospheric Modeling, Sensing and Societal Impacts
Host Institution: North Carolina A&T State University
Grant #: 1262876
Principal Investigator: Solomon Billilign

NSF Division: Biological Sciences

1B
Mirror Movements as an assessment of neural balance and functional recovery in Stroke
Jesus Cardenas; Rochester Institute of Technology
REU Site: An Immersive Research Engineering Training Program for Undergraduates
Host Institution: Biomedical Engineering, Cleveland Clinic Foundation
Grant #: 1358579
Principal Investigator: Jay Alberts; Faculty Mentor: Robin Crotty

2B
The impacts of food restriction on reproductive development in a seasonally-reproducing mammal, the Siberian hamster (Phodopus sungorus)
Carlisha Hall; University of North Carolina
REU Site: REU site in animal behavior
Host Institution: Center for the Integrative Study of Animal Behavior/Indiana University
Grant #: 851607
Principal Investigator: Laura Hurley

3B
The MOA-1 Receptor Protein Tyrosine Phosphatase Functions in Multiple Pathways in C. elegans
Swera Cheema; City University of New York- City College
REU Site: REU Site: Research Opportunities in Biology
Host Institution: City University of New York-City College of New York
Grant #: 1156512
Principal Investigator: Christine Li
4B
Comparative anatomical study of evolutionary variation in Sphyrnidae, Hammerhead sharks, using 3-D modeling
Jasmin Graham; College of Charleston
REU Site: Marine Organism Health: Resilience and Response to Environmental Change
Host Institution: College of Charleston
Grant #: 1359079
Principal Investigator: Robert D Podolsky; Faculty Mentor: Gavin Naylor

5B
Determining the Catalytic Residue within the Dengue Virus Guanyltransferase Enzyme
Mary Margaret Addison; St. Mary's College of Maryland
REU Site: REU Site: Molecular Biosciences
Host Institution: Colorado State University
Grant #: 1156329
Principal Investigator: Paul Laybourn; Faculty Mentor: Brian Geiss

6B
Phosphorylation-dependent regulation of G-protein mediated signaling pathways in Arabidopsis thaliana
Jennifer Wilson; Clemson University
REU Site: Research Experiences in Plant Science at the Danforth Center
Host Institution: Donald Danforth Plant Science Center
Grant #: 1156581
Principal Investigator: Sona Pandey

7B
Red-backed Salamanders (Plethodon cinereus) as a potential indicator for hemlock forest decline
Alison Ochs; Mount Holyoke College
Claudia Villar-Leeman; Bowdoin College
Host Institution: Harvard Forest/Harvard University
Grant #: 1003938
Principal Investigator: Aaron Ellison; Faculty Mentor: Ahmed A. Hassabelkreem

8B
Mapping of a Classical Temperature-Sensitive Replicase Mutant of Mouse Hepatitis Virus
Terry L. Hafer; Pennsylvania State University-Reading
REU Site: REU Site: Networking Basic Research for Biological Discovery
Host Institution: Health Research Incorporated/New York State Department of Health
Grant #: 1359413
Principal Investigator: Janet Kiethly
9B
Cascading effects of Thomisidae in a tri-trophic interaction network
Savannah Putnam; Iowa State University
Host Institution: Kansas State University
Grant #: 1156571
Principal Investigator: Ted Morgan; Faculty Mentor: Anthony Joern

10B
A high self-fertilization rate and fine-scale structuring genetic variation in Polygala lewtonii, a federally endangered species
Joel F. Swift; University of Central Missouri
REU Site: Plant Systematics, Conservation Biology, and Ethnobotany
Host Institution: Missouri Botanical Garden
Grant #: 1157030
Principal Investigator: David J. Bogler; Faculty Mentor: Christine Edwards

11B
Dehydration Tolerance of California Ferns in Relation to Stem Hydraulics and Mechanical Strength
Helen I. Holmlund; Oklahoma Christian University
REU Site: Biological Adaptations to Stress – Molecular, Cellular, Ecological
Host Institution: Pepperdine University
Grant #: 1062721
Principal Investigator: Jay Brewster; Faculty Mentor: Stephen D. Davis

12B
The role of subsoil permeability in groundwater at Hubbard Brook Experimental Forest
Kelly Floro; George Mason University
REU Site: REU Site: Hubbard Brook Experimental Forest: Investigating and Communicating Ecosystem Change
Host Institution: Plymouth State University
Grant #: 1156844
Principal Investigator: Michele Pruyn; Faculty Mentor: Scott Bailey

13B
Metabolic Circadian Oscillator in Neurospora crassa: PRD-1, a Key Component in Bioenergetics
Natalia Ortiz-Bachier; University of Puerto Rico, Rio Piedras
REU Site: REU site: Computational Biology Summer Program at Rutgers-Camden
Host Institution: Rutgers University - Camden
Grant #: 1263163
Principal Investigator: Benedetto Piccoli; Faculty Mentor: Kwangwon Lee
14B
*Distribution of Acartia spp. in San Francisco Bay is not related to temperature and salinity variation.*
David Franklin; Georgia Southern University
**REU Site:** REU Site: Research in Environmental Studies and Evolutionary Developmental Biology
**Host Institution:** San Francisco State University
**Grant #:** 1156452
**Principal Investigator:** C. Sarah Cohen

15B
*Understanding the Role of Glycosylation in VTCN1 Function*
Tyla Kanteena; Arizona State University
**REU Site:** REU Site in Cellular and Molecular Biology at Sanford Research and Augustana College
**Host Institution:** Sanford Research
**Grant #:** 126744
**Principal Investigator:** Seasson Vitiello; **Faculty Mentor:** Alexei Savinov

16B
*Effect of Phosphorus Limitation on Tropical Tree Responses to Elevated CO2*
Jennifer Briana Thompson; University of California - Santa Cruz
**REU Site:** Integrative Tropical Biology
**Host Institution:** Smithsonian Tropical Research Institute in Panama
**Grant #:** 1359299
**Principal Investigator:** Ana K. Spalding; **Faculty Mentor:** James Dalling

17B
*Sex differences in Pavlovian conditioned approach behavior in the Collaborative Cross and Diversity Outbred founder strains*
Kathryn McNaughton; Williams College
**REU Site:** REU Site: Functional Genomics Research Projects for Undergraduates
**Host Institution:** The Jackson Laboratory
**Grant #:** 1262049
**Principal Investigator:** Bob Braun; **Faculty Mentor:** Elissa Chesler

18B
*Purification and Characterization of N4 Middle Gene Transcription Component gp1*
Martina Michele Ramos; Middle Tennessee State University
**REU Site:** REU Program in Molecular Genetics and Cell Biology
**Host Institution:** The University of Chicago
**Grant #:** 1359128
**Principal Investigator:** Aaron Turkewitz; **Faculty Mentor:** Lucia Rothman-Denes

19B
*Pond Versus Aquarium Raised Channel Catfish (Ictalurus punctatus): A Comparative Study of Normal Bacterial Flora*
Alys Harshbarger; Bridgewater College
**REU Site:** Combining Integrative Biosciences and Bioinformatics for Undergraduate Research Experiences
**Host Institution:** Tuskegee University
**Grant #:** 1263207
**Principal Investigator:** Olga Bolden-Tiller; **Faculty Mentor:** Kunwar Srivistava

