

# Environmental Sciences Senior Thesis Symposium

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**Sunday, April 14th, 2024  
9:00AM - 5:00PM**



**Berkeley Rausser**  
College of Natural Resources

**Dear Seniors, Mentors, Families, Friends and Alumni,**

Spring is here and it's time to celebrate the great accomplishments of our seniors! We're delighted that the Environmental Sciences Senior Thesis Symposium brings another chance to be together in person.

Come learn about the amazing work of our Environmental Sciences Seniors in person in moderated sessions on campus! We're also making the talks available live online so that those far away can listen to the presentations. We are happy that you can be part of our community supporting undergraduate research.

If you're joining us in person:

We look forward to seeing you in the session rooms! Please make it to your seat a few minutes before the session begins and we hope that you can stay for a whole session to support the students. Please ask questions of our presenters right after their talk or after the session.

If you're joining us online:

Please join us via Zoom ([download](#)) using the links below that will be posted the morning of the symposium. You must have a zoom account to view the talks.

Looking forward to seeing you!

Tina Mendez, Melissa von Mayrhauser, Jessica Craig, Annie Miller

**For More Info Contact:**

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Thesis Website & Repository: <http://nature.berkeley.edu/classes/es196/>

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**Our Sincere Thanks** to the faculty, postdoctoral researchers, graduate students, staff and community members who generously mentored students - your contributions clearly inspired and enriched the senior thesis experience. We thank Bodo, Josh Dullaghan, Kate O'Neill and the RCNR Advising team. Special thanks to ES Director Manuela Giroto, ESPM Chairs Michael Mascarenhas and Lynn Huntsinger, the Department of Environmental Science, Policy & Management and the Rausser College of Natural Resources.

## Schedule of Sessions

- Each talk in a session is a 15 minute time slot of 12 minute talks with 3 minutes of questions.
- There are 6 talks in most sessions. Session 2 has 7 talks.
- We encourage you to stay for a whole session because it's difficult to get between the rooms.
- Talks will take place in 4 different classrooms. Please make sure you're in the right place to see the talk you will want to see.
- Zoom will be available for all sessions, however Zoom attendees may not be able to ask questions.

	159 Mulford	132 Mulford	101 Morgan	240 Mulford
<b>9:00 AM</b>	<a href="#">Opening Comments &amp; Welcome</a> <i>Everyone is welcome!</i>			
<b>9:30 AM</b> Session 1	<a href="#">Landscape &amp; Forest Management 1</a> <i>Social Sciences</i> (1.1)	<a href="#">Climate, Atmosphere &amp; Ocean Modeling</a> (1.2)	<a href="#">Modeling Environmental Impacts</a> (1.3)	
11:00 AM	<i>Coffee Break @ Morgan Lounge</i>			
<b>11:15 AM</b> Session 2	<a href="#">Energy &amp; Economics</a> (2.1)	<a href="#">Landscape &amp; Forest Management 2</a> <i>Natural Sciences</i> (2.2)	<a href="#">Freshwater &amp; Marine Ecology</a> (2.3)	<a href="#">Environmental Health &amp; Justice</a> (2.4)
1:00 PM	<i>Lunch @ Morgan Lounge</i>			
<b>2:15 PM</b> Session 3	<a href="#">Food Systems, Consumption &amp; Sustainability</a> (3.1)	<a href="#">Invertebrate Ecology</a> (3.2)	<a href="#">Green Spaces and the Urban Environment</a> (3.3)	<a href="#">Biogeochemistry</a> (3.4)
3:45 PM	<i>Otter Pops Break @ Morgan Lounge</i>			
<b>4:00 PM</b> Session 4	<a href="#">Identity, Perceptions &amp; Behavior</a> (4.1)	<a href="#">Plant &amp; Microbial Ecology</a> (4.2)	<a href="#">Wildlife Ecology &amp; Management</a> (4.3)	

## 9:00 AM - 9:20 AM - *Opening Comments and Welcome*

9:00 AM in 159 Mulford  
(Zoom Link - Tina Mendez)

- Welcome guests!
- Congratulations to ES Seniors
- How the day will work

## 1.1 - Landscape & Forest Management 1

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### 1.1 - Landscape & Forest Management 1 *Social Sciences*

9:30 AM in 159 Mulford  
(Zoom Link - Moderator: Jess)

