

14th Annual

**College of Science Research Symposium**

Friday, April 26, 2019  
12 – 2 p.m.  
University Quad  
(in front of Building 8)

**BIOLOGICAL SCIENCES**

1. **Tri-axial accelerometers for quantification of activity levels in calves**

Girisha Bharadwaj, Estefania Velazquez, Helen Nguyen, Maria Mendoza, Dr. Juanita Jellyman

1. **Community Dynamics, Biochemical Composition and Safety of Microalgae grown in Dairy Manure Wastewaters**Karuel Osada, Urval Patel, Imani Cooper, Lesly Palacios, Dr. Marica Murry
2. **Ethanol Inactivated Human Mesenchymal Stem Cells as Feeder Cells for Culturing Human Pluripotent Stem Cells**Linh Tran, Dr. Yuanxiang Zhao
3. **Wound Healing Simulation by Fibroblast and Osteoblast Migration on Experimental Human Prosthetic Alloys**Cindy Toscano, Jacqueline Ruiz, Dr. Steve Alas
4. **Pseudocryptic speciation of two Hermissenda sea slug species**Austin Estores-Pachecoak, Dr. Ángel Valdés
5. **WILD BEE SEASONAL DIVERSITY AND ABUNDANCE IN URBAN GARDENS WITH NATIVE PLANTS**Jesus Cepeda, Dr. Joan Leong
6. **Effects of Ionizing Radiation on Heart Rate, Instar Development, and Swimming Behavior in Daphnia pulex**Samia E. Ladner, Dr. Andrea Bonisoli-Alquati
7. **OXIDATIVE STRESS RESPONSE IN THE SEASIDE SPARROW (AMMOSPIZA MARITIMA) FOLLOWING THE DEEPWATER HORIZON OIL SPILL**Aaron Angel, Dr. Andrea Bonisoli-Alquati
8. **DEC-205 expressing dendritic cells provide protection against West Nile virus encephalitis**Hemisha R. Khatri\*, Aaron R. Brown, Dr. Douglas M. Durrant
9. **Effects of Type II Diabetes Mellitus on Biodistribution of Antifungal Drugs**Ielyzaveta A Pomytkina, Jon A Olson, Dr. Jill P Adler-Moore
10. **Determining the effect of systematic Candida albicans infection on Tumor Necrosis Factor-𝛂 secretion in male and female mice.**Richard Michael Little, Isis Janilkarn-Urena, Kristiana Peraza, Seok Lee, Dr. Nancy E. Buckley
11. **Seasonal Differences in Bee Diversity and Abundance Between Three California Sage Scrub Sites Within the San Jose Hills**Carmel P. Tabush, Dr. Joan M. Leong
12. **A population-level approach investigating sea slug species in the genus Julia**Sandra Muro\*, Dr. Ángel Valdés
13. **Phylogenetic systematics of the genus, Cyerce Bergh 1871 (Sacoglossa, Caliphyllidae) using molecular and morphological data**Karina Moreno, Dr. Ángel Valdés
14. **The effects of ionizing radiation on mutation rates**Yeraldi Loera, Dr. Andrea Bonisoli-Alquati
15. **Study of breast cancer invasion in a three-dimensional cell culture system**Jade Lolarga, Alana Schonbrun, Dr. Junjun Liu
16. **Garlic alters Lipopolysaccharide-induced TNF-α secretion from macrophages in a cell type and cell density dependent manner**Seok Lee, Benjamin Soto, Dr. Nancy E. Buckley
17. **Comparative Analysis of Niche Occupation between Mesozoic and Extant Avifauna**John DiGildo\*, Jesús Marugán-Lobón, Jesús Marugán-Lobón, Dr. Alyssa K Bell
18. **Bioremediation of Crude Oil by 3 Common Mushroom Species**Larissa Shen, Dr. Mohammad Reza Chaichi
19. **Dopamine Signaling Mediates Over Consumption and Dysregulation of Meal Timing on High Fat Diets.**Michael Sidikpramana, Dr. Andrew Steele
20. **Preliminary Phylogeny of Aplustridae**Kendall Feliciano, Dr. Ángel Valdés
21. **Lymphotactin Expression by Central Nervous System-Infiltrating T Cells and its Protective Role in WNV Neuro-invasive Disease**Marina O. Alvarado, Anthony Santana, Dr. Douglas M. Durrant
22. **RECOVERY OF RED ALGAL TURFS AND ASSOCIATED MEIOFAUNAL COMMUNITIES IN A SOUTHERN CALIFORNIA ROCKY INTERTIDAL ECOSYSTEM DURING ENSO AND NON-ENSO PERIODS**Sean Agler\*, Dr. Jayson Smith
23. **Characterization of a modified method of inducing type 2 diabetes in obese male ICR mice**Connor Kunihiro, Dr. Jill Adler-Moore
24. **Monitoring walnut trees for signs of disease induced by drought over several months of dry season**Siranush Gharibyan, Sahar Kebriaei , Dr. Lauren Tucker
