

## Spotlight on Sustainability Projects

### Undergraduate Research, Scholarship & Creative Activities Conference 2021

*See 2021 abstract book for more details about each project*

**Cover Crop Management Through Tillage or Grazing on the Metabolic Diversity of the Soil Microbial Community**

*Anthony Alameda, Major: Environmental Science and Management*

**Robot Strawberries: Economic and Labor Implications of Automation in Strawberry Value Chain**

*Christopher Almaraz, Major: Community and Regional Development*

**Evaluating the Impact of Agricultural Waste Products on Enteric Methane Production in *Vitro***

*Elizabeth Anderson, Major: Animal Science*

**Bioinformatics Analysis of Novel Genes Associated With Tomato Fruit Postharvest Quality**

*Raymond Barsch, Major: Plant Sciences*  
*Janessa Destremps, Major: Biotechnology*

**Developing a Model for Community-Driven Single-Use Plastic Reduction in Local Restaurants**

*Alessandra Beelen, Major: Biochemistry and Molecular Biology*  
*Sabrina Denton, Major: Environmental Science and Management*  
*Louisa Liu, Major: Wildlife, Fish and Conservation Biology*

**A Review of PFAS Effects on Animal Models: Reproductive and Developmental Health Impacts**

*Janae Bonnell, Major: Environmental Toxicology*

**A Statistical Physics Description of Glacier Calving Behavior in Ice-Shelf Evolution**

*Paige Brady, Major: Physics*

**Induction of Phenylpropanoid Metabolism as a Biomarker of Early *Botrytis Cinerea* Infection in Ripe Strawberries**

*Benjamin Cohen Stillman, Major: Biological Sciences*

***Chlamydomonas Reinhardtii* as a Sustainable Platform for Recombinant Insulin Production**

*Shannia Sid De Leon, Major: Biotechnology*  
*Pin-Ru Lin, Major: Biomedical Engineering*  
*Emma Mcintyre, Major: Microbiology*  
*Jasmine Rattanpal, Major: Pharmaceutical Chemistry*

**Assessing the Drivers of Genetoc Diversity on Coral Reef**

*Robert Dellinger, Major: Marine and Coastal Science; Marine Ecology; Organismal Biology*  
*Camille Rumberger, Major: Marine and Coastal Science; Marine Ecology; Organismal Biology*

**The Palm Oil Dilemma and Rethinking Carbon Neutrality Calculations**

*Jenna Deutschman, Major: Atmospheric Science*

**Redesigning the Prosthetic Leg: A Design for a Healthier Lifestyle**

*Janet Escobar-Hernan, Major: Biomedical Engineering*  
*Adolfo Lista Nicolosa, Major: Biological Systems Engineering*  
*Shreya Lodha, Major: Biomedical Engineering*

**Vision for the Agricultural System in 2050**

*Yuting Fan, Major: Clinical Nutrition*

**Transit Agency Innovations and the COVID-19 Pandemic**

*Kailey Flynn, Major: Environmental Policy Analysis and Planning*

**A Comprehensive Report on the Life Cycle of *Parnassius Behrii* WH Edwards, 1870 (Lepidoptera: Papilionidae)**

*Mingxuan Ge, Major: Entomology*



**Did you know....** undergraduate students can apply for a TGIF mini-grant to support their research related to sustainability? Learn more at: <http://sustainability.ucdavis.edu/students/TGIF>



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 **Environmental Burden and Incarceration at a Crossroads: A Quantitative Analysis of Incarceration Rates and Environmental Quality in Georgia, USA**

*Braulio Gonzalez, Major: Community and Regional Development*  
*Alexandra Larman, Major: Community and Regional Development*

 **Experimental Assessment of a Novel Fixative for Ichthyological Applications**

*Allison Grygar, Major: Wildlife, Fish and Conservation Biology*

 **Linking the Foraging and Breeding Behaviors in Lekking Species**

*Alexa Guerrero, Major: Sustainable Agriculture and Food Systems*

 **Water Shortages, Lithium Mining, and the Indigenous Community in San Pedro de**

**Atacama: The Impact of Profit Maximizing Behavior on Atacameño Tradition**  
*Xander Goldman, Major: International Relations*

 **Identification of Potential Osmoregulatory Transcription Factors in Mozambique Tilapia (*Oreochromis Massambicus*)**

*Lorna Haworth, Major: Environmental Science and Management*

 **Functional Genetics to Analyze Effects of Genes Involved in Drought Tolerance and Seed Composition in *Arabidopsis Thaliana* and Maize**