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**Grace Boyd** Envisioning Future Ecologies: Wetland Loss  
Mitigation in the Terrebonne Region, Louisiana

**Tate Luoma** Forest Management in Plumas County: Exploring  
Stakeholder Collaboration

**Isabel Martín** Pathways to Strengthening Tribal Conservation  
on Reservations and Federal Public Lands

**Alex Mordaunt** Preserving the Path: Investigating Mountain  
Bike Trail Erosion

**Tasneem Khalak** Wildfire Factors Affecting Grid Resilience in  
PG&E Electricity Distribution

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## 1.2 - Climate, Atmosphere & Ocean Modeling

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### 1.2 - Climate, Atmosphere & Ocean Modeling

9:30 AM in 132 Mulford  
(Zoom Link - Moderator: Tina)

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**Mina Burns** Fog Fluctuations, Vegetation Health, and Coastal Forest Fires in Northern California

**Jiawen Tang** Atmospheric River and Precipitation: Climate Change and Land Surface Temperature Impact

**Benjamin Weinberger** Characterizing VOC Emissions and Plume Dynamics from a Recycling Fire in Oakland, CA

**Nina Mabasa** Modeling Climate Change Effects on Philippine Coral Reef Ecosystems

**Alina Zárate** A New Multivariate Drought Assessment for Agricultural Sustainability in Central Chile

**Claire Liu** Rising Waters, Failing Power: Assessing the Impact of Sea-Level Rise and Coastal Inundation on Power Infrastructure in the San Francisco Bay Area

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## 1.3 - Modeling Environmental Impacts

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### 1.3 - Modeling Environmental Impacts

9:30 AM in 101 Morgan  
(Zoom Link - Moderator: Melissa)

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**Tia Pappas** Bats and Wind Energy: Annual Energy Production Loss at US Wind Facilities from Bat Turbine Curtailment

**Zcjanin Ollesca** Using Citizen Science to Understand Human Impacts on Philippine Coral Reef Health

**Sandya Wijaya** Charting Indonesia's Plastic Path: Harnessing Machine Learning and Spatial Insights for Effective Policy Projections

**Violet Tahsini** Debugging Bat Tracking Near Wind Turbines

**Britney Wu** Impacts of Flooding on Santa Cruz County's Landscape and Community

**Kenneth Choi** Climate Change and Clams: Exploration of the effects Climate has on Reproductive Cycles

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***11:00 AM - 11:15 AM → Coffee Break @ Morgan Lounge***

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## 2.1 - Energy & Economics

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### 2.1 - Energy & Economics

11:15 AM in 159 Mulford  
(Zoom Link - Moderator: Jess) ← updated link!

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**Hayley Lai** The Development of Offshore Wind in the US:  
Assessing Challenges and Charting Policy Solutions

**Ayra Moin** Assessing the Inflation Reduction Act's Impact on  
Renewable Energy Generation and Businesses

**Abi Shiva** Carbon Conscious Capital: Private Equity Investors  
and Net Zero

**Ivanni Jamin** Evaluating the Impact of Environmental Policies  
on Welfare

**Nicholas Whiting** GIS-based Suitability Analysis for PV Site  
Selection in Switzerland

**Natalie Avida** Machine Learning Applications for Predicting  
Renewable Energy Project Success in the PJM  
Interconnection Queue

**Isha Murali** Identifying Key Factors in Decarbonization Policy  
from India's National Action Plan on Climate Change

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## 2.2 - Landscape & Forest Management 2

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### 2.2 - Landscape & Forest Management 2 *Natural Sciences*

11:15 AM in 132 Mulford  
(Zoom Link - Moderator: Tina) ← updated link!

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**Mara St. Amant** Wildfire Fuel Treatments and Long-Term Carbon Storage in California Mixed Conifer Forests

**Megan Hur** Classifying Blue Oaks through Geographic Object-Based Image Analysis for Biomass and Canopy Cover Estimations

**Melody Isabella Garza** Shrub Composition and Bird Habitat Suitability in Southern California Chaparral

**Sabi Can Ruso** Post-Fire Vegetation Recovery Dynamics of the 2013 Rim Fire in California

**Anna Magruder** Mast Seeding in Singleleaf Pinyon Pine: Climate Effects on Seed Production

**Patrick Jacobson** Remote Sensing of Conifer Encroachment in Marin County Oak Woodland

**Akshay Patel** Balancing Act: Ecological Trade-offs of Prescribed Burns in California's Sierra Nevada

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## 2.3 - Freshwater & Marine Ecology

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### 2.3 - Freshwater & Marine Ecology

11:15 AM in 101 Morgan  
(Zoom Link - Moderator: Melissa)

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**Carrie Thang** Microplastics Concentrations and Water Treatment Plants: Does the Brentwood Wastewater Treatment Plant Contribute Microplastics to Marsh Creek?

