High Meadows Environmental Institute

SEPTEMBER 15, 2023

Summer of Learning Symposium

Summer of Learning Symposium

High Meadows Environmental Institute (HMEI) is pleased to host the 16th annual Summer of Learning Symposium — the culminating event for students who participated in HMEI's Environmental Internship Program this past summer. HMEI's internship program provides a unique opportunity for students to complement their academic interests with hands-on work experiences and is designed to enrich students' perspectives and preparation as leaders. This year's symposium celebrates the 105 Princeton students from 21 academic departments who worked with University faculty, researchers from other scientific enterprises, government agencies, and not-for-profit organizations on projects focused on pressing environmental challenges.

The symposium provides an interactive forum for students to recognize and celebrate each other's work and contributions, exchange perspectives, develop a shared mission, and consider practical, achievable paths toward a healthier and more sustainable planet.

HMEI interns undertook research projects in Princeton University labs, and in field sites around the globe including assignments in Madagascar, Kenya, Mozambique, Canada, and Alaska. HMEI interns contributed meaningfully to research advances and emerging scholarship, including projects focused on climate change, biodiversity loss and conservation, alternative energy, environmental policy, urban resilience, water, and human health.

We extend our congratulations to the students and our appreciation to those faculty, colleagues, friends and community partners who made this year's internship program and the Summer of Learning Symposium possible.

Schedule of Presentations

9:10 AM – 11:15 AM **JRR 399**	Water and the Environment (pp. 3-5)
9:15 AM – 11:15 AM **JRR 301**	Biodiversity and Conservation (pp. 6-8)
9:20 AM – 11:20 AM **JRR 397**	Food Systems and Health (pp. 9-11)
12:15 PM – 2:10 PM **JRR 301**	Environment and Society and Urban Sustainability (pp. 11-13)
12:25 PM – 2:40 PM **JRR 399**	Innovation and a New Energy Future (pp. 14-16)
12:35 PM – 2:40 PM **JRR 397**	Climate and Environmental Science (pp. 17-19)
2:30 PM – 4:30 PM **JRR 301**	Oceans and Atmosphere (pp. 20-22)

Front Cover:
Meera Burghardt ’24 and Bailey White ’25

Water and the Environment

9:10 AM – 11:15 AM

MODERATOR: REED MAXWELL, WILLIAM AND EDNA MACALEER PROFESSOR OF ENGINEERING AND APPLIED SCIENCE, PROFESSOR OF CIVIL AND ENVIRONMENTAL ENGINEERING AND THE HIGH MEADOWS ENVIRONMENTAL INSTITUTE

Nyabohanse Water Supply

HELENA FRUDIT '25, MECHANICAL AND AEROSPACE ENGINEERING
ISABELLA GOMES '25, CIVIL AND ENVIRONMENTAL ENGINEERING
AVA KROCHESKI-MEYER '26, COMPUTER SCIENCE
SOPHIA MILLER '26, CHEMICAL AND BIOLOGICAL ENGINEERING
SHALYN MORAA NYAKEA '25, CIVIL AND ENVIRONMENTAL ENGINEERING
ESLEM SAKA '26, ELECTRICAL AND COMPUTER ENGINEERING
JUSTIN ZHANG '24, CIVIL AND ENVIRONMENTAL ENGINEERING

MENTORS: SIGRID ADRIAENSSENS, PROFESSOR OF CIVIL AND ENVIRONMENTAL ENGINEERING; ROGER PRICE, PROFESSIONAL ENGINEER, EWB; MOSES SIKUKU WAKWABUBI, PROFESSIONAL ENGINEER, EWB

Super Typhoon Haiyan: 10 Years After

BRAEDEN CARROLL '26, CIVIL AND ENVIRONMENTAL ENGINEERING

MENTORS: REED MAXWELL, WILLIAM AND EDNA MACALEER PROFESSOR OF ENGINEERING AND APPLIED SCIENCE, PROFESSOR OF CIVIL AND ENVIRONMENTAL ENGINEERING AND THE HIGH MEADOWS ENVIRONMENTAL INSTITUTE; ALLISON CARRUTH, PROFESSOR OF AMERICAN STUDIES AND THE HIGH MEADOWS ENVIRONMENTAL INSTITUTE; MARIO SORIANO JR., POSTDOCTORAL RESEARCH ASSOCIATE, HIGH MEADOWS ENVIRONMENTAL INSTITUTE