25. **Maximizing the efficiency of invasive plant control with a phenology-based timing approach to management**Guy G. Hernandez, Dr. Erin J. Questad
26. **Determining the Lower Limit of Sensitivity and Reproducibility of the HSV-2 Plaque Forming Unit Assay in Virus-Spiked Tissue.**Khadija Shafiq, Dr. Jill Adler-Moore
27. **Establishment of a Neutropenic, Murine Pulmonary Mucormycosis Infection Model**Adilene Sandoval, Dr. Jill Adler-Moore
28. **Quantifying Plumage Pattern Variation Within Pacific swallows (Hirundo tahitica)**  
    Cathy A Trejo\*, Dr. Elizabeth Scordato
29. **The Oak Titmouse Niche in Urban and Non-Urban Environments**Aurora Williamsen, Dr. Elizabeth Scordato
30. **How does urban pollution affect aging and oxidative stress in the California Towhee (Melozone crissalis) in Southern California?**Anthony Dant, Dr. Bonisoli-Alquati
31. **Assessment of Microbial Loads and Detection of Gram Negative Pathogens on Raw Chicken**  
    Alondra, Q., Naves-Peralta\*, Ismail Noralhuda, Dr. Wendy Dixon
32. **Protective effects of liposomal gD3pep vaccine against HSV-1 infection in BALB/c mice depend on the adjuvant used in the vaccine**  
    Edgar Gonzalez, Dr. Jill Adler-Moore
33. **MICE WITH LARGE DELETIONS OF TYROSINE HYDROXYLASE IN DOPAMINE NEURONS   
    NO LONGER PREDICT SCHEDULE MEAL TIME ON CIRCADIAN TIME SCALES**Damien Wolfe, Amanda Ng, Lori Scarpa, Jeffrey Falkenstein, Dr. Andrew Steele
34. **Species Distribution Models of Pacific Swallows (Hirundo tahitica)**Brenda Ramirez\*, Dr. Elizabeth Scordato
35. **Creating a new and efficient screening method for archaeal viral lysis mutants**Robert D Manuel, Dr. Jamie C. Snyder
36. **Developmental, and Genetic Changes in Shoot Apical Meristem During Transition to Flowering in Aquilegia coerulea.**Uriah Sanders, Tim Batz, Valerie Mellano, Dr. Bharti Sharma
37. **ANTHROPOGENIC DISTURBANCE OF ROCKY INTERTIDAL COMMUNITIES FROM VISITORS TURNING OVER INTERTIDAL ROCKS**Meghan A. Jeffus, Dr. Jayson R. Smith
38. **Characterization of Antimicrobial Activities of Silver Nanoparticle**  
    Samantha Cheng, Ivan Revilla, Chris Dail, Nektary Telep, Dr. Wei-Jen Lin and Dr. Peng Sun
39. **Plant Phenology Monitoring of Coastal Sage Scrub at the Voorhis Ecological Reserve**  
    Sharon Estrada, Dr. Erin J. Questad
40. **Individual level Variation in the Foraging Behavior of Honey bee (Apis mellifera) foragers across Plant Systems**Seth Kapp, Dr. Joan M. Leong
41. **The Development of Improved Sectioning and Counterstaining Protocols for the Cytochrome Oxidase Histochemical Method for Localizing Metabolically Active Neurons**Zuhayr Khan, Solomon Washington, Jean Taleangdee, Samuel Payan, Dr. Glenn Kageyama
42. **A Meta-Analysis of Perfluorooctane Sulfonate in Birds Around the World**  
    Raul Flamenco, Dr. Andrea Bonisoli-Alquati
43. **Histological preparation and female reproductive patterns of the Garibaldi, Hypsypops rubicundus**  
    Brenda Calderon, Jacob Eagleton, John DiGildo, Shannon O'Toole, Dr. Jeremy Claisse
44. **Effects of Time-Restricted Feeding on Activity Patterns and Growth in Steers**Serena Lin, Amanda Fuerte, Mario Diaz, Karina Brito, Dr. Junita Jellyman
45. **The Development of New Counterstaining Protocols for the NADPHd Histochemical Method for Localizing Nitric Oxide Synthesizing Neurons**  
    Zuhayr M. Khan, Leeland H. Liu, Jacob Eagleton, Jean Taleangdee, Dr. Glenn H. Kageyama
46. **Does sex play a role on tissue fungal load in mice infected with Candida albicans?**  
    Kristiana Peraza, Isis Janilkarn-Urena, Richard Michael Little, Seok Lee, Dr. Nancy E. Buckley
47. **The Role of Pitx3 on Food Anticipatory Activity in Dopamine Depleted Mice**  
    Lori Scarpa, Damien Wolfe, Jeffrey Falkenstein, Jaskaran Dhanoa, Dr. Andrew Steele
48. **Functional Traits of Invasive and Native Annual Plants in California Coastal Sage Scrub**