**Moses Castillo** Synchronicity of In Steam Abiotic Conditions in Pinnacles National Park

**Elena Campell** Coho Salmon Outmigration Drivers and Trends in a Small Watershed

**Ethan Xie** Oh Damn! How Rainbow Trout Respond to Dam Conditions at Lower Putah Creek

**James A. Campbell** Microplastic Deposition and Transport in East Bay Urban Streams

**Chloe Hess** Modeling the Dynamic Marine Environments Effects on Farmed Atlantic Salmon Behavior

**Erinne Yoo** Hydroclimate Impacts on Phytoplankton Community Composition and Abundance along the Lower Sacramento-San Joaquin River

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## 2.4 - Environmental Health & Justice

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### 2.4 - Environmental Health & Justice

11:15 AM in 240 Mulford (upstairs)  
(Zoom Link - Moderator: Tia) ← Updated link!

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**Amy Zhao** Understanding the Socio-Economic and Health Impacts of Treated Nuclear Wastewater Release in Japan

**Danielle Ma** Climate Change Caused Extreme Heat Exposure and Impact on Human Health in the US

**Teresa Echevarria** Enhancing PFOA Monitoring in California: A Spatial Analysis Approach

**Deva Rani Dharmapalan** Associations Between Air Pollution and Preterm Birth in the Bay Area

**Bethany Ou** Indoor Air Ventilation Issues in California Child Care Facilities

**Elijah Macaliniao** Exploring Aerosol Exposure during Motorsport Events and Routine Activities

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***1:00 PM - Lunch Break @ Morgan Lounge***

***1:35 PM - ES Presenters Group Photo: Meet @ Morgan Lounge***

## 3.1 - Food Systems, Consumption & Sustainability

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### 3.1 - Food Systems, Consumption & Sustainability

2:15 PM in 159 Mulford  
(Zoom Link - Moderator: Jess) ← updated link

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**Nayeli Rubio** Consumer Perceptions of Berkeley Student Food Collective's "Fresh Creds"

**Jane Tovar** Agricultural Worker Food Insecurity in the Garlic Capital: Opportunities Through SB 1000

**Priya Riley** The Pain with Grain: Identifying Inefficiencies in California's Grain Supply Chain

**Jenny Tseng** Rethinking School Lunch: School Meal and Farm-to-School Programming in Oakland Unified School District

**Kyra Asprec** Time to Make a Switch? Video Game Distribution Methods

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## 3.2 - Invertebrate Ecology

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### 3.2 - Invertebrate Ecology

2:15 PM in 132 Mulford  
(Zoom Link - Moderator: Tina) ←updated link

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**Tiena M. Elias** Life History and Consumption Patterns of Reared Tobacco Hornworms

**Sarah Caso** Reproductive Success of Mason Bees Along an Urban Gradient in Sacramento

**Grace Chen** Upcycling Takeout Waste with Black Soldier Fly Larvae

**Xiangrong Sun** Short-term Response of the Terrestrial Ant Population to Forest Canopy Thinning in Santa Cruz Mountains

**Ricky Pankratz** Viruses of Mason Bees in the Sierra Nevada

**Allison Mays** Effects of Climate Change on the Northern California Oyster Industry

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## 3.3 - Greenspaces and the Urban Environment

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### 3.3 - Green Spaces and the Urban Environment

2:15 PM in 101 Morgan  
(Zoom Link - Moderator: Melissa) ← updated link!