*Abelina Jackson, Major: International Agricultural Development*

 **Biodiversity: Exploring the Genetic Factors in Species Invasions**

*Matthew Kim, Major: Evolution, Ecology, and Biodiversity*

 **Using Salt Stress to Increase Biomass and Lipid Productivity for Microalgae Cultivated On Food Waste Permeate from the UC Davis Anaerobic Digester**

*Serena Kutney, Major: Chemical Engineering*

 **Genetic Pathways that Confer *Ralstonia* Survival in Starvation Mode**

*Hang Le, Major: Global Disease Biology*

 **Impacts of Long-Term Dairy Manure Amendments on Soil Carbon and Microbial Community Dynamics**

*Mengmeng Luo, Major: Chemical Engineering*

 **Examining the Effects of Cultural and Prescribed Burning on Herbivory in Culturally Significant Plants of the Cache Creek Area**

*Maya Martinez, Major: Biological Sciences*

 **The Human Rights to Water in California: Gauging Drinking Water Quality Disparities in Marginalized California Communities**

*Abigail Mighell, Major: Political Science*

 **Developing a General Microalgae-based Photobioreactor for Removing Nutrients from Municipal Wastewater**

*Francesca Otim, Major: Anthropology*

 **One Climate Crisis, Many Climate Solutions: Differences between Prognostic Frames Employed by Climate Organizations in SD**

*Megan Phelps, Major: Environmental Science and Management*

 **Evolutionary and Sequence Analysis of Putative Genes Associated with Nitrogen Use in Wheat**

*Yan Pomogov, Major: Biotechnology*  
*Joana Tanurahardja, Major: Biotechnology*  
*Nancy Yip, Major: Biotechnology*

 **Maternal Condition and Offspring Sex Ratio in *Centrocercus Urophasianus***

*Katie Smith, Major: Neurobiology, Physiology, and Behavior*

 **Methods Comparison for the Quantification of Inorganic Carbon in California Agricultural Soils**

*Owen Sowerwine, Major: Environmental Science and Management*



## Spotlight on Sustainability Projects (Selected examples)

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-  **Nitrogen Photodegradation in Snow**  
*Theodore Tran, Major: Biochemistry and Molecular Biology*
-  **Bringing Girls and Gender-Expansive Youth Backpacking to Transform STEM**  
*Jenna Turpin, Major: Wildlife, Fish, and Conservation Biology*
-  **Framework for User-Friendly Modeling of Energy Use in Fused Deposition Modeling**  
*Philip Kent Velbiis, Major: Mechanical Engineering*
-  **Returns to Agricultural Technology in Rich or Poor Countries**  
*Alexis Vivas Flores, Major: Managerial Economics*
-  **Effect of Starch Branching Enzyme Gene Variants on Starch Digestibility and Quality Metrics in Tomato (*Solanum Lycopersicum L.*)**  
*Keqing Wang, Major: Neurobiology, Physiology and Behavior*  
*Keyun Wang, Major: Cell Biology*
-  **Effects of Extraction Parameters on Extractability and Functional Properties of Lentil Proteins**  
*Jennifer Wijaya, Major: Food Science*
-  **Effects of Ditching Soil Structure and Vegetation Community in Alpine Fens**  
*Katherine Woodworth, Major: Environmental Science and Management*



## Sustainability at UC Davis

UC Davis strives to be a model sustainable campus, meeting measurable goals by improving daily operations; planning for the long term; and employing campus research, cutting-edge technologies and community collaboration. The Office of Sustainability develops, leads, and coordinates sustainability efforts throughout the UC Davis campus. Staff members create strategies and plans to improve campus operations, work to implement the UC Office of the President's sustainability policy, establish sustainability metrics for UC Davis, collaborate with faculty and students on project-based learning and learning-by-leading opportunities, build institutional capacity for sustainability on- and off-campus, and inspire the community to work toward a sustainable future.

**The Green Initiative Fund (TGIF)** promotes sustainable development by providing necessary monetary resources to the UC Davis community. As part of a higher education institution, TGIF will involve and educate students of all Backgrounds by empowering them to develop, propose, and enact sustainable projects on campus.



Learn more at: <http://sustainability.ucdavis.edu>