**20B**
*Analyzing the Intersections between the Endoplasmic Reticulum and Lipid Droplets*
Abigail Edwards; City College of San Francisco

**REU Site:** Transfer-to-Excellence Research Experiences for Undergraduates (TTE REU)
**Host Institution:** University of California-Berkeley
**Grant #:** 1157089

**Principal Investigator:** Sharnnia Artis; **Faculty Mentor:** James Olzmann

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**21B**
*Spliceosomal active site may toggle between silent and catalytic conformations during splicing catalysis*
Senen Mendoza; University of Miami

**REU Site:** NSF REU in Molecular Biosciences
**Host Institution:** University of California, San Francisco
**Grant #:** 1263357

**Principal Investigator:** Carol Gross; **Faculty Mentor:** Christine Guthrie

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**22B**
*Integrative Biology Reveals Broad Impacts of Pesticides on a Bee Community*
Chelsea M Young; Muhlenberg College
Shiala M. Naranjo; University of Central Florida
Timothy R Salazar; University of Chicago
Montserratt Plascencia; University of California-Santa Cruz

**REU Site:** Integrative Biological Studies of Honey Bees in the Republic of Turkey
**Host Institution:** University of Central Oklahoma
**Grant #:** 1263327

**Principal Investigator:** John F. Barthell; **Faculty Mentor:** John M. Hranitz

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**23B**
*GBR-12909 Partially Reverses the Depressive Effects of Tetrabenazine in an Operant Feeding Choice Task*
Gail Harmata; Truman State University

**REU Site:** REU Sites: Research Experiences in Physiology and Neurobiology at UCONN
**Host Institution:** University of Connecticut
**Grant #:** 1262926

**Principal Investigator:** Xinnian Chen; **Faculty Mentor:** John Salamone

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**24B**
*Improved hydrolysis of pretreated lignocellulosic biomass using mobile enzyme sequestration platforms*
Natalia A. Batchenkova; University of Minnesota - Morris

**REU Site:** REU Site: Indigenous America to Indigenous Borneo-Adventures in Biology and Biodiversity
**Host Institution:** University of Minnesota-Morris
**Grant #:** 1359329

**Principal Investigator:** Ruben Michael Ceballos
25B
Identifying Transcriptional Regulatory Sequences in Mammalian Genomes
August C Thies; Truman State University
Kalen Brown; University of Missouri
REU Site: REU: Educating for the grand challenges at the intersection of biocomplexity and high-performance computing
Host Institution: University of Missouri
Grant #: 1358997
Principal Investigator: Gavin Conant

26B
Cpe Expression in Adult Mice with Chronically Activated Alpha 1A-Adrenergic Receptors
Farah Noreen Khan; Central Michigan University
REU Site: REU Site: Genes & the Environment: Research Experiences for Undergraduates from Rural & Tribal Colleges
Host Institution: University of North Dakota
Grant #: 1359243
Principal Investigator: Van Doze

27B
A Novel Spectral Imaging Light Source for Live-Cell and Tissue Analysis
Tony Miller; University of South Alabama
John Robert Griswold; Ave Maria University
REU Site: Structure and Function of Proteins
Host Institution: University of South Alabama
Grant #: 1156596
Principal Investigator: Julio Turrens

28B
NMR investigation of redox-dependence of dynamics in the thermophilic P450, CYP119
Jenna Strubhar; Misercordia University
REU Site: Sensing and Signaling in Biological Systems
Host Institution: University of Tennessee-Knoxville
Grant #: 1156744
Principal Investigator: Brad Binder; Faculty Mentor: Nitin Jain

29B
Does Size Matter?  Fecundity and Longevity in Symmetrischema lavernella (Lepidoptera: Gelechiidae)
Jalyse Cuff; Howard University
REU Site: REU Site: Field Ecology at the University of Virginia 's Blandy Experimental Farm
Host Institution: University of Virginia
Grant #: 1156796
Principal Investigator: Kyle Haynes; Faculty Mentor: Stephanie Cruz Maysonet
30B
In Vitro Assessment of Stingless Bee Hive Products’ Antimicrobial Properties in Ghana
Emmanuel Abebrese; Washington & Lee University
REU Site: REU Sites project in Ghana
Host Institution: Washington & Lee Univ./University of Cape Coast, Ghana
Grant #: 1441686
Principal Investigator: Daniel A Wubah; Faculty Mentor: Peter Kwapong

NSF Division: Chemistry

31B
Are we there yet? Using molecular simulations to accurately describe critical bio-molecular interactions
Bruce Batiste; Georgia Perimeter College
REU Site: Research Experiences for Undergraduates at Georgia State University
Host Institution: Georgia State University
Grant #: 1262743
Principal Investigator: Suri Iyer; Faculty Mentor: Donald Hamelberg, Arghya Barman

32B
Solution-processed templates organic semiconductor nanowires
Erin Avery; State University of New York at Binghamton
REU Site: NSF REU: Energy Generation and Storage
Host Institution: State University of New York at Binghamton
Grant #: 1263004
Principal Investigator: Wayne Jones

33B
Designing Novel Electrodes of Three-Dimensional Porous V2O5:PANI Films by Colloidal Particle Lithography
Jose Zavala; California State University - Fullerton
REU Site: REU Site: Biological, Environmental, and Materials Chemistry Research at Texas A&M University
Host Institution: Texas A&M University
Grant #: 1062840
Principal Investigator: James Batteas

34B
A Temperature Study of the Nuclear Overhauser Effect in Quinine
Elizabeth Bain; Wheeling Jesuit University
REU Site: Multi-site, Multi-institutional International REU Program
Host Institution: University of North Carolina-Greensboro
Grant #: 1262847
Principal Investigator: Terry Nile; Faculty Mentor: Craig Butts, University of Bristol

35B
Time-Based Investigation of the Vapochromic Response of Platinum
Kelsey Ann Mengle; Shippensburg University
REU Site: NSF-REU Site: Research Experiences for Undergraduates in Chemistry at the University of Cincinnati
Host Institution: University of Cincinnati
Grant #: 1156449
Principal Investigator: Anna D. Gudmundsdottir; Faculty Mentor: William B. Connick

36B

Synthesis, characterization and photoelectrochemical behavior of ZnO nanorods
Natalia I Roman & Astrid Rodriguez; Universidad Metropolitana

REU Site: Puerto Rico Research Training in Cross-disciplinary Chemical Sciences
Host Institution: Universidad Metropolitana
Grant #: 1262826

Principal Investigator: Osvaldo Cox; Faculty Mentor: Mit’kel Santiago

37B

Computational Investigation of the Surface Tension of Supercooled Water
T. Ryan Rogers; University of Arkansas

REU Site: REU Site: Encouraging Students in Science
Host Institution: University of Arkansas/Chemistry and Biochemistry
Grant #: 1263119

Principal Investigator: David Paul; Faculty Mentor: Feng Wang

38B

Synthesis of Novel 1H-1,2,3-Triazoles
Kelly Mcgee; Vanderbilt University Chemical Engineering

REU Site: Green Chemistry in Colorful Colorado
Host Institution: University of Colorado-Colorado Springs
Grant #: 1156932