Taylor Edwards, Sierra Lauman, Erin Questad

**CHEMISTRY AND BIOCHEMISTRY**

1. **Exploring the Effect of Aluminum Toxicity on Plant Metabolism**Camille Abeyta, Ambria Pogue, Riddhima Kumar, Dr. Gregory Barding
2. **The isolation and identification of a molecule responsible for resistance to powdery mildew disease**Moises Bravo, Dr. Gregory Barding
3. **Synthesis of ABA-block Polymers from Lignin Derived Phenols and Fatty Alcohols**Maiko Lunn, Dr. Alex John
4. **Nickel Nitrosyl Complexes with Bidentate N-heterocyclic Carbene Ligands**  
   Zijie Zhang, Dr. S. Chantal E. Stieber
5. **Quantification of Trace Fermentation Products by 2D NMR**  
   Liliana Cahuas, Erica Hummel, Amy Tasci, Dr. Gregory Barding
6. **The Synthesis of Diisocyanate-Free Polyurethanes from Renewable Resources**Marcos Ojeda, Dr. Michael F. Z. Page
7. **Synthesis of Nickel Catalysis with Bidentate Carbene Ligands**  
   Briana Arreaga, Dr. Chantal Stieber
8. **Synthesis of Bidentate Imidazole Ligands for Nickel Catalysts**   
   Kevin Liang, Dr. S. Chantal E. Stieber
9. **Oxidative Cleavage of Lignin Model Compounds using Vanadium Catalysts**Consuelo Martinez, Dr. Alex John
10. **Reduced Vanadium Complexes and Applications for Catalysis**  
    Beverly Stretch, Dr. Chantal Stieber
11. **Iron Complexes with Bidentate N-Heterocyclic Carbene Ligands**Alexis Hoxie, Dr. Chantal E Stieber
12. **Oxidative Addition of Sulfonyl Fluorides to Nickel(0) Complexes**Karen Juarez, Carlos Yamamoto, Justin Tabay Cortez, Dr. S. Chantal E. Stieber
13. **Organic Crystalline Structural and Electronic Properties Database**William Riddle, Sebastian Jezowski, Dr. Bohdan Schatschneider
14. **Electronic Structure Determination of Copper Nitrites**Carson Gorney, Dr. S. Chantal E. Stieber
15. **Investigation of green oxidation reactions using a novel molybdenum catalyst**Celine Parker, Dr. Alex John