Computational and Mathematical Methods of Modeling Soil Properties in Complex Terrain

SARAH BURBANK '25, COMPUTER SCIENCE
WILEY KOHLER '25, MATHEMATICS

MENTORS: REED MAXWELL, WILLIAM AND EDNA MACALEER PROFESSOR OF ENGINEERING AND APPLIED SCIENCE, PROFESSOR OF CIVIL AND ENVIRONMENTAL ENGINEERING AND THE HIGH MEADOWS ENVIRONMENTAL INSTITUTE; HARRY STONE, PH.D. CANDIDATE, CIVIL AND ENVIRONMENTAL ENGINEERING

Research and Modeling in Hydrology

ASHLEY DeFRATES '25, CIVIL AND ENVIRONMENTAL ENGINEERING
JAMIE KIM '24, CIVIL AND ENVIRONMENTAL ENGINEERING

MENTORS: REED MAXWELL, WILLIAM AND EDNA MACALEER PROFESSOR OF ENGINEERING AND APPLIED SCIENCE, PROFESSOR OF CIVIL AND ENVIRONMENTAL ENGINEERING AND THE HIGH MEADOWS ENVIRONMENTAL INSTITUTE; LISA GALLAGHER, PROFESSIONAL SPECIALIST, CIVIL AND ENVIRONMENTAL ENGINEERING, EDUCATION AND OUTREACH MANAGER, INTEGRATED GROUNDWATER MODELING CENTER

StreamWatch at The Watershed Institute: Water Testing, Data Analysis, and Environmental Stewardship

MAXWEL LEE '26, ELECTRICAL AND COMPUTER ENGINEERING
CHRIS LI '26, CIVIL AND ENVIRONMENTAL ENGINEERING

MENTORS: ERIN STRETZ, ASSISTANT DIRECTOR OF SCIENCE; JIAN SMITH, STREAMWATCH PROGRAM COORDINATOR

Utilizing UiO-67 for Photocatalytic Wastewater Contaminant Degradation

ALYSSA RITCHIE '25, CHEMISTRY

MENTORS: MICHELE SARAZEN, ASSISTANT PROFESSOR OF CHEMICAL AND BIOLOGICAL ENGINEERING; SAMUEL MOORE, PH.D. CANDIDATE, CHEMICAL AND BIOLOGICAL ENGINEERING

Study of Rock Samples from Mpala Research Center

ANNA PINKERTON '24, GEOSCIENCES

MENTOR: ELIZABETH NIESPOLO, ASSISTANT PROFESSOR OF GEOSCIENCES

Rheology of Polyelectrolytes in Aqueous Salt Solutions

PIA DiCENZO '24, MECHANICAL AND AEROSPACE ENGINEERING

MENTORS: HOWARD STONE, DONALD R. DIXON '69 AND ELIZABETH W. DIXON PROFESSOR OF MECHANICAL AND AEROSPACE ENGINEERING; PEDRO DE SOUZA, PRINCETON BIOENGINEERING INITIATIVE INNOVATOR SCHOLAR, CHEMICAL AND BIOLOGICAL ENGINEERING; JONGHYUN HWANG, PH.D. CANDIDATE, MECHANICAL AND AEROSPACE ENGINEERING

Molecular Simulation of Natural Organic Matter and Organic Contaminants

OLIVIA CHEN '26, ELECTRICAL AND COMPUTER ENGINEERING
CYNTHIA JACOBSON '26, CIVIL AND ENVIRONMENTAL ENGINEERING

MENTOR: IAN BOURG, ASSISTANT PROFESSOR OF CIVIL AND ENVIRONMENTAL ENGINEERING AND THE HIGH MEADOWS ENVIRONMENTAL INSTITUTE