Principal Investigator: Allen M. Schoffstall

39B

Kinetics and Dynamics of the Photorearrangements of Conjugated Thiophenes
Darien Morrow; Missouri Western State University

REU Site: A Summer Experience for Undergraduates Integrating Research, Education, and Career Development in an Interdisciplinary Environment
Host Institution: University of Kansas
Grant #: 1263259

Principal Investigator: David Benson; Faculty Mentor: Christopher G. Elles

40B

Identification of Structural Changes Caused by the N7-methylguanine Damage in DNA
Nathan T. Pickering; Northwest Missouri State University

REU Site: Chemistry Summer Enhanced Experience Discovering Science, Chem-SEEDS
Host Institution: University of South Florida
Grant #: 1156853

Principal Investigator: Santiago Sandi-Urena; Faculty Mentor: Arjan van der Vaart

41B

Electrochemical Coating of Hydrothermally-Synthesized Hematite Electrodes: Photocatalysts for Water Oxidation
Austin H Henke; Truman State University Chemistry

REU Site: Snapshots of Chemistry -- Visualization of Processes at the Molecular Level
Host Institution: University of Southern California
Grant #: 1156836
Principal Investigator: Jahan Dawlaty

NSF Division: Computer and Information Science and Engineering

31A
*Expressing Sustainability within the Web-Based Multilayer Game Naranpur Online*
Michael Bosch; University of South Dakota
**REU Site:** Undergraduate Research in Collaborative Data Visualization Applications
**Host Institution:** Clemson University
**Grant #:** 1359223
**Principal Investigator:** Vetria L. Byrd; **Faculty Mentor:** Stephen Moysey

32A
*A Parallel Genetic Algorithm for Tuning Neural Networks*
Nathan Chadderdon; Knox College
Benjamin Harsha; DePauw University
**REU Site:** REU Site: Research Experiences in Computer Science for Students at Undergraduate Institutions
**Host Institution:** DePauw University
**Grant #:** 1156893
**Principal Investigator:** Scott Thede; **Faculty Mentor:** Steven Bogaerts

33A
*An Evaluation of MC/DC Coverage for Pair-wise Test Cases*
David Anderson; East Carolina University
**REU Site:** REU Site: Foundations, Tools and Applications of Software Testing
**Host Institution:** East Carolina University
**Grant #:** 1262933
**Principal Investigator:** Junhua Ding; **Faculty Mentor:** Sergiy Vilkomir

34A
*Modeling Security Impact Relationships for Software-as-a-Service Public Cloud Systems*
Sarah Isaacs; California State University-San Bernardino
Lloyd Jones; Radford University
**REU Site:** Multi-Disciplinary Information Assurance and Security
**Host Institution:** Purdue University
**Grant #:** 1062970
**Principal Investigator:** Melissa Dark

35A
*Improving Kernel Density Estimation Processing Times through Parallel Processing*
Keith Benning; Messiah College
Adel Kamara; University of Maryland-Eastern Shore
**REU Site:** REU SITE: Exercise - Explore Emerging Computing in Science and Engineering
**Host Institution:** Salisbury University
**Grant #:** 1156509
**Principal Investigator:** Enyue Lu; **Faculty Mentor:** Arthur Lembo
36A
*A Novel Approach to Automating Clinical Practice Guidelines for Patients with Comorbidities*
David Charles; McMurry University
Fatoumatta Dibba; University of Houston
Yu Tong Zhang; Rice University
**REU Site:** REU Site: Declarative Approaches to Knowledge Intensive Applications
**Host Institution:** Texas Tech University
**Grant #:** 1359359
**Principal Investigator:** Yuanlin Zhang; **Faculty Mentor:** Gelfond and Yuanlin Zhang

37A
*Reallocation of the Television Broadcasting Spectrum for Future Sustainability*
Angel Andres Daruna; Georgia Institute of Technology
**REU Site:** SUPERB-ITS
**Host Institution:** University of California-Berkeley
**Grant #:** 1359499
**Principal Investigator:** David Culler; **Faculty Mentor:** Anant Sahai

38A
*Enhancing Mobile Device Authentication with Behavioral Biometrics*
Dylan Carlson; Lake Superior State University
Han Gil Jang; Washington & Lee University
**REU Site:** REU Site: CyberSAFE@UALR: Cyber Security and Forensics Research at the University of Arkansas at Little Rock
**Host Institution:** University of Arkansas at Little Rock
**Grant #:** 1359323
**Principal Investigator:** Mengjun Xie

39A
*Parallel Brainwave Analysis and Brain State Modeling*
Khanh Le; University of Houston - Clear Lake
**REU Site:** REU Site: Research Experiences in Algorithm Design and Analysis for Students in Undergraduate Institutions
**Host Institution:** University of Houston - Downtown
**Grant #:** 1262928
**Principal Investigator:** Shengli Yuan

40A
*Improving Nuclear Spin Polarization of 129Xe Gas*
Kevin Montes; University of Florida
**REU Site:** Computational Astronomy & Physics (CAP)
**Host Institution:** University of North Carolina Chapel Hill
**Grant #:** 1156614
**Principal Investigator:** Sheila Kannappan; **Faculty Mentor:** Alex Burant
41A
An AI-Based DVFS Approach for Energy Efficient Multi-Core Processors
Armin Rahimi; Washington State University
REU Site: New-generation Power-efficient Computer Systems Design
Host Institution: Washington State University
Grant #: 1359461
Principal Investigator: Behrooz Shirazi

NSF Division: Cyberinfrastructure

42A
Data analysis with SCEC-VDO, Open SHA, GIS, and HAZUS for exploring and evaluating the aftershock hazards implied by the new Uniform California Earthquake Rupture Forecast
Sheila Bart; Old Dominion University
REU Site: Undergraduate Studies in Earthquake Information Technology (SCEC/USEIT)
Host Institution: Southern California Earthquake Center
Grant #: 1263272
Principal Investigator: Thomas H. Jordan; Faculty Mentor: Robert de Groot

NSF Division: Earth Sciences

5A
The non-lethal effects of climate change on the territoriality of Lottia gigantea
Jessica Nthaly Martinez; Santiago Canyon College
REU Site: REU Site: Summer Undergraduate Research Fellowships in Earth and Environmental Sciences (SURFEES)
Host Institution: Chapman University
Grant #: 1359500
Principal Investigator: Christopher Kim; Faculty Mentor: Bill Wright

6A
Priming for supereruption: the hot pre-Peach Spring Tuff lava flows and Peach Spring Tuff mafic enclaves, Black Mountains, Arizona
Megan E. Flansburg; College of William and Mary
REU Site: Research Site (Collaborative Research): Before and After a Supereruption: Magmatic Insights from the Southern Black Mountains, AZ
Host Institution: Mercyhurst University and Vanderbilt University
Grant #: 1262998
Principal Investigator: Nicholas Lang; Faculty Mentor: Calvin Miller, Susanne M. McDowell, Christopher Bailey, Warner Cribb

7A
Surface Characteristics Effects on the Day Time Temperature Pattern in New York City
Awolou Sossa; New York City College of Technology
REU Site: Research Experiences for Undergraduates in Satellite and Ground-Based Remote Sensing at NOAA-CREST_2
Host Institution: New York City College of Technology, CUNY
Grant #: 1062934
Principal Investigator: Janet Liou-Mark; Faculty Mentor: Brian Vant-Hull