**COMPUTER SCIENCE**

1. **Please Blink Your Password: Converting Morse Code Eye Activity to Text using EEG**Angela Gadon, Dr. Mohammad I Husain
2. **Smartphone Security Lab**Hunter Gaukel, Andrew Kim, Manvinder Toor, Dr. Mohammad Husain
3. **Exploring the Possibility of Authentication Using Electroencephelography and Music**  
   Joseph Cauthen, Marco Mercado, Tejas Gandre, Meetkumar Patel, Dr. Mohammad Husain
4. **Yoga in Virtual Reality - Yogality**Kimberlyn U. Krishnan, Ngan K. Nguyen, Lynn M. Nguyen, Dr. Mohammad Husain
5. **Student Security Operations Center**  
   Carlos Marquez\*, Karanbir Ahuja, Dr. Mohammad Husain
6. **Sorting Algorithms Animated Using Microsoft Hololens**  
   Derek Yee, Diana Choi, Dr. Mohommad Husain  
   **(Located on Building 8)**
7. **Virtual Simulation of Newton's Three Laws**Jeffrey McDonald, C Flores, Dr. Mohommad Husain
8. **Binary Classification Using Brainwave Frequencies and Music**Joseph Cauthen, Tejas Gandre, Marco Mercado, Meetkumar Patel, Dr. Mohammad Husain
9. **Teaching Chemistry in Augmented Reality**  
   Bryan Lee, Joshua Chen, Steven Chan, Dr. Mohammad Husain
10. **CPP Malware Lab**David Davila, Hannah Kim, Julieth Jaramillo, Richard Selva, Steven Oseguera Dr. Mohammad Husain

**GEOLOGICAL SCIENCES**

1. **Arsenic speciation and spatial distribution in mine wastes: Steps towards developing a proxy for long-term exposure risks**  
   Manuel R. Vejar\*, Dr. Christopher S. Kim  
   **(Located on Building 8)**
2. **Seismic Site Response Results of the Western San Gabriel Basin by Utilizing Ambient Noise**  
   Margaret Grenier\*, Anisha Tyagi, Dr. Jascha Polet
3. **Source of Salinity in Towsley Canyon Stream Discharge**Laura Abbott\*, Dr.Stephen Osborn
4. **SEISMIC SITE RESPONSE OF THE CENTRAL SAN GABRIEL BASIN USING AMBIENT NOISE MEASUREMENTS**Rachel M. Kreuziger\*, Anisha D. Tyagi, Jascha Polet
5. **Water Quality of Mill Creek Wetlands**Nadia Guajardo, Dr. Stephen Osborn
6. **Potential seasonal and land use impacts on the water quality of the Santa Ana River**  
   Brianda N. Hernandez, Cassidy Furnari, Dr. Stephen Osborn
7. **METALS CONTENT OF STREAM DISCHARGE IN TOWSLEY CANYON, CALIFORNIA**  
   Rathana M. Sambath, Laura C. Abbott, Dr. Stephen Osborn
8. **Geologic Constraints on Deep Fluid Flow at Wiley Canyon**  
   Shane Bonanno, Dr. Stephen Osborn
9. **Testing the OpenHVSR-Processing Toolkit Algorithm on Seismic Waveform Data from the San Bernardino Basin**Jose Martinez-Camacho, Dr. Jascha Polet
10. **GEOPHYSICAL INVESTIGATIONS OF FAULT-GROUNDWATER INTERACTION AT DOS PALMAS PRESERVE**Stacey Petrashek\*, Raul Contreras, Nathan Pulver, Dr. Jascha Polet
11. **Imaging Archeological Artifacts from San Salvador in Colton, CA, Buried During the Great Flood of 1862, Using Ground Penetrating Radar**  
    Veronica Hernandez, Oscar Prado, Chloe Sutkowski Dr. Jascha Polet
12. **A Study of the Birch Creek Pluton**  
    Mathew Davis, Dr. Nicholas J Van Buer
13. **Geological Mapping and Geochemistry of the Western Mojave Batholith**Vanessa Pena, Dr. Nicholas J Van Buer