Biodiversity and Conservation

9:15 AM – 11:15 AM

MODERATOR: ROBERT PRINGLE, PROFESSOR OF ECOLOGY AND EVOLUTIONARY BIOLOGY

Savanna Disturbances

GRACE HOULAHAN '25, PSYCHOLOGY

MENTORS: ROBERT PRINGLE, PROFESSOR OF ECOLOGY AND EVOLUTIONARY BIOLOGY; JOEL ABRAHAM, PH.D. CANDIDATE, ECOLOGY AND EVOLUTIONARY BIOLOGY; ERIN PHILLIPS, PH.D. CANDIDATE, ECOLOGY AND EVOLUTIONARY BIOLOGY

Rapid Evolution in Fruit Flies and How it Affects Competition

MULIN HUAN '26, ECOLOGY AND EVOLUTIONARY BIOLOGY

MENTORS: JONATHAN LEVINE, J.N. ALLISON PROFESSOR IN ENVIRONMENTAL STUDIES, PROFESSOR OF ECOLOGY AND EVOLUTIONARY BIOLOGY; JAMIE LEONARD, PH.D. CANDIDATE, ECOLOGY AND EVOLUTIONARY BIOLOGY

Climate-change Mediated Evolutionary Shifts in the Marmots of Gothic, Colorado

EMMA DEMEFACK '26, ECOLOGY AND EVOLUTIONARY BIOLOGY

MENTORS: DAN BLUMSTEIN, PROFESSOR IN THE DEPARTMENT OF ECOLOGY AND EVOLUTIONARY BIOLOGY, AND THE INSTITUTE OF THE ENVIRONMENT AND SUSTAINABILITY, UCLA; BRIDGETT vonHOLDT, ASSOCIATE PROFESSOR OF ECOLOGY AND EVOLUTIONARY BIOLOGY; STAVI TENNENBAUM, PH.D. CANDIDATE, ECOLOGY AND EVOLUTIONARY BIOLOGY

Understanding Diversity Loss in Large Tropical Forest Fragments

DAVID DORINI '25, ECOLOGY AND EVOLUTIONARY BIOLOGY
BRIAN MHANDO '26, ECOLOGY AND EVOLUTIONARY BIOLOGY

MENTORS: DAVID WILCOVE, PROFESSOR OF ECOLOGY AND EVOLUTIONARY BIOLOGY AND PUBLIC AFFAIRS AND THE HIGH MEADOWS ENVIRONMENTAL INSTITUTE; ALEX WIEBE, PH.D. CANDIDATE, ECOLOGY AND EVOLUTIONARY BIOLOGY

Broad-tailed Hummingbird Foraging Patterns and Climate Change

CHLOE KIM '24, HISTORY
TRANG NGO '25, ECOLOGY AND EVOLUTIONARY BIOLOGY
MICHELLE THURBER '26, ECOLOGY AND EVOLUTIONARY BIOLOGY

MENTORS: MARY CASWELL STODDARD, ASSOCIATE PROFESSOR OF ECOLOGY AND EVOLUTIONARY BIOLOGY; BENEDICT HOGAN, ASSOCIATE RESEARCH SCHOLAR, ECOLOGY AND EVOLUTIONARY BIOLOGY; AUDREY MILLER, PH.D. CANDIDATE, ECOLOGY AND EVOLUTIONARY BIOLOGY

Naturalizing the Environmental Experience of "model mammals" for Immunology and Beyond

CLAIRE GILBERT '26, NEUROSCIENCE
ZEHAO WU '26, ECOLOGY AND EVOLUTIONARY BIOLOGY

MENTORS: ANDREA GRAHAM, PROFESSOR OF ECOLOGY AND EVOLUTIONARY BIOLOGY; YOON CHANG, PH.D. CANDIDATE, ECOLOGY AND EVOLUTIONARY BIOLOGY; DAVID CHANG van OORDT, POSTDOCTORAL RESEARCH ASSOCIATE, ECOLOGY AND EVOLUTIONARY BIOLOGY; ALEC DOWNIE, PH.D. CANDIDATE, ECOLOGY AND EVOLUTIONARY BIOLOGY