8A
*Cinder Cones with Complex Original Forms and Implications for Morphologic Dating*
Ryan Till; State University of New York- Buffalo
REU Site: Landscape evolution in a monogenetic volcanic field
Host Institution: Northern Arizona University
Grant #: 1156953
Principal Investigator: Fabrizio Alfano

9A
*The interconnectivity of Tawny crazy ant (Nylanderia fulva) nests in relation to density*
Alexandria Payne; Texas A & M University
REU Site: The Science of Global Change and Sustainability
Host Institution: The University of Texas at Austin
Grant #: 1157031
Principal Investigator: Jay L Banner; Faculty Mentor: Edward LeBrun

10A
*Carbon and nitrogen dynamics across a bedrock-regulated subarctic pH gradient*
Nathan Tomczyk; University of Maine
REU Site: Northern Ecosystems Research for Undergraduates
Host Institution: University of New Hampshire
Grant #: 1063037
Principal Investigator: Ruth Varner; Faculty Mentor: Serita Frey

NSF Division: Education and Human Resources

11A
*Characterizing the Effects of Shading on the Performance of a Mobile Photovoltaic Array*
Quentin Samuels; Savannah State University
REU Site: Research Experience for student Veterans in Advanced Manufacturing ans entrePreneurship (REVAMP)
Host Institution: Georgia Tech Research Corporation / GT Manufacturing Institute
Grant #: 1346681
Principal Investigator: John B. Morehouse; Faculty Mentor: Bert Bras

12A
*The San Marcos Pueblo Archaeologic Site: A Review and Update of Ongoing Work by the Summer of Applied Geophysical Experience (SAGE)*
Moira Poje; Boston University
REU Site: SAGE (Summer of Applied Geophysical Experience)
Host Institution: Purdue University
Grant #: 1359395
Principal Investigator: Lawrence Braile; Faculty Mentor: John Ferguson
13A
*Developing Students’ Understanding of Decimal Numeration in Grade 5*
Lindsay Gordon & Felicia Depena; Salisbury University
**REU Site:** REU Site: PATHWAYS - Preparing Aspiring Teachers to Hypothesize Ways to Assist Young Students
**Host Institution:** Salisbury University
**Grant #:** 1356001
**Principal Investigator:** Randall E. Groth; **Faculty Mentor:** Claudia Burgess

14A
*Basketmakers revealed: physical, CT, and 3D analyses of mummified human remains from the southwest*
Kate D. Sherwood; University of North Carolina at Wilmington
**REU Site:** Natural History Research Experiences
**Host Institution:** Smithsonian Institution, National Museum of Natural History
**Grant #:** 1062692
**Principal Investigator:** Gene Hunt; **Faculty Mentor:** Douglas Owsley and Kari Bruwelheide

15A
*Addressing Alternative Conceptions of Lunar Phases Through Professional Noticing*
Shelby Cameron; University of Kentucky
**REU Site:** REU Site: Supporting Undergraduate Research Fellows in Timely STEM Education Research Via the University of Kentucky’s STEM Education Research Laboratory
**Host Institution:** University of Kentucky
**Grant #:** 1156848
**Principal Investigator:** Jennifer Wilhelm

16A
*Improving the Seismic Performance of Partially Grouted Masonry Buildings*
Joseph Philip Vantassel; Rensselaer Polytechnic Institute
**REU Site:** Network for Earthquake Engineering Simulation: Reducing Seismic Vulnerability
**Host Institution:** University of Minnesota
**Grant #:** 1263155
**Principal Investigator:** Thalia Anagnos; **Faculty Mentor:** Arturo Schultz

**NSF Division: Engineering**

43A
*Heat Generation in Municipal Solid Waste and Mining Waste*
Emma Yee; Columbia University Chemical Engineering
**REU Site:** REU Site: Sustainable Management and Beneficial Reuse of Residual Wastes and Byproducts
**Host Institution:** California Polytechnic State University
**Grant #:** 1263337
**Principal Investigator:** Gregg Fiegel; **Faculty Mentor:** James Hanson and Nazli Yesiller

44A
*Participatory Action Design of an Electric Powered Wheelchair User Joystick Controller*
Katherine Riojas
**REU Site:** American Student Placement In Rehabilitation Engineering (ASPIRE)
**Host Institution:** Department of Rehabilitation Science and Technology, University of Pittsburgh
**Grant #:** 1262670
**Principal Investigator:** Rory A. Cooper  

**45A**  
Aquatic Plants and UV Light Indirectly Alter Silver Nanoparticle Toxicity, Stability, and Greenhouse Gas Fluxes  
Sarah Guberman; Baylor University  
Dana Kazarooni; Virginia Polytechnical and State University  
**REU Site:** REU Site: Research Experiences for Undergraduates in Environmental Implications of Nanotechnology  
**Host Institution:** Duke University  
**Grant #:** 1359131  
**Principal Investigator:** Glenda Kelly; **Faculty Mentor:** Emily Bernhardt

**46A**  
Reactivity Controlled Compression Ignition and Low Temperature Combustion Obtained Through Various Fueling Strategies  
Martin Muinos; Georgia Southern University Mechanical Engineering  
**REU Site:** REU Site: Undergraduate Research in Green-Engineered New Transportation Technologies (URGENTT)  
**Host Institution:** Georgia Southern University  
**Grant #:** 1262947  
**Principal Investigator:** Valentin A Soloiu

**47A**  
Stability of Alginate Encapsulation Systems  
Veronica Ibarra; Illinois Institute of Technology  
**REU Site:** Summer Engineering Research Experiences in Diabetes for Undergraduates  
**Host Institution:** Illinois Institute of Technology  
**Grant #:** 1157041  
**Principal Investigator:** Eric Brey

**48A**  
Synergistic effects of IL-6 and IL-8 on cancer cell motility  
Sierra Atwater; University of North Carolina Chapel Hill  
**REU Site:** Nanotechnology for Biology and Bioengineering  
**Host Institution:** Johns Hopkins University  
**Grant #:** 1440009  
**Principal Investigator:** Denis Wirtz

**49A**  
Thermal Model for Novel Endoscopic Mucosal Ablation Therapy Device  
Ascanio Guarini; Swarthmore College  
**REU Site:** REU Site: Wellman-HST Summer Institute for Biomedical Optics  
**Host Institution:** Massachusetts General Hospital / Wellman Center for Photomedicine  
**Grant #:** 1358296  
**Principal Investigator:** Seok Yun; **Faculty Mentor:** Ben Vakoc
50A
Multi-Electrode Configurations for Electrochemical Measurements
Eugene N Moss; Florida A & M University
REU Site: NSF ERC FREEDM Systems Center REU
Host Institution: North Carolina State University
Grant #: 08212121
Principal Investigator: Iqbal Husain; Faculty Mentor: Mark H Weatherspoon

51A
Improving the Stability of Synthetic Liposomes for Amorphous Calcium Carbonate Synthesis
Keara Saud; North Carolina State University
REU Site: REU Site: Research Experience for Undergraduates in Nanoscale Science & Engineering
Host Institution: Northwestern University
Grant #: 1359004
Principal Investigator: Emily Allyn Weiss; Faculty Mentor: Derk Joester