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**Angela A. Kou** Embodied Water Impacts for Landscape Architecture Strategies: A Life Cycle Assessment

**Brandon Lin** Quantifying Neighborhood Level Relationships Between Urban Vegetation Characteristics and Surface Temperatures in Oakland, CA

**Rion Chan** Sustainable Design: A Standard on Urban Green Spaces

**Alex Levy** Exploring Post-restoration Environmental Changes in Strawberry Creek

**Margaret Kalaw** Identifying Contributors to Green Gentrification: A Comparative Study of Atlanta and San Francisco

**Finnian Whelan** Redlining's Legacy and Gentrification in Urban Wilderness: Human Risk Perception of Coyotes in San Francisco

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## 3.4 - Biogeochemistry

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### 3.4 - Biogeochemistry

2:15 PM in 240 Mulford (upstairs)  
(Zoom Link - Moderator: Tia) ←updated link

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**Kelsey Leet** Assessing Soil Reduction Potential of Baltic Blue Carbon Systems in Response to Warming

**Isabel Wamsteker** Wetland Restoration in the San Joaquin Delta: Modeling the Effects of Seasonality and Variation of Water Table Heights on the Greenhouse Gas Budget

**Karis Polfer** Denitrifying Microbial Communities Along the Aliso Creek Estuary

**Kai Nittenberg** Investigating the Nitrogen Fertilization Potential of Human Hair

**Jocelyn Delgado** The Potential of Bioremediation Techniques to Enhance Soil Revitalization in Degraded California Landscapes

**Tessa Auer** Carbon Fractions in Composts of Differing Chemical Compositions\*

*\* Tessa will be presenting in the RCNR Honors Symposium May 3rd*

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**3:45 PM - 4:00 PM → Otter Pops Break @ Morgan Lounge**

## 4.1 - Identity, Perceptions & Behavior

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### 4.1 - Identity, Perceptions & Behavior

4:00 PM in 159 Mulford  
(Zoom Link - Moderator: Jess) ← updated link!

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**Elaine-Jane S. Vilorio** Berkeley Students' Perceptions and Consumption of Green Cosmetics

**May He** Responsibility of Individuals for Climate Change in a Middle Income City - Dublin, California

**Ian Wang** Identity and the Environment: Social Factors that Shape our Relationship with Environmental Spaces

**Isabel Galdula** Environmental Educators' Perspectives on Outdoor Environmental Education: A Case Study with KIDS for the Bay

**Jade Marum** Water and Identity: BIPOC Undergraduates' Experiences in Blue Spaces

**Mina Rossman** Urban Green Space and Social Cohesion at Nicholl Park in Richmond, CA

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## 4.2 - Plant & Microbial Ecology

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### 4.2 - Plant & Microbial Ecology

4:00 PM in 132 Mulford

(Zoom Link - Moderator: Tina) ← updated link

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**Max Billat** Allelopathic Effects of Yarrow for Rangeland Conservation

**Malia Ariyoshi** Improving Water Use Efficiency in Sorghum Through CRISPR-mediated Gene Knockout

**Rachel Lyon** Cyanobacteria Cell Factories: Biotherapeutic Protein Accumulation Using Interferon-Phycocyanin Fusion Constructs

**Bea Cundiff** Latex and Leaf Venation Networks: Coevolution of Laticiferous Plants with Simulated Insect Herbivory

**Jerry Sun** Using Carbon Fluxes and Spectral Bands to Model Ecosystem Processes in Wetlands

**Shandeep Dhillon** Pathogen Ecology and Spread of the Red Blotch Virus in Napa Valley

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## 4.3 - Wildlife Ecology & Management

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### 4.3 - Wildlife Ecology & Management

4:00 PM in 101 Morgan  
(Zoom Link - Moderator: Melissa) ← updated link

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**Alexandra Fister** Sea Turtle Nesting on Erosional Shorelines:  
Relocation and Hatch Success on Georgia's Barrier Islands

**Gretel E. Huber** Backyard Boldness: How Urban Landscape  
Heterogeneity Affects Mesopredator Risk-Taking Behavior

**Kylen Kennedy** How Do Environmental Factors Affect Roadkill  
Incidence Rates in California?

**Adan Gonzalez** Wildlife Behaviors at Pinnacles National Park's  
Intermittent Streams

**Dhruthi Mandavilli** Winged Witnesses: Gentrification's Impacts  
on Bird Populations in San Francisco

**Krishna Parekh** A Tale of Two Habitats: Habitat Restoration  
and Its Impact on Native Biodiversity, Wildlife Use, and Human  
Presence in the Presidio, San Francisco

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