Competition, Coexistence and Carnivores: Intraguild Dynamics of Understudied Mesocarnivores in a Recovering African Savanna

PATRICK NEWCOMBE '25, ECOLOGY AND EVOLUTIONARY BIOLOGY

MENTORS: ROBERT PRINGLE, PROFESSOR OF ECOLOGY AND EVOLUTIONARY BIOLOGY; ERIN PHILLIPS, PH.D. CANDIDATE, ECOLOGY AND EVOLUTIONARY BIOLOGY

Investigating the Structure and Composition of Dung Beetle Food Webs in an African Savanna

ROHAN KUMAR '26, UNDECLARED

MENTORS: ROBERT PRINGLE, PROFESSOR OF ECOLOGY AND EVOLUTIONARY BIOLOGY; FINOTE GIJSMAN, PH.D. CANDIDATE, ECOLOGY AND EVOLUTIONARY BIOLOGY

Promoting Pro-conservation Behaviors in Recreational Scuba Divers on Coral Reefs in Southeast Asia

MEERA BURGHARDT '24, PRINCETON SCHOOL OF PUBLIC AND INTERNATIONAL AFFAIRS
BAILEY WHITE '25, ECOLOGY AND EVOLUTIONARY BIOLOGY

MENTORS: DAVID WILCOVE, PROFESSOR OF ECOLOGY AND EVOLUTIONARY BIOLOGY AND PUBLIC AFFAIRS AND THE HIGH MEADOWS ENVIRONMENTAL INSTITUTE; BING LIN, PH.D. CANDIDATE, SCHOOL OF PUBLIC AND INTERNATIONAL AFFAIRS

Food Systems and Health

9:20 AM – 11:20 AM

MODERATOR: JONATHAN CONWAY, ASSISTANT PROFESSOR OF CHEMICAL AND BIOLOGICAL ENGINEERING

Researching Plant Biochemistry with the Conway Lab

SAVA EVANGELISTA '26, COMPUTER SCIENCE
ALLIYAH GREGORY '25, ECOLOGY AND EVOLUTIONARY BIOLOGY
NOE IWASAKI '26, UNDECLARED

MENTORS: JONATHAN CONWAY, ASSISTANT PROFESSOR OF CHEMICAL AND BIOLOGICAL ENGINEERING; TING JIANG, POSTDOCTORAL RESEARCH ASSOCIATE, CHEMICAL AND BIOLOGICAL ENGINEERING; CHAO LIAO, POSTDOCTORAL RESEARCH ASSOCIATE, CHEMICAL AND BIOLOGICAL ENGINEERING

Toxoplasmosis in Madagascar: Insights from One Health

KELIH HENYO '26, UNDECLARED
COLE STRUPP '26, MOLECULAR BIOLOGY

MENTORS: C. JESSICA E. METCALF, ASSOCIATE PROFESSOR OF ECOLOGY AND EVOLUTIONARY BIOLOGY AND PUBLIC AFFAIRS; FIDISOA RASAMBAINARIVO, POSTDOCTORAL RESEARCH ASSOCIATE, HIGH MEADOWS ENVIRONMENTAL INSTITUTE; BENJAMIN RICE, ASSOCIATE RESEARCH SCHOLAR, HIGH MEADOWS ENVIRONMENTAL INSTITUTE

Suppression of the Plant Immune System by Commensals from the Plant Root Microbiome

KAELI FICCO '24, CHEMICAL AND BIOLOGICAL ENGINEERING

MENTORS: JONATHAN CONWAY, ASSISTANT PROFESSOR OF CHEMICAL AND BIOLOGICAL ENGINEERING; SAMUEL EASTMAN, POSTDOCTORAL RESEARCH ASSOCIATE, CHEMICAL AND BIOLOGICAL ENGINEERING