52A
Passive Seismic Protective Systems for Nonstructural Systems and Components in Multistory Buildings
Paquilla Jones & Sajeeda Chin; Howard University
REU Site: REU Site: NEESreu- Network for Earthquake Engineering Simulation: Reducing Seismic Vulnerability
Host Institution: Purdue University
Grant #: 1263155
Principal Investigator: Sean Brophy; Faculty Mentor: Claudia Marin-Artieda

53A
The Role of Exogenous Sensitizers in the Photoinactivation of Pathogenic Bacteria
Monique Grimaldi; University of California - San Diego
REU Site: Re-Inventing the Nation's Urban Water Infrastructure
Host Institution: The Engineering Research Center (ERC) for Re-Inventing the Nation's Urban Water Infrastructure (ReNUWIt)
Grant #: 1262655
Principal Investigator: Richard G Luthy; Faculty Mentor: Alexandria B. Boehm

54A
Hydrodynamic effects of invasive mussel (Dreissena polymorpha and Dreissena bugensis) shells in a laboratory flume
Kimberly Alexander; Niagara University
REU Site: Ecosystem Restoration through Interdisciplinary Exchange (ERIE)
Host Institution: University at Buffalo
Grant #: 1263257
Principal Investigator: Alan J Rabideau; Faculty Mentor: Sarah Delavan
55A

*Characterization of Ge1-xSnx for Use in Optoelectronic Devices*
Lucas Domulevicz; Wilkes University

**REU Site:** REU Site: An Interdisciplinary Exploration of the Convergence of Science and Engineering: Micro to Nanoscale Materials, Processing, and Devices  
**Host Institution:** University of Arkansas  
**Grant #:** 1359306  
**Principal Investigator:** Shannon Servoss; **Faculty Mentor:** Fisher Yu

56A

*Development of Improved Assays for Cell Adhesion through Local Application of Force to Cells*
Adrian Marquez; Santa Barbara City College

**REU Site:** Internships in Nanosystems Science, Engineering, and Technology (INSET)  
**Host Institution:** University of California Santa Barbara  
**Grant #:** 1062812  
**Principal Investigator:** Jens-Uwe Kuhn

57A

*Lignin-Based Barrier Coatings*
Zuleyka Marquez; Brown University

**REU Site:** REU Site Explore It! Building the Next Generation of Sustainable Forest Bioproduct Researchers  
**Host Institution:** University of Maine  
**Grant #:** 1063007  
**Principal Investigator:** David J. Neivandt

58A

*Investigation of the Optimum Design of the Parallel-Stage in an On-Board Charger System for PEV Applications*
Kelly Fernandez; University of Maryland College Park

**REU Site:** REU Site: Summer Engineering Research Experiences in Transportation Electrification  
**Host Institution:** University of Maryland  
**Grant #:** 1263063  
**Principal Investigator:** Alireza Khaligh

59A

*Compliant Tactile Sensor Designed for Robotic Sensing Integration*
James Tigue; University of Idaho Mechanical Engineering

**REU Site:** REU Site: Research Opportunities in Miniature Robotics  
**Host Institution:** University of Maryland, College Park  
**Grant #:** 1062885  
**Principal Investigator:** Hugh Bruck; **Faculty Mentor:** Elisabeth Smela
NSF Division: Materials Research

42B
Generating Efficient Incandescent Filaments with Stochastic and Deterministic Optimization Algorithms
Simon G Lorenzo; Louisiana State University
REU Site: Interdisciplinary Research Experience in Computational Sciences
Host Institution: Louisiana State University
Grant #: 1263236
Principal Investigator: Juana Moreno; Faculty Mentor: Georgios Veronis

43B
Temperature Dependence of Porosity for Porous Electrolyte Based NOx Sensors
Frank E Marshall; Louisiana State University
REU Site: Louisiana Alliance for Simulation-Guided Materials Applications (LA-SiGMA)
Host Institution: Louisiana Tech University
Grant #: 1003897
Principal Investigator: Juana Moreno; Faculty Mentor: Erica P. Murray and Weizhong Dai

44B
Molecular Dynamics of Structural Phase Transformation in Ni-Ti Shape Memory Alloy
Katherine D Starr; Hiram College
REU Site: REU SITE: POLYMER SCIENCE AND ENGINEERING AT THE UNIVERSITY OF AKRON
Host Institution: University of Akron
Grant #: 1359321
Principal Investigator: Mesfin Tsige

45B
Noble Metal-TiO2 and Noble Metal-ZnO Nanocomposites for Improved photocatalysis
Joana Franco; Skyline College
REU Site: REU Site: Summer Research Program in Materials Science and Nanotechnology
Host Institution: University of New Orleans
Grant #: 1262904
Principal Investigator: Matthew Tarr

NSF Division: Mathematical Sciences

46B
Enumerating Cliques in Euler Totient Cayley Graphs
Colin Defant; University of Florida
REU Site: Research Experience for Undergraduates in Algebra and Discrete Mathematics at Auburn University
Host Institution: Auburn University
Grant #: 1262930
Principal Investigator: Overtoun Jenda; Faculty Mentor: Peter Johnson
47B
Generalized AES-based Hash Functions
Kevin Stubbs; University of Maryland
REU Site: Complexity Across Disciplines
Host Institution: Boise State University
Grant #: 135942
Principal Investigator: Liljana Babinkostova

48B
Mathematical modeling of social dynamics model with applications to real-world problems
Deborah Andelia Koch; Sam Houston University
Alexandra Zeller & Chelsea Mohindroo; George Mason University
REU Site: REU Site: Research, Education and Training in Computational Mathematics and Non-linear dynamics of bio-inspired and engineering systems
Host Institution: George Mason University
Grant #: 1062633
Principal Investigator: Padmanabhan Seshaiyer

49B
Exotic volumes of hyperbolic manifolds: Experiments with Neumann's Conjecture
Peter Huston; Otterbein University
Stephen Gilles; University of Maryland-College Park
REU Site: Mathematics, Applied Mathematics, and Statistics-REU
Host Institution: University of Maryland
Grant #: 1359307
Principal Investigator: Kasso Okoudjou; Faculty Mentor: Christian Zickert

50B
Combinatorics of k-Interval Cospeciation for Cophylogeny
Jane Ivy Coons; State University of New York-Geneseo
REU Site: REU Site: Winthrop University REU: Bridging Applied and Theoretical Mathematics
Host Institution: Winthrop University
Grant #: 1358534
Principal Investigator: Jospeh Rusinko

NSF Division: Ocean Sciences

17A
Differential Success of Coccolithoviruses EHV86 and EHV163 with Infecting Emiliania Huxleyi
Elizabeth A Allen; The College of William & Mary
REU Site: Bigelow Laboratory for Ocean Sciences – Undergraduate Research Experience in the Gulf of Maine and the World Ocean.
Host Institution: Bigelow Laboratory for Ocean Sciences
Grant #: 1156740
Principal Investigator: David Fields; Faculty Mentor: Joaquin Martinez Martinez
18A
Will zooxanthellae continue to provide enough energy for scleractinian corals in a high CO2 world?
Hayley Bedwell; Indiana University
REU Site: Little Cayman REU
Host Institution: Central Caribbean Marine Institute
Grant #: 1358600
Principal Investigator: Carrie Manfrino; Faculty Mentor: Kristi Foster, Margariete Koch