**KINESIOLOGY AND HEALTH PROMOTION (Located on Building 8)**

1. **The Effects of Leucine-Enriched Branched-Chain Amino Acid Supplementation on Exercise-Induced Muscle Damage**Jennifer Rivera, Dr. Edward Jo
2. **Electromyographic Analysis of Steel Mace Exercise: A Descriptive Study of Alternative Training Modalities**  
   Christian Ison, Dr. Edward Jo
3. **The Acute Effects of Foam Rolling on Fatigue-Related Impairments of Muscular Performance**  
   Matthew Rodriguez, Dr. Edward Jo
4. **Electromyographic comparison of the deadlift vs. Hip thrust with and without abductor resistance bands**  
   Emma Silvestri, Damar Blanchet, Monica Quila, Timothy Weiss, Dr. Edward Jo

**MATHEMATICS AND STATISTICS**

1. **A Bi-criteria Mixed Integer Linear Programming Model for Load Balancing and Chemical Saving in Wafer Cleaning Process**Calvin Thach, Jeremy Lin, Dr. Jillian Cannons

**PHYSICS AND ASTRONOMY**

1. **Statistical Analysis of Students' Performance on Research-Based Inventory**Darwin Agunos, Armando Villasenor, Alexander Small, Dr. Qing Ryan
2. **Students' perceptions of the math-physics interactions throughout spins-first quantum mechanics**\*Armando R Villasenor, Darwin Del Agunos, Benjamin Shermerhorn, Dr. Homeyra Sadaghiani
3. **The Effect of Explicit Instruction on Scientific Reasoning Skills**  
   Tyler Garcia, Dr. Homeyra Sadaghiani
4. **Surface Modification of Stainless Steel Using Radio-Frequency Generated Cold Plasma**Sara Margala, Camille Dright, Nicholas Cordoba, Dr. Nina Abramzon
5. **Using Distant Galaxies to Constrain the Ionizing Photon Budget of Massive Stars**Evan Haze Nunez, Dr. Breanna Binder
6. **Aperture Photometry of Star Forming Regions in the Milky Way**  
   Kevin Abbott, Dr. Breanna Binder
7. **Modeled Detection Limits of Optical and Infrared Lasers by Conoragraphic Imaging Instruments**Christina Vides, Dr. Breanna Binder
8. **X-ray Binary Effects on Stellar Evolution**  
   Erick A. Aguirre, Dr. Breanna Binder
9. **Measuring the activity of radioactive isotopes in soil using NaI detector in the Advance Physics Lab**  
   Rebekah Aguilar, Dr. Nina Abramzon
10. **Multilayer Plasmonic Structures for Ultra-Sensitive Refractive Index Sensing**Bo K. Shrewsbury, Librado Mancilla, Gobind Sohi
11. **Plasma Surface Modification of Ultra-High Molecular Weight Polyethylene to Improve Total Joint Replacement Longevity**Bianca Cruz, Panik Moradian, Anthony E. Oceguera

**DON B. HUNTLEY COLLEGE OF AGRICULTURE**

1. **Beta-diversity analysis across pest-host environments of invasive shot hole borer (Euwallacea sp.)**  
   Andrew Neisess, Dr. Valerie Mellano
2. **Comparison of Plant and Animal-Origin Proteins for the Impact of Maillard Conjugation on Nanoemulsion Formation and Stability**  
   Sarah Caballero\*, Dr. Gabriel Davidov-Pardo

**COLLEGE OF ENGINEERING**

1. **Sound Sight: Aural Vision for the Blind**Andy Klaib\*, Dr. Scott M Boskovich