Potassium Isotopes in Plants: A Hydroponic Investigation with Arabidopsis

ANGELICA SHE '26, CIVIL AND ENVIRONMENTAL ENGINEERING

MENTORS: JOHN HIGGINS, PROFESSOR OF GEOSCIENCES; MASON SCHER, PH.D. CANDIDATE, GEOSCIENCES

Effects of Three Sisters Mutualisms on Crop Growth

BROOKE BEERS '25, CIVIL AND ENVIRONMENTAL ENGINEERING
RIYAN CHARANIA '26, COMPUTER SCIENCE
KENNEDY PRIMUS '24, AFRICAN AMERICAN STUDIES
NATALIE WONG '25, ECOLOGY AND EVOLUTIONARY BIOLOGY

MENTORS: DANIEL RUBENSTEIN, CLASS OF 1877 PROFESSOR OF ZOOLOGY, EMERITUS, PROFESSOR OF ECOLOGY AND EVOLUTIONARY BIOLOGY, EMERITUS; GINA TALT, FOOD SYSTEMS PROJECT SPECIALIST, OFFICE OF SUSTAINABILITY

Answering the Beefy Questions: Where Do Cattle Emissions Come From and How Do We Measure Them?

BRIDGETTE SCHAFER '24, POLITICS

MENTOR: PERI ROSENSTEIN, SENIOR SCIENTIST, LIVESTOCK SYSTEMS, ENVIROMENTAL DEFENSE FUND

Climate Resilient Food Systems

MARTINA QUA '25, CIVIL AND ENVIRONMENTAL ENGINEERING

MENTOR: KARLY KELSO, DIRECTOR, CLIMATE RESILIENT FOOD SYSTEMS TEAM, ENVIROMENTAL DEFENSE FUND

U.S. County-Level Assessments of Health Impacts from Increasing Wildfire Smoke

CLAIRE MENG '26, CIVIL AND ENVIRONMENTAL ENGINEERING

MENTORS: DENISE MAUZERALL, WILLIAM S. TOD PROFESSOR OF CIVIL AND ENVIRONMENTAL ENGINEERING AND PUBLIC AND INTERNATIONAL AFFAIRS; YUANYU XIE, WILLIAM S. TOD PROFESSOR OF CIVIL AND ENVIRONMENTAL ENGINEERING AND PUBLIC AND INTERNATIONAL AFFAIRS

HMEI Internship with the Mauzerall Research Group

CHIEN NGUYEN '25, COMPUTER SCIENCE

MENTORS: DENISE MAUZERALL, WILLIAM S. TOD PROFESSOR OF CIVIL AND ENVIRONMENTAL ENGINEERING AND PUBLIC AND INTERNATIONAL AFFAIRS; MI ZHOU, POSTDOCTORAL RESEARCH ASSOCIATE, PRINCETON SCHOOL OF PUBLIC AND INTERNATIONAL AFFAIRS

Environment and Society and Urban Sustainability

12:15 PM – 2:10 PM

MODERATOR: ANU RAMASWAMI, SANJAY SWANI '87 PROFESSOR OF INDIA STUDIES, PROFESSOR OF CIVIL AND ENVIRONMENTAL ENGINEERING, THE PRINCETON INSTITUTE FOR INTERNATIONAL AND REGIONAL STUDIES, AND THE HIGH MEADOWS ENVIRONMENTAL INSTITUTE

Religion and Environmental Justice in Panama and the Peruvian Amazon

HANNAH SHIN '26, PHILOSOPHY

MENTORS: ROB NIXON, THOMAS A. AND CURRIE C. BARRON FAMILY PROFESSOR IN HUMANITIES AND THE ENVIRONMENT, PROFESSOR OF ENGLISH AND THE HIGH MEADOWS ENVIRONMENTAL INSTITUTE; RYAN JUSKUS, POSTDOCTORAL RESEARCH ASSOCIATE, HIGH MEADOWS ENVIRONMENTAL INSTITUTE

The Politics of Vision in the Peruvian Amazon

SAMUEL HANSON '24, MUSIC

MENTORS: ROB NIXON, THOMAS A. AND CURRIE C. BARRON FAMILY PROFESSOR IN HUMANITIES AND THE ENVIRONMENT, PROFESSOR OF ENGLISH AND THE HIGH MEADOWS ENVIRONMENTAL INSTITUTE; RYAN JUSKUS, POSTDOCTORAL RESEARCH ASSOCIATE, HIGH MEADOWS ENVIRONMENTAL INSTITUTE

Exploring a Large Urban Temperature and Humidity Dataset Available Through The Purple Air Network

ISABELLA GOMES '25, CIVIL AND ENVIRONMENTAL ENGINEERING
SRIYA KOTTA '26, CIVIL AND ENVIRONMENTAL ENGINEERING
LILY WEAVER '26, COMPUTER SCIENCE

MENTOR: ANU RAMASWAMI, SANJAY SWANI '87 PROFESSOR OF INDIA STUDIES, PROFESSOR OF CIVIL AND ENVIRONMENTAL ENGINEERING, THE PRINCETON INSTITUTE FOR INTERNATIONAL AND REGIONAL STUDIES, AND THE HIGH MEADOWS ENVIRONMENTAL INSTITUTE

Archival Ecologies

JAMIE RODRIGUEZ '24, ENGLISH
MOLLY TAYLOR '25, HISTORY

MENTORS: ALLISON CARRUTH, PROFESSOR OF AMERICAN STUDIES AND THE HIGH MEADOWS ENVIRONMENTAL INSTITUTE; JAYME COLLINS, POSTDOCTORAL RESEARCH ASSOCIATE, HIGH MEADOWS ENVIRONMENTAL INSTITUTE

Mining for the Climate: Stories of Extraction and Healing

ALEX NORBROOK '26, HISTORY
GRACE WANG '26, UNDECLARED
MAX WIDMANN '24, HISTORY

MENTORS: ALLISON CARRUTH, PROFESSOR OF AMERICAN STUDIES AND THE HIGH MEADOWS ENVIRONMENTAL INSTITUTE; NATE OTJEN, POSTDOCTORAL RESEARCH ASSOCIATE, HIGH MEADOWS ENVIRONMENTAL INSTITUTE; JUAN MANUEL RUBIO, PRESIDENT'S AND ANDREW W. MELLON FOUNDATION POSTDOCTORAL FELLOW, DEPARTMENT OF GLOBAL STUDIES, UNIVERSITY OF CALIFORNIA, SANTA BARBARA

Social-Ecological Dynamics of the Harvest, Consumption, and Trade of Aquatic Biodiversity in New York City

BILLY DOYLE '24, PRINCETON SCHOOL OF PUBLIC AND INTERNATIONAL AFFAIRS

ISADORA RIVERA-JANER '24, ECOLOGY AND EVOLUTIONARY BIOLOGY

MENTORS: ERIN BETLEY, BIODIVERSITY SPECIALIST AND PROGRAMS COORDINATOR, AMERICAN MUSEUM OF NATURAL HISTORY; MARY BLAIR, DIRECTOR, BIODIVERSITY INFORMATICS RESEARCH, AMERICAN MUSEUM OF NATURAL HISTORY; CHRISTIAN RIVERA, POSTDOCTORAL RESEARCH ASSOCIATE, HIGH MEADOWS ENVIRONMENTAL INSTITUTE; NEHA SAVANT, WILDLIFE AND FISHERIES ECOLOGIST, NYC DEPARTMENT OF PARKS AND RECREATION

Identifying Advocacy Opportunities for a Basin-scale Approach to Natural Infrastructure

CHARLIE NUERMBERGER '25, COMPARATIVE LITERATURE

MENTOR: WILL McDOW, DIRECTOR, CLIMATE RESILIENT COASTS AND WATERSHEDS, ENVIROMENTAL DEFENSE FUND

Modeling Tree Rainfall Interception through Open Data Analysis

EMELINE BLOHM '25, CIVIL AND ENVIRONMENTAL ENGINEERING

MENTOR: DEBRA LAEFER, PROFESSOR OF URBAN INFORMATICS, NYU TANDON SCHOOL OF ENGINEERING, DIRECTOR OF CITIZEN SCIENCE

Innovation and a New Energy Future

12:25 PM – 2:40 PM

MODERATOR: ERIC LARSON, SENIOR RESEARCH ENGINEER, ANDLINGER CENTER FOR ENERGY AND THE ENVIRONMENT

Exploring Environmental Beliefs Across Stakeholders: Analyses on Net Zero Perceptions and Equitable Energy Transitions

NICHOLAS LIM '24, PRINCETON SCHOOL OF PUBLIC AND INTERNATIONAL AFFAIRS
KAT McLAUGHLIN '25, ANTHROPOLOGY
MARKO PETROVIC '24, PRINCETON SCHOOL OF PUBLIC AND INTERNATIONAL AFFAIRS

MENTORS: ELKE WEBER, GERHARD R. ANDLINGER PROFESSOR IN ENERGY AND THE ENVIRONMENT, PROFESSOR OF PSYCHOLOGY AND THE SCHOOL OF PUBLIC AND INTERNATIONAL AFFAIRS; HOLLY CAGGIANO, DISTINGUISHED POSTDOCTORAL FELLOW, ANDLINGER CENTER FOR ENERGY AND THE ENVIRONMENT; JORDANA COMPOSTO, PH.D. CANDIDATE, PSYCHOLOGY; SARA CONSTANTINO, VISITING RESEARCH SCHOLAR, PRINCETON SCHOOL OF PUBLIC AND INTERNATIONAL AFFAIRS

Energy Systems Analysis Group Summer 2023 Internship

REES BARNES '26, ELECTRICAL AND COMPUTER ENGINEERING
DOROTHY CHAN '26, CIVIL AND ENVIRONMENTAL ENGINEERING
SHUCHEN HE '25, OPERATIONS RESEARCH AND FINANCIAL ENGINEERING

MENTORS: ERIC LARSON, SENIOR RESEARCH ENGINEER, ANDLINGER CENTER FOR ENERGY AND THE ENVIRONMENT; GANESH HEGDE, POSTDOCTORAL RESEARCH ASSOCIATE, ANDLINGER CENTER FOR ENERGY AND THE ENVIRONMENT; CECELIA ISAAC, ASSOCIATE PROFESSIONAL SPECIALIST, ANDLINGER CENTER FOR ENERGY AND THE ENVIRONMENT

Understanding Low Uptake of Energy Saving Devices onboard Ships

ALBERT KREUTZER '25, MECHANICAL AND AEROSPACE ENGINEERING
AZHAR RAZIN '26, CHEMICAL AND BIOLOGICAL ENGINEERING

MENTORS: LYNN LOO, THEODORA D. '78 AND WILLIAM H. WALTON III '74 PROFESSOR IN ENGINEERING, PROFESSOR OF CHEMICAL AND BIOLOGICAL ENGINEERING, CEO, GLOBAL CENTRE FOR MARITIME DECARBONISATION (GCMD); SHANE BALANI, DIRECTOR OF RESEARCH AND PROJECTS, GCMD; SUNJAY KUTTAN, CHIEF TECHNOLOGY OFFICER, GCMD

Small Clean Fusion Reactor Shields

MASON BATES '25, ELECTRICAL AND COMPUTER ENGINEERING
STEPHANE MOREL '25, ELECTRICAL AND COMPUTER ENGINEERING
GIOVANNA NUCCI '25, MECHANICAL AND AEROSPACE ENGINEERING

MENTOR: SAM COHEN, DIRECTOR, PROGRAM IN PLASMA SCIENCE AND TECHNOLOGY, PRINCETON PLASMA PHYSICS LABORATORY

Catalyst Development for a Chemically Recyclable Polyolefin

CHLOE PARK '25, CHEMISTRY

MENTORS: PAUL CHIRIK, EDWARDS S. SANFORD PROFESSOR OF CHEMISTRY; HANNA CRAMER, POSTDOCTORAL RESEARCH ASSOCIATE, CHEMISTRY; CHERISH NIE, PH.D. CANDIDATE, CHEMISTRY

Investigation of Synthesis of Calcio-olivine

JOHN KIM '25, PHYSICS

MENTORS: CLAIRE WHITE, ASSOCIATE PROFESSOR OF CIVIL AND ENVIRONMENTAL ENGINEERING AND THE ANDLINGER CENTER FOR ENERGY AND THE ENVIRONMENT; KUMARAN COOPAMOOTOO, POSTDOCTORAL RESEARCH ASSOCIATE, ANDLINGER CENTER FOR ENERGY AND THE ENVIRONMENT

DFT-Based Machine Learning Reactive Force Fields for Water and Aqueous NaCl and CO_2 Solutions

YAGIZ DEVRE '26, COMPUTER SCIENCE

MENTORS: EMILY CARTER, GERHARD R. ANDLINGER PROFESSOR IN ENERGY AND THE ENVIRONMENT, SENIOR STRATEGIC ADVISOR FOR SUSTAINABILITY SCIENCE, OFFICE OF THE DIRECTOR, PRINCETON PLASMA PHYSICS LABORATORY; JOHN MARK P. MARTIREZ, STAFF RESEARCH SCIENTIST AND DEPUTY ADVISOR FOR SUSTAINABILITY SCIENCE, INTERIM DIVISION HEAD OF ELECTROMANUFACTURING, OFFICE OF THE DIRECTOR, PRINCETON PLASMA PHYSICS LABORATORY

Estimating Solar Rooftop Potential and Investigating Small-Scale Generation in the United States

HELENA FRUDIT '25, MECHANICAL AND AEROSPACE ENGINEERING

MENTORS: ERIC LARSON, SENIOR RESEARCH ENGINEER, ANDLINGER CENTER FOR ENERGY AND THE ENVIRONMENT; JENNIFER BRADY, MANAGER OF ANALYSIS AND PRODUCTION, CLIMATE CENTRAL

Wind Tunnel Construction and Experimentation on Umbrella Forms

LEILANI BENDER '24, CIVIL AND ENVIRONMENTAL ENGINEERING
ANGEL DONG '25, CIVIL AND ENVIRONMENTAL ENGINEERING

MENTORS: MARIA GARLOCK, PROFESSOR OF CIVIL AND ENVIRONMENTAL ENGINEERING; BRANKO GLISIC, PROFESSOR OF CIVIL AND ENVIRONMENTAL ENGINEERING; ANTONIO NAVARRO-MANSO, ASSOCIATE PROFESSOR, HYDRAULIC ENGINEERING AREA AND FLUID-DYNAMICS INVESTIGATION GROUP, UNIVERSITY OF OVIEDO

Climate and Environmental Science

12:35 PM – 2:40 PM

MODERATOR: AMILCARE PORPORATO, THOMAS J. WU '94 PROFESSOR OF CIVIL AND ENVIRONMENTAL ENGINEERING, PROFESSOR OF CIVIL AND ENVIRONMENTAL ENGINEERING AND THE HIGH MEADOWS ENVIRONMENTAL INSTITUTE

Investigating Nitrogen Allocation in Corals and their Symbionts

TACY GUEST '26, ECOLOGY AND EVOLUTIONARY BIOLOGY

MENTORS: BESS WARD, WILLIAM J. SINCLAIR PROFESSOR OF GEOSCIENCES AND THE HIGH MEADOWS ENVIRONMENTAL INSTITUTE; MORIAH KUNES, PH.D. CANDIDATE, GEOSCIENCES

Mechanisms of Shrubification in the Arctic

HELEN BRUSH '24, ECOLOGY AND EVOLUTIONARY BIOLOGY
ARIANA DI LANDRO '25, ECOLOGY AND EVOLUTIONARY BIOLOGY

MENTORS: JONATHAN LEVINE, J.N. ALLISON PROFESSOR IN ENVIRONMENTAL STUDIES, PROFESSOR OF ECOLOGY AND EVOLUTIONARY BIOLOGY; RUBY AN, PH.D. CANDIDATE, ECOLOGY AND EVOLUTIONARY BIOLOGY

Plant Pathogens in a High