19A
The Effect of Oil on Ribbed Mussel Predator Avoidance in the Salt Marsh Ecosystem of Cocodrie, Louisiana
Hannah Marie Kittler; Saint Michael's College
REU Site: Interdisciplinary research experiences in changing coastal environments
Host Institution: Louisiana Universities Marine Consortium (LUMCON)
Grant #: 1063036
Principal Investigator: Brian Roberts; Faculty Mentor: Nancy Rabalais

20A
Investigating optimal living parameters for Cannonball Jelly, Stomolophus meleagris, in captivity
Cheyenne Coleman; Savannah State University
REU Site: Bridge to Research in Marine Sciences: A Summer REU Program in Savannah, Georgia
Host Institution: Savannah State University
Grant #: 1156525
Principal Investigator: Tara Cox; Faculty Mentor: Christopher Hintz

21A
Factors Responsible for the Development of Fe Flocculate in Streams With and Without Regenerative Stormwater Conveyance (RSC) Structures
Barret Wessel; University of Maryland College Park
REU Site: REU Site: Undergraduate Research Experiences in Estuarine Processes
Host Institution: University of Maryland Center for Environmental Science
Grant #: 1262374
Principal Investigator: Michael R Allen; Faculty Mentor: Michael Williams

22A
How changes in pH affect the physiology and photosynthetic growth of the single-celled golden-brown alga, Ochromonas
Christine Luu; Dartmouth College
REU Site: REU Site: Supporting Undergraduate Research Fellows in Evaluating Sustainability of Coastal Ocean Systems
Host Institution: USC Wrigley Institute of Environmental Science
Grant #: 1263356
Principal Investigator: Karla Heidelberg; Faculty Mentor: David Caron
NSF Division: Physics

51B
Infrared Nano-Imaging at High Temperatures
Harley A. Marrocco; Randolph - Macon College Engineering Physics
REU Site: Physics Research in America's Historic Triangle
Host Institution: College of William & Mary, Physics Department
Grant #: 1359364
Principal Investigator: Wouter Deconinck; Faculty Mentor: Mumtaz Qazilbash

52B
Exploring the Effect of Applied Magnetic Field on Magnetism in Mn3O4
Anne Farwick; Xavier University
REU Site: REU Site: Applying the Tools of Physics—From the Cosmos to the Living Cell
Host Institution: Department of Physics/University of Illinois at Urbana-Champaign/The Board of Trustees of the University of Illinois
Grant #: 1359126
Principal Investigator: Kevin Pitts; Faculty Mentor: Greg MacDougall

53B
Identifying and Visualizing Mesoscale Convective Complexes in West Africa
Nicole Giggey; University of Rochester
REU Site: REU Site in Physics at Howard University
Host Institution: Howard University
Grant #: 1358727
Principal Investigator: Prabhakar Misra; Faculty Mentor: Gregory S. Jenkins

54B
Detector Design and Construction for Homeland Security
Lauren R Liegey; Truman State University
REU Site: REU Site for Applied Nuclear Science
Host Institution: Idaho State University
Grant #: 1156879
Principal Investigator: Steven Shropshire; Faculty Mentor: Alan Hunt

55B
Remote Image Reconstruction of Submerged Objects
Julia Savich; Illinois Wesleyan University
REU Site: Imaging in the Physical Sciences
Host Institution: Rochester Institute of Technology/Center for Imaging Science
Grant #: 1359361
Principal Investigator: Roger R Dube
56B
Exploring New Technologies for Standoff Detection of Explosives: Defeating the Bad Guys’ Improvised Explosive Devices
Eliza Dawson; Pima County Community College District
REU Site: REU Site: Summer Bridge Program in Experimental Physics
Host Institution: University of Arizona
Grant #: 1156753
Principal Investigator: Srinivas Manne

57B
A Precision Measurement of the Rydberg Constant
Mark Brown; Virginia Polytechnic Institute & State University
REU Site: REU Site: Summer Undergraduate Research Experience in Physics at the University of Michigan
Host Institution: University of Michigan
Grant #: 1262543
Principal Investigator: James Liu; Faculty Mentor: Georg Raithel

58B
Second Harmonic Generation in Non-linear Metamaterials
Kimberly J Sonju; California State University - San Bernardino
REU Site: REU in Applied Physics
Host Institution: University of South Florida
Grant #: 1263066
Principal Investigator: Sarath Witanachchi; Faculty Mentor: J. Zhou

59B
Superconductivity of KFeSe Under Pressure
Florence Doval; Barnard College
REU Site: Physics and Astronomy REU at University of Utah
Host Institution: University of Utah
Grant #: 1263394
Principal Investigator: Saveez Saffarian; Faculty Mentor: Shanti Deemayd

60B
Jet Quenching in Heavy Ion Collisions
Jacob Elledge; Arizona State University
REU Site: REU Site: Research Experience for Undergraduates in Astrophysics, Nuclear and Particle Physics
Host Institution: Wayne State University
Grant #: 1156651
Principal Investigator: Alexey Petrov; Faculty Mentor: Abhijit Majumder
NSF Division: Polar Programs

23A
 Mapping newly exposed sea floor and using differential bathymetry to assess present and future tidewater glacier stability on Svalbard, Norway
Robert Kean Ivey; Virginia Polytechnic Institute & State University
REU Site: Collaborative Research: REU Site: Svalbard REU: Holocene and Modern Climate Change in the Norwegian High Arctic
Host Institution: University of Massachusetts Amherst
Grant #: 1263005
Principal Investigator: Julie Brigham-Grette

NSF Division: Social, Behavioral, and Economic Sciences

24A
 Mapping RAR-98: A Study of Mapping Instruments, Techniques, and Data Generated
Kendall Baller; Bryn Mawr College
REU Site: REU Site: From Field to Lab: Bringing Science to Underserved Undergraduate Students through Archaeology
Host Institution: Arizona State Museum, University of Arizona
Grant #: 1262185
Principal Investigator: Dr E Charles Adams

25A
 Application of Object-based Analysis of Manavai from High Resolution Imagery of Easter Island
Isabela Kott; California State University - Long Beach
REU Site: Geospatial Research and Mapping on Easter Island
Host Institution: California State University - Long Beach
Grant #: 1005258
Principal Investigator: Christopher T Lee

26A
 Wind Farm Visual Impact on Property Values in Jefferson County, NY
Sarah Guth; Middlebury College
REU Site: Advancing Sustainable Systems and Environmental Technologies to Serve Humanity (ASSETs to Serve Humanity)
Host Institution: Clarkson University
Grant #: 135925
Principal Investigator: Shane Rogers; Faculty Mentor: Martin Heintzelman
27A
Disintegrating World War II Era Airplane Models: Corroding Mount Hardware Advises Degradation of Injection Molded Cellulose Acetate
Dora Chan; Grinnell College
**REU Site:** REU Site: Research Experiences for Undergraduates in Archaeological and Museum Conservation Science at the Smithsonian Museum Conservation Institute
**Host Institution:** Smithsonian Museum Conservation Institute
**Grant #:** 1156360
**Principal Investigator:** Christine France; **Faculty Mentor:** Odile Madden

