



9:15 AM

Mulford 132:

Morgan Apolonio, GPB | Faculty Mentor: Thomas Eng | RCNR Faculty Sponsor: Henrik Vibe Scheller, PMB | Approaches and Limitations in Recombineering: A Case Study in *Pseudomonas putida* KT2440

Mulford 159:

Shlok Rajurkar, NS-PM | Faculty Mentor: Ronald Krauss, NST | Investigating a Potential Origin of Electronegative Low-Density Lipoprotein

Mulford 230:

Ethan Ignoffo, EEP | Faculty Mentor: Rachel R. Carlson, ESPM | Does Money Matter? Examining the Relationships Between Federal Funding & Population Trends for ESA-Listed Marine Species

Mulford 260 (Student Resource Center):

Anuksha Ram Madhan, ES | Gone to the Dogs: Human-Carnivore Interactions and Long-Term Conservation Implications in African Wild Dogs

9:30 AM

Mulford 132:

Dylan Chau, MEB | Faculty Mentor: Christopher Martin | RCNR Faculty Sponsor: Carl Boettiger, ESPM | Investigating Visual Acuity in Caribbean Pupfish Through Optomotor Response and Its Ecological Implications

Mulford 159:

Makayla Connelly, MEB | Faculty Mentor: Kipling Will, ESPM | Impacts of Forest Thinning on Terrestrial Arthropod Populations in the Santa Cruz Mountains

Mulford 230:

Gaurav Bharti, EEP | Faculty Mentor: Maggi Kelly, ESPM | Where Clean Energy Gets Dirty: A Geospatial Comparison of Critical Minerals for Solar vs. Hydrogen Technologies

Mulford 260 (Student Resource Center):

Kaitlyn Chen, ES | Tasteful Considerations: How Elderly Asian Americans Access Food Pantry Services in Alameda County

9:45 AM

Mulford 132:

Masha Yadykina, MEB | Faculty Mentor: Christopher Martin | RCNR Faculty Sponsor: Carl Boettiger, ESPM | Analysis of Feeding Performance and Bite Kinematics in Scale-Eating Pupfish

Mulford 159:

Nathan Lin, MEB | Faculty Mentor: Kipling Will, ESPM | Systematics of the Ground Beetle genus *Pseudabarys*

Mulford 230:

Tiffany Mar, S&E | Faculty Mentor: Claudia Carr, ESPM | Tracking and Evaluation of City of Coachella Transformative Climate Communities Program Grant

Mulford 260 (Student Resource Center):

Michael Hughes, ES | Climate Change and Photovoltaic Potential: a Land Suitability Analysis of California using Climate Models

10:00 AM

Mulford 132:

Ayush Bakhandi, MEB | Faculty Mentor: Dr. Sunita Ho | RCNR Faculty Sponsor: Kate O'Neill, ESPM | Mapping Teeth and Bone in the Periodontal Ligament and the Temporomandibular Joint: A Study of Dental Tissues

Mulford 159:

Sidney Banks, MB & MEB | Faculty Mentor: Cecilia Martinez-Gomez, PMB | Understanding the Influence of Lanthanides on Formaldehyde Toxicity during Aromatic Acid Metabolism in Methylophilic Bacteria

Mulford 230:

Sameer Ameen, S&E | Faculty Mentor: Kurt Spreyer, ESPM | Colonial Shadows on South Asian Energy Transitions: A Comparative Study of India, Pakistan, and Bangladesh

Mulford 260 (Student Resource Center):

Imani Holmer, EEP | Faculty Mentor: Paige Weber, ERG | Dimensions of Disparity in Our Environments: Evaluating Relationships between Air Quality and Income Inequality Across the U.S.

10:15 AM

Mulford 132:

Chun Fung Kwok, MEB | Faculty Mentor: Jian-Hua Mao | RCNR Faculty Sponsor: Britt Glaunsinger, PMB | Oncogenic Role of NEIL3 in Breast Cancer Metastasis and Chemotherapies

Mulford 159:

Olivia O’Laughlin, MB | RCNR Faculty Sponsor: Kathleen Ryan, PMB | Investigating the regulon of the CenR Response Regulator in *Caulobacter crescentus*

Mulford 230:

Benjamin Bartlett, MEB | Faculty Mentor: Kurt Spreyer, ESPM | HIV and Urban Gradients: A Systems Analysis of Environmental and Immunological Drivers in San Bernardino

Mulford 260 (Student Resource Center):

