



RII TRACK-4 AWARDS

Mechanisms underlying transgenerational inheritance of the stress phenotype

Dr. Jenny Ouyang is an assistant professor in the Biology department at the University of Nevada, Reno (UNR). Her EPSCoR – NSF funded research focuses on understanding how animals adapt to urban environments. Urbanization is one of the most significant forms of habitat change, resulting in biodiversity loss through local extinction processes. Urban expansion is expected to impact 25% of all endangered species in the next decade. How are some animals able to thrive in urban environments while others are displaced? The answer might lie in the endocrine stress response that allows animals to respond to stressors, such as light, noise, and pollution. This stress response differs between individuals that live in urban versus rural areas. The Ouyang lab seeks to determine whether the stress response is genetically inherited and/or flexible and which mechanisms underlie adaptation to environmental change.



Jenny Ouyang (left) teaching students Valentina Alaasam (middle) and Parker Grossman (right) to monitor songbird nests. Photo credit: Jenny Ouyang.

Advanced Techniques for Assessing Toxicity and Chemical Uptake in Plants in Water Reuse Situations

Water shortages are becoming more frequent, and this lack of freshwater is expected to increase due to population growth and long-term drought. Alternative water supplies such as treated wastewater or stormwater runoff can help cities meet their drinking water and agricultural water demands with water that is available locally. However, there are some challenges associated with using these alternative water supplies. Through her RII Track-4 NSF award, Dr. Erica Marti, assistant professor in the Civil and Environmental Engineering and Construction department at the University of Nevada, Las Vegas (UNLV), aims to study the effects in food, water, and health that result from the chemical disinfection of alternative water supplies.



*Erica Marti
University of Nevada,
Las Vegas*

GRADUATE STUDENT RESEARCH

Jennifer Heppner is a graduate student in the Ecology, Evolution, and Conservation Biology program at UNR. Her graduate research focuses on whether adaptation to urban change can be facilitated by maternal transfer of yolk hormones. Mothers pass hormones to offspring during development to help them prepare for the environment they grow up in. Jennifer's research is to understand how this transfer changes with exposure to urban stressors. This information is vital for urban developers to improve both animal and human health and wellbeing.



*Jennifer Heppner
University of Nevada, Reno
(Advisor Dr. Jenny Ouyang)*

CURRENT RII TRACK-2 AWARDS



RII Track-2 FEC: The Visual Experience Database: A Large-Scale Point-of-View Video Database for Vision Research

(Co-PIs: Paul MacNeillage, Mark Lescroart; University of Nevada, Reno)



RII Track-2 FEC: Genomics Underlying Toxin Tolerance (GUTT): Identifying Molecular Innovations that Predict Phenotypes of Toxin Tolerance in Wild Vertebrate Herbivores

(Co-PIs: Marjorie Matocq, Lora Robinson; University of Nevada, Reno)



RII Track-2 FEC: Single Cell Genome-to-Phenome: Integrating Genome and Phenome Analyses of Individual Microbial Cells in Complex Microbiomes

(Co-PI: Duane Moser; Desert Research Institute)

WORKFORCE DEVELOPMENT



NEVADA STEM MENTOR NETWORK

Online resource to connect students with faculty mentors and research projects.



PATHWAYS TO STEM NEVADA

Online resource outlines the potential pathways, via state programs and institutes, to a STEM Career.



EPSCoR **IMPACT** in Nevada

Effecting lasting improvements and increasing research competitiveness

74
NEW HIRES
Since 1985

84%
RETENTION IN NEVADA
Since 1985

465
PROPOSALS AWARDED
Since 1985

NSF EPSCoR PROJECT (NEXUS)
196
Faculty, post docs, graduate students, undergraduate and administrators

NASA EPSCoR RID (2012-2019)
130
Participants and 103 students involved



SOLAR NEXUS IN NEVADA UNDERGRADUATE RESEARCH OPPORTUNITY PROGRAM (UROP) FEATURED IMPACT IN 2016 NATIONAL SCIENCE FOUNDATION BROCHURE



\$51.4
MILLION FUNDING
Since 2001



NSHE COUNCIL FOR UNDERGRADUATE RESEARCH (CUR) INSTITUTE FOR BROADENING PARTICIPATION IN UNDERGRAD RESEARCH ASSISTED IN THE DEVELOPMENT OF THE UNLV OFFICE OF UNDERGRADUATE RESEARCH



\$1.1M
AWARDED FOR 202 SCHOLARSHIPS
From 2015 - 2019

NASA EPSCoR RRR CAN

The NASA EPSCoR Program began a new "Rapid Research Response (R3)" program in 2018. The goal is to develop close collaborations among NASA, industry and university faculty to solve specific current NASA research challenges, as well as to contribute to the overall research infrastructure, science and technology capabilities, higher education and economic development of Nevada. The projects are for one year and are expected to produce quick results. Of the 30 R3 projects awarded to-date, Nevada has received 5.



[PLUS 2 CAN & 2 RID AWARDS]

NEVADA'S EPSCoR PROJECT FUNDING



National Science Foundation
Current Projects
2013 - 2020 \$20,802,967
Past Projects
1993 - 2017 \$53,903,783



National Aeronautics and Space Administration
Current Projects
2015 - 2020 \$2,624,849
Past Projects
1993 - 2015 \$10,200,000



Department of Energy
Past Projects
2000-2010 \$4,150,000



Department of Defense
Past Projects
2002-2011 \$4,177,659

[RETURN ON INVESTMENT: \$242.4 MILLION 2.5:1]

Nevada NSF EPSCoR is funded by the National Science Foundation (NSF) award #IIA-1301726. Nevada NASA EPSCoR is funded by the NASA awards #NNX15AK48A and #80NSSC19M0056. Any opinions, findings, conclusions, or recommendation expressed in the material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation or NASA.