28A
Physiological Reactivity in Child Populations Currently Experiencing Environmental Trauma
Sarah Dyanne Stanton; Syracuse University
**REU Site:** Training Diverse Undergraduate Teams of Veterans and Non-Veterans to Conduct Trauma Research with Veterans
**Host Institution:** Syracuse University
**Grant #:** 1359358
**Principal Investigator:** Brooks Gump

29A
Predicting Post-Stroke Recovery using Neuroimaging and Trail Making Tasks
Olivia M Spead; University of South Carolina - Columbia
**REU Site:** Summer Research Experience in Brain and Cognitive Sciences
**Host Institution:** University of South Carolina
**Grant #:** 1156522
**Principal Investigator:** Douglas H Wedell; **Faculty Mentor:** Troy M. Herter

30A
Estimating Willingness to Pay for a Cleaner Lake Menomin: A Contingent Valuation Study
Matthew J Flyr; St. Mary’s College of Maryland
**REU Site:** LAKES REU: Linking Applied Knowledge in Environmental Sustainability
**Host Institution:** University of Wisconsin-Stout
**Grant #:** 1357387
**Principal Investigator:** Chris Ferguson

**REU Program Posters**

61
An Immersive Research Engineering Training Program for Undergraduates
Robin Crotty, Cleveland Clinic Foundation
Department of Biomedical Engineering

62
Assessment of Communication Skills during the REU Program at Cal Poly – San Luis Obispo
James Hanson, Ph.D., PE
Gregg Fiegel, Ph.D., PE, GE
Nazli Yesiller, Ph.D.
63
Challenges and Opportunities in Running and Participating in an International REU in Svalbard, Norwegian High Arctic
Ross Powell, Northern Illinois University
Julie Brigham-Grette, UMass Amherst
Mike Retelle, Bates College
Steve Roof, Hampshire College
Al Werner, Mt. Holyoke College

64
Implementation of an International Component Bolsters Student Interest, Engagement and Diversity in an REU Program
Douglas J. Gardner and David Neivandt, University of Maine
Forest Bioproducts Research Institute

65
Multiple Summer Undergraduate Research Programs: Finances, Logistics, & Programming
Linda Blockus, Pam Cooper & Michael Cohen, University of Missouri

66
Recipes for Success in STEM: The Harvard Forest Summer Research Program in Ecology
Aaron M. Ellison, Manisha Patel, and Ahmed A. Siddiq
Harvard University, Harvard Forest, 324 North Main Street, Petersham, Massachusetts 01366

67
Research Experiences for Undergraduates in Chemistry at TAMU
PI: Holly C. Gaede, Co-PI: James D. Batteas, Texas A&M University

68
REU program in Integrative Tropical Biology at the Smithsonian Tropical Research Institute
W. Owen McMillan (PI)
Ana K. Spalding (Co-PI)
Paola Gomez Garcia (Program coordinator)

69
REU Site: Research Experience for Undergraduates in Collaborative Data Visualization Applications
Vetria L. Byrd, REU Site Coordinator, Clemson University

70
REU Site “Complexity Across Disciplines (CAD)” at Boise State University and Their Initiatives to Generate Interest in the STEM Fields
Liljana Babinkostova, Boise State University

71
Short- and Long-Term Assessments to Measure the Academic and Career Outcomes of Undergraduate Researchers and Graduate Student Mentors
Megan F. Campanile and Eric M. Brey, Illinois Institute of Technology
Elizabeth L. Ambos is Executive Officer for the Council on Undergraduate Research (CUR). CUR supports and facilitates high-quality undergraduate student-faculty collaborative research and scholarship. Over 670 institutions and 9900 individuals belong to CUR, an international non-profit organization. Prior to becoming CUR’s Executive Officer in May 2012, Beth Ambos served for six years as Assistant Vice Chancellor for Research Initiatives and Partnerships for the 23-campus California State University system. A geophysicist by training, Beth Ambos has also held several appointments at California State University, Long Beach, including Associate Vice President for Research and External Support, Graduate Dean, Associate Dean, and Professor of Geological Sciences in the College of Natural Sciences in Mathematics. She holds a bachelor’s degree in geology from Smith College, and Master’s and PhD in marine geology and geophysics from University of Hawaii at Mānoa.

Nicole Bennett is an Associate Professor at Appalachian State University and a rotating Program Officer for the NSF Division of Undergraduate Education. She received a B.S. in Chemistry at UNC-Chapel Hill in 1990 followed by a PhD in Organic Chemistry from the University of Wisconsin-Madison in 1996. Her 17-year career as a teacher/scholar began in the Chemistry Department at Hope College, a 3,000-student Liberal Arts college in Holland, MI. There, Nicole thrived in an environment where it was the norm for teachers and students to collaborate, discover, and learn together. In 2002, she moved to Appalachian, a primarily undergraduate institution with approximately 17,000 students, where she established a vigorous undergraduate research program in physical organic studies of microwave-induced synthesis of biodiesel and small molecules and she still enjoys the strong sense of community that research collaboration imparts on students and faculty alike. Nicole has been the principal investigator or co-principle investigator for undergraduate research projects funded through the NSF-POWRE (2000), NSF-CCLI (2004), Merck/AAAS (2006), Pfizer Inc. (2007), NSF-STEP (2007), NSF-S-STEM (2007), NC Space Grant (2008), NSF-REU (2010), and NSF-MRI (2012) Programs.

Linda Blockus serves as the Director of the Office of Undergraduate Research at the University of Missouri. MU's summer program undergraduate research program includes programs funded by the university, HHMI, NIH, and the NSF REU Program. Dr. Blockus serves as a CUR Councilor for the Undergraduate Research Program Directors Division. With CUR colleagues she has co-authored Characteristics of Excellence in Undergraduate Research and Undergraduate Research Offices & Programs: Models & Practices. In addition to her 20+ years of experience at Missouri, she served as a Fellow for the Center for Advancing Science and Engineering Capacity at the American Association for the Advancement of Science in Washington, D.C.

Tiffani Fonseca administers the fellowship programs in the Education Department of the American Society for Microbiology (ASM). She is responsible for four fellowship programs and one capstone institute: the ASM/CDC Postdoctoral Research Fellowship, the ASM Robert D. Watkins Graduate Fellowship, the ASM Undergraduate Research Fellowship, the ASM-Undergraduate Research Capstone, and the ASM Research Capstone Program. Prior to working at ASM, she was the Outreach and Production Specialist/Program Coordinator at the Kuwait America Foundation and its affiliate (the Embassy of the State of Kuwait). Fonseca holds dual bachelor’s degrees in Cognitive and Experimental Research in Psychology and Intercultural Communications. She has studied abroad in Accra, Ghana, and Roatan, Honduras, and conducted extensive research on blindsight, Parkinson’s disease, Alzheimer’s disease, and for the National Survey of Student Engagement Report among others.

Christine France is a Physical Research Scientist with the Smithsonian Museum Conservation Institute (MCI). She holds a PhD in Geology from University of Maryland and an M.S. in Marine, Earth, and Atmospheric Sciences from North Carolina State University. Christine manages the OUSS/MCI Stable Isotope Mass Spectrometry
Laboratory at MCI and runs a research program focusing on stable isotope indicators of diet, provenance, and demography in archaeological and paleontological populations. She also studies diagenesis of teeth and bones, and conservation issues related to stable isotope geochemistry in museum specimens. Christine has managed an REU grant for the past 3 years. Her program, REU Site: Research Experiences for Undergraduates in Archaeological and Museum Conservation Science at the Smithsonian Museum Conservation Institute, trains undergraduates in analytical analysis of museum collections with emphasis on conservation issues.

R. Corby Hovis is a senior program director in the Directorate for Education and Human Resources at the National Science Foundation (NSF) in Arlington, Virginia, where he has worked since 1997. At NSF, Dr. 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 currently sponsors four major centers for cybersecurity education. Before coming to NSF, he served on the faculty of Valparaiso University in Indiana and, at the same time, as science editor at Encyclopædia Britannica in Chicago. He received his PhD from Cornell University in both astronomy and the history and philosophy of science, and he received his BA in physics and English from Wake Forest University. 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.

Chris Hughes is a Professor of Physics and Astronomy at James Madison University and serves as the Director of the JMU Center for Materials Science. Dr. Hughes has been a councilor in the Physics and Astronomy division of CUR for the last 10 years and served a chair of that division for two years. He also has served on the Materials Research Society’s education subcommittee and has served on numerous NSF review panels and program reviews for institutions around the country. Dr. Hughes led an REU program at JMU in interdisciplinary materials research for 10 years and has mentored more than 50 undergraduate research students during his career.

Rebecca M. Jones, a former undergraduate researcher at The Ohio State University, earned her Ph.D. 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 (OUR) in 2010 and was appointed Director. She relocated to George Mason University In January 2012 to become the Assistant Director of OSCAR, where she administrates student programs such as the Undergraduate Research Scholars Program and the Undergraduate Student Travel Fund. She serves as the 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.

Tracey Kimbrel is a Program Director in the Division of Computing and Communication Foundations (CCF) within the Directorate for Computer and Information Science and Engineering (CISE). Tracy is currently on a detail assignment to the Graduate Research Fellowship Program (GRFP) in the Division of Graduate Education (DGE), Directorate for Education and Human Resources (EHR). Prior to joining NSF in 2009, Tracy was a Research Staff Member at the IBM TJ Watson Research Center in Yorktown Heights, New York. Tracy's research efforts concerned the design, analysis, and implementation of algorithms, ranging from highly theoretical to the most practical of efforts. His work at IBM included pure research, development of tools used in-house at IBM, performance improvements to IBM's product lines, and custom production software systems developed directly with users. His research areas include online algorithms, scheduling and resource management with applications ranging from computer file systems to ground transportation, and approximation algorithms. Tracy also developed the Introduction to Algorithms class for the IBM TJ Watson Research Center’s Family Science Program, which exposes elementary school children and their parents to scientific concepts and the industrial research environment. Tracy holds Ph.D., M.S., and B.S. degrees in Computer Science, all from the University of Washington.
Christine Li uses molecular genetic approaches in the model organism Caenorhabditis elegans to address two research problems: how different neurotransmitters affect the behavior of an organism and the normal role of different genes implicated in the pathology of Alzheimer’s disease. Dr. Li routinely involves undergraduates in her research program and is/has been part of many NSF, NIH, and Department of Education grants to increase the number of disadvantaged students in STEM fields. She did her Ph.D. at Harvard University and her postdoctoral work at Columbia University. She is currently a professor in the Department of Biology at City College of New York, which is part of the City University of New York.

Joerg Schlatterer is a Program Director in the Division of Graduate Education at the National Science Foundation. Dr. Schlatterer studied chemistry in Berlin and received his PhD in Heidelberg (Germany). In 2004, he moved to the US and worked as a postdoctoral fellow at the National High Magnetic Field Laboratory in Florida before moving on to become a research associate and subsequently a faculty member in biochemistry at the Albert Einstein College of Medicine in New York City. Dr. Schlatterer published more than 15 peer-reviewed articles and filed 4 patents and patent applications. At Einstein Dr. Schlatterer also co-created and directed the Career & Professional Development Program for Graduate Students & Postdoctoral Researchers. Dr. Schlatterer worked as Assistant Dean of Faculty Professional Development at Columbia University Medical Center before joining the National Science Foundation in summer 2014.

Valentin Soloiu is the Allen E. Paulson Distinguished Chair of Renewable Energy at Georgia Southern University and has 30 years of experience in university teaching and research. Soloiu supervises the Renewable Energy and Biofuel Combustion Laboratory program exploring the formulation, combustion, and emissions of alternative fuels/biofuels. This laboratory engages 20 undergraduate students and 4 graduate students in research. Soloiu serves as the PI on several federal grants from the DOE, EPA, ORNL as well as the PI on an NSF REU Site: Undergraduate Research in Green-Engineered New Transportation Technologies (URGENTT).

Tim Turner currently serves as both ASEE’s Director of Fellowships and Research Opportunities Department and Director of the GRF Operations Center. He provides executive management of all ASEE’s fellowship and internship programs. For over 20 years he has managed educational programs sponsored by DOD, NASA and NSF. Programs administered by ASEE provide internships for high school students, undergraduates and graduate students to participate in summer research programs at DOD laboratories, research fellowships for undergraduate and graduate students funded by NSF and DOD, postdoctoral research programs in government and industrial settings, and faculty research programs at DOD sites during the summer or while on sabbatical. Mr. Turner has been with ASEE since 1986.

Julio Turrens is the Associate Dean in the Pat Capps Covey College of Allied Health Professions and Professor of Biomedical Sciences at the University of South Alabama. Although his primary discipline is Biochemistry, for the last 15 years he has also taught an undergraduate course that addresses current issues in bioethics. In addition, 11 years ago he developed a graduate course on Responsible Conduct of Research (RCR) and has developed seminars to train undergraduates involved in research during the summer on various aspects of RCR.

Jessica Wyndham is Associate Director of the AAAS Scientific Responsibility, Human Rights and Law Program where she oversees the human rights activity of the Association. She also serves as Coordinator of the AAAS Science and Human Rights Coalition, a network of fifty scientific and engineering membership organizations that recognize the value of bringing scientists and engineers to human rights. Jessica has worked extensively with national human rights institutions throughout Asia, the Pacific, Africa and the Americas. She has served as Legal Adviser for the UN Office of the High Commissioner for Human Rights in Ecuador and was a consultant to the UN Independent Expert in the field of cultural rights. For four years, Jessica was an Adjunct Professor at the Elliott School of International Affairs, George Washington University. She holds a Bachelor of Arts (with Honors), a Bachelor of Laws (with Honors) (J.D. equivalent) and a Master of Laws.
Hilton Arlington Hotel Map

GALLERY I  GALLERY II  GALLERY III

Conf. Services Office
Catering Office
stairs to lobby level
pre-function space
elevators to guestroom floors
stairs
restrooms

1. RENOIR  2. REMBRANDT  3. PICASSO  4. DA VINCI  5. MATISSE