Ani Singh, MEB | Faculty Mentor: Nicholas Shatan | RCNR Faculty Sponsor: Kurt Spreyer, ESPM | South Asian American Attitudes Towards Homelands

10:30 AM

Mulford 132:

Sabrina Hammond, MB & MEB | Faculty Mentor: Eva Harris | RCNR Faculty Sponsor: Britt Glaunsinger, PMB | Investigating the Role of Ephrin Signaling in Dengue Virus NS1-mediated Endothelial Dysfunction

Mulford 159:

Isabella Su, NS-PM | Faculty Mentor: Wally (Jen Chywan) Wang, NST | Transcriptional Coregulator Gatad2a and Hepatic Lipid Homeostasis

Mulford 230:

Lucas Tress, CRS | Faculty Mentor: Dara O’Rourke, ESPM | Risky Business; A Climate Risk Assessment of the Semiconductor Industry

Mulford 260 (Student Resource Center):

Maya Lis, S&E | Faculty Mentor: Kurt Spreyer, ESPM | Political Climates and Nonprofit Environmentalism: A Comparative Analysis of State Influence on Environmental Nonprofits in Florida and California

10:45 AM

Mulford 132:

Alexander Tran, NS-PM | Faculty Mentor: Pengya Xue | RCRN Faculty Sponsor: Hei Sook Sul
NST | Examining MafF as a Possible Transcriptional Regulator of Thermogenesis

Mulford 159:

Casey Herbert, MEB | Faculty Mentor: Richard Harland | RCNR Faculty Sponsor: Krishna
Niyogi, PMB | Using CRISPR to Investigate Sleep Disorder Genes in *Xenopus laevis*

Mulford 230:

Sadie Shoemaker, EEP, S&E | Faculty Mentor: Yuen Ho | RCNR Faculty Sponsor: David
Zilberman, ARE | Alternatives to the Alternatives: Utilizing the Circular Bioeconomy to
Produce Biofuels from Agricultural Waste Products

Mulford 260 (Student Resource Center):

Katrina Yardley, CRS | Faculty Mentor: Robert Kayen | RCNR Faculty Sponsor: Kurt Spreyer,
ESPM | Connecting The Bay: North Bay Area Rail Transit Expansion

11:00 AM

Mulford 132:

Kaily Khaloyan, NS-PM | Faculty Mentor: Ashley Reaver, NST | Exploring the
Immunological Mechanisms of Oral Immunotherapy in Food Allergy Desensitization

Mulford 159:

Luyang Zhang, MB | Faculty Mentor: Chandler Sutherland | RCNR Faculty Sponsor: Ksenia
Krasileva, PMB | Equipped for an Arms Race: Developing Tools to Evaluate Mutation Bias in
the Plant Immune System

Mulford 230:

Aurora Khatibi Garrity, CRS | Faculty Mentor: Matthew Potts, ESPM | HERO2: Gamifying
Climate Action: A Behavioral Platform to Incentivize Low-Carbon Mobility (www.hero2.org)

Mulford 260 (Student Resource Center):

Katharine Wang, MEB | Faculty Mentor: Eileen Lacey | RCNR Faculty Sponsor: Damian
O. Elias, ESPM | The Effects of Body Size and Age on Pup Development in Colonial Tuco Tucos
(*Ctenomys sociabilis*)

11:15 AM

Mulford 132:

Rituja Bhowmik, NS-PM | Faculty Mentor: Dr. Meagan Esbin | RCNR Faculty Sponsor:
Ashley M. Reaver, NS | Investigating Novel Transcription Factors Controlling Hormone
Secretion and Cell Fusion in the Human Placenta

Mulford 159:

Noah Huh, ES | Faculty Mentor: Damian Elias, ESPM | Biases for Red Coloration and their Role in Mate Choice in the Jumping Spider Genus *Habronattus*

Mulford 230:

Natalie Allen, CRS | Faculty Mentor: Alistair Iles, ESPM | The Right to Be Ecological: Community and The Circular Economy

Mulford 260 (Student Resource Center):

Jenan Isabel Ozeir, CRS | Faculty Mentor: Ignacio Chapela, ESPM | The Art of Occupation: How Israeli Art and Afforestation Reconstruct the Landscape of Palestine to Affirm the Zionist Imaginary

11:30 AM

Mulford 132:

Anna Kroskrity, MEB | Faculty Mentor: James Olzmann, MCB | Characterizing the Induced Degradation of RTN4b, an ER Membrane Protein

Mulford 159:

Kim Tran, NS-PM | Faculty Mentor: Ashley Reaver, NST | A Review of Menopausal Effects on Cholesterol and Lipid Metabolism

Mulford 230:

Libby Oren, CRS | Faculty Mentor: Brooke Lober | RCNR Faculty Sponsor: Ignacio Chapela, ESPM | Social Media Perspectives on Agriculture in Gaza

Mulford 260 (Student Resource Center):

Lizzy Cook, EEP | Faculty Mentor: Sofia Villas-Boas, EEP | Analyzing the Impacts of Columbia River Basin Dams on Tribal Land

11:45 AM

Mulford 132:

Brandon Tu, NS-PM | Faculty Mentor: Dr. Michael Rape | RCNR Faculty Sponsor: Dr. James Olzmann, NST | Ubiquitin-Controlled Regulation of ETNK1 and Phospholipid Synthesis

Mulford 159:

Gabrielle Ngia, NS-PM | Faculty Mentor: Ashley Reaver, NST | A Review of Gestational Cholesterol Levels and Subsequent Postpartum Effects

Mulford 230:

Keya Pardasani, EEP | Faculty Mentor: Aprajit Mahajan, ARE | Impact of the Greenhouse Gas Reporting Program On Power Plant Emissions

-----BREAK-----

1:30 PM

Mulford 132:

Maia Supple, MEB | Faculty Mentor: Peter Oboyski | RCNR Faculty Sponsor: George Roderick, ESPM | Integrating Molecular and Morphological Approaches to Investigate Foliar Mites on *Morinda citrifolia* in Polynesia

Mulford 159:

Margot Lavitt, MB | Faculty Mentor: Rohan Sachdeva | RCNR Faculty Sponsor: Jill Banfield, ESPM | Mobile Genetic Elements in Methane Cycling Microorganisms in Wetland Soil

Mulford 230:

Loulou Gluck, CRS | Faculty Mentor: Elizabeth Hoover, ESPM | Exploring the Politics Surrounding Wind Energy Policy & Economics: South Korea and the United States

Mulford 260 (Student Resource Center):

John Chung, EEP | Faculty Mentor: Dara O'Rourke, ESPM | RCNR Faculty Sponsor: Sofia Villas-Boas, ARE | Watt Are the Barriers to Scaling Up Renewable Energy in South Korea?

1:45 PM

Mulford 132:

Kaylin Maddox, MEB | Faculty Mentor: Jinse Kim, NST | RCNR Faculty Sponsor: David Moore, NST | PPAR α In-Vitro and its Potential Effects on Energy Homeostasis

Mulford 159:

Danielle Lavitt, MEB | Faculty Mentor: Allison Guiton | RCNR Faculty Sponsor: Jill Banfield, ESPM | Metagenomic Analysis of Carbohydrate Metabolism in Sorghum Rhizosphere Microbial Communities

Mulford 230:

Michael Brand, EEP | Faculty Mentor: Nicole Starosielski | RCNR Faculty Sponsor: James Sallee, ARE | Bringing Lightning to the Cloud: How Microgrids Could Enable a Sustainable Transition for Digital Infrastructure Industries

Mulford 260 (Student Resource Center):

McKenna Stone, EEP | Faculty Mentor: Sofia Villas-Boas, EEP | The Intersection of Land and Water: How Performance in the Weight Room Affects Performance in the Water

2:00 PM

Mulford 132:

Mason Hillers, MB | Faculty Mentor: Jay Keasling | RCNR Faculty Sponsor: Patrick Shih, PMB
| Leveraging Aerobic Redox Imbalance as a Tool for Directed Evolution in *Escherichia coli*

Mulford 159:

Jaewon Lee, MEB | Faculty Mentor: Samantha Lewis | RCNR Faculty Sponsor: Damian Elias, ESPM | Investigating the Internal Structure of Mitochondrial RNA Stress Bodies via Perturbation of RNA Multivalent Interactions

Mulford 230:

Isabelle Cherry, S&E | Faculty Mentor: Nicole Starosielski | RCNR Faculty Sponsor: Kate O'Neill | Greening Subsea Telecommunications: Sustainable Project Development and Supply Chain Innovations

Mulford 260 (Student Resource Center):

Hannah Menth, EEP | Faculty Mentor: Sofia Villas-Boas, ARE | Monitoring and Minimization: Reductions in Bay Area Refinery Flaring Emissions

2:15 PM

Mulford 132:

Morgane Hanley, CRS | Faculty Mentor: Céline Pallud, ESPM | Comparing the Effects of Hybrid *Spartina alterniflora* x *S. foliosa* and Native *Spartina foliosa* on Carbon Storage and Soil Properties in San Francisco Bay Saltwater Marshes

Mulford 159:

Lauren Chiang, GPB | Faculty Mentor: Sabeeha Merchant, PMB | Ecological Variables Examined through Proteomics of *Chlamydomonas reinhardtii*

Mulford 230:

Avalon Moore, CRS | Faculty Mentor: John Dougherty | RCNR Faculty Sponsor: Kurt Spreyer, ESPM | Examining the Impacts of Covid-19 on the Navajo Nation and Community Resilience in Response

Mulford 260 (Student Resource Center):

Annika Sundberg, S&E | Faculty Mentor: Michael Mascarenhas, ESPM | Colonial Logics in Sweden's Green Transition: How Land-Use Change Undermines Sámi Self-Determination

2:30 PM

Mulford 132:

Sophie Simon, CRS | Faculty Mentor: Todd Dawson, ESPM | Inter-Method Comparison of Water Extraction Techniques in Redwood Tree Cores: The Implications for Isotope Analysis and Plant Physiological Research

Mulford 159:

Sarah Lagattuta, MEB | Faculty Mentor: Christine Kreuder Johnson | RCNR Faculty Sponsor: Christopher Schell | Scalable Solutions for Non-Invasive Bat Surveillance: Advancements in Thermal Imaging and Machine Learning

Mulford 230:

Karishma Goswami, S&E | Faculty Mentors: Daniel Sargent, Abigail Martin | RCNR Faculty Sponsor: Kate O'Neil, ESPM | The Photovoltaic Race: A Comparative Analysis of Chinese and U.S. Solar Development Policy

Mulford 260 (Student Resource Center):

Ashley Yoon, S&E | Faculty Mentor: Michael Mascarenhas, ESPM | Hidden Repercussions: Environmental Racism and its Ripple Effect on Korean American Environmentalism

2:45 PM

Mulford 132:

Nikita Bahadur, MEB | Faculty Mentor: Todd Dawson, ESPM | Investigating Leaf Wettability as a Predictor for Foliar Water Uptake (FWU) in Fog-Adapted Species of California Native Plants

Mulford 159:

Peyton Koch, GPB | Faculty Mentor: Geoffrey Vrla | RCNR Faculty Sponsor: Brian Staskawicz, PMB | Establishing a Transgene-Free Approach for Producing Clonally Propagating Hybrid Rice

Mulford 230:

Kavina Peters, EEP | Faculty Mentor: Sofia Villas-Boas, ARE | Examining the Burgeoning Voluntary Agricultural Carbon Credit Market in India: Incentives, Challenges, and Efficacy for Smallholder Farmers

Mulford 260 (Student Resource Center):

Sarah Ricci, S&E | Faculty Mentor: Timothy Bowles, ESPM | Supporting Ecological Agriculture Through Market-Based Tools: Lessons from Farming Communities in Latin America

3:00 PM

Mulford 132:

Emma To, MB | Faculty Mentor: Kiflom Aregawi | RCNR Faculty Sponsor: Dr. Peggy Lemaux, PMB | Determining Tissue Expression Patterns of Rice Root-Specific Promoters in Sorghum via Morphogene-assisted Agrobacterium Transformation and GUS Visualization

Mulford 159:

Ella Giguere, MEB | Faculty Mentor: Brian Staskawicz, PMB | Prime Editing the Rice IPA1 Gene to Increase Yield and Disease Resistance

Mulford 230:

Sydney Lee, S&E | Faculty Mentor: Alastair Iles, S&E | The Right to Grow: An Analysis of California's Urban Agriculture Incentive Zone Act Rooted in Legacies of Land Exclusion

Mulford 260 (Student Resource Center):

Nishita Suhir Dashpute, EMF | Faculty Mentor: Lara Kueppers ERG | Climate Change Impacts on Rocky Mountain Alpine Ecosystems

3:15 PM

Mulford 132:

Valerian Weinzwieg, CRS | Faculty Mentor: Timothy Bowles, ESPM | Balancing Climate Adaptation and Mitigation: Assessing Tradeoffs in Soil Organic Carbon between Dry Farmed and Irrigated California Vineyards

Mulford 159:

Bradley Vu, MB | Faculty Mentor: Dr. Carlotta Ronda | RCNR Faculty Sponsor: Dr. Brian Staskawicz, PMB | Enhancing Vesicle-Mediated Plasmid Trafficking for Targeted Microbiome Editing

Mulford 230:

Elena Hsieh, CRS | Faculty Mentor: Alastair Iles, S&E | Narrative as Catalysts: The Role of Storytelling in Environmental Philosophy, Policy, and Advocacy

Mulford 260 (Student Resource Center):

Ananya Garudathil, GPB | Faculty Mentor: Melissa Boldridge, NST | RCNR Faculty Sponsor: Anders Naar, NST | Investigating the Role of miR-128 in Mitophagy Within a Sarcopenia Mouse Model

3:30 PM

Mulford 132:

Tushita Wadhawan, NS-PM | Faculty Mentor: Kaitlyn Vitangcol | RCNR Faculty Sponsor: Andreas Stahl, NS | Investigating PNPLA3 I148M's Role in Ferroptosis Susceptibility of iPSC-Derived Hepatocytes Through CRISPR Editing

Mulford 159:

Greyson Feather, MB | Faculty Mentor: Greg Barton | RCNR Faculty Sponsor: Dan Portnoy, PMB | Disease-Associated Human UNC93B1 Alleles Drive Cell-type-specific TLR Gain-of-function

Mulford 230:

Salvador Gomez, S&E | Faculty Mentor: Danielle Rivera | RCNR Faculty Sponsor: Federico Castillo, ESPM | An Analysis of Climate Change Adaptation Planning in California Counties

Mulford 260 (Student Resource Center):

Hannah Welke, S&E | Research Mentor: Lindsay Walter | Faculty Sponsor: Ted Grantham, ESPM | Title: The Environmental Impact of Illegal Cannabis Cultivation in CA & Policy Failings

3:45 PM

Mulford 132:

Jeremy Tang, MB | Faculty Mentor: Isaac Donnell | RCNR Faculty Sponsor: Dr. Jennifer Fletcher, PMB | Extension and Optimization of the Eugenol Biosynthetic Pathway in Metabolically Engineered *Escherichia coli* to Produce Plant-Derived Natural Product Sarisan

Mulford 159:

Gursachi Sikka, MB | Faculty Mentor: Dr. Oskar Hallatschek | RCNR Faculty Sponsor: Dr. Daniel Portnoy, PMB | Exploring the Impact of Fitness Mutants on *Vibrio cholerae* Biofilm Architecture

Mulford 230:

Snigdha Jagarlapudi, GPB | Faculty Mentor: Daniel Sargent, Abigail Martin | RCNR Faculty Sponsor: Kate O'Neill, ESPM | Uncovering Evolutionary and Structural Diversity in PhaC Enzymes: Implications for Biodegradable Plastic Production

Mulford 260 (Student Resource Center):

Emily Putnam, MB | RCNR Faculty Sponsor: Todd Dawson, ESPM | Stable Carbon Isotopes in *Salicornia pacifica* and Why They Matter

4:00 PM

Mulford 132 (Remote):

Rozanne Voorvelt, MEB | Faculty Mentors: Dan Feldman, Briana Bohannon | RCNR
Faculty Sponsor: Maggi Kelly, ESPM | The Transient Effects of Whisker Deprivation on Npas4
Expression in Somatostatin Interneurons of The Mouse Somatosensory Cortex

Mulford 159:

Wesley Bobst, MB | Faculty Mentor: Yangnan Gu, PMB | Point Mutations in PMF1 Affect
Amphipathic Helix Induced Mitochondrial Fusion and Large Body Formation via Phase
Separation

Mulford 230:

Doogie Kim, GPB | RCNR Faculty Sponsor: Yangnan Gu | Exploring the Composition of
Arabidopsis Nuclear-Envelope Proteins with Proximity-Labeling and Single-Cell
Transcriptomic Profiling

4:15 PM

Mulford 132:

Marcella Welter, MEB | Faculty Mentor: Michael Nachman | RCNR Faculty Sponsor: Ian
Wang, ESPM | Allen's and Bergmann's Rules Across Space and Time

Mulford 159:

Joanne Teh, MB | Faculty Mentor: Rachel Brem, PMB | Natural Variation of Lysosomal
Performance in Mice

-----END OF DAY-----

Symposium Judges:

Cass Turk
Sofia Villas-Boas
Sheila McCormick
Keith Gilles

**Thanks & special acknowledgement to Sofia Villas-Boas and Alison Schopmeyer for
their organization and contributions to the RCNR Honors Research Program.**

**Additional thanks to RCNR Intake Advisor, Craig Crossley, & our wonderful Student
Workers (Marcus, Aileen, Amy & Karen) for the creation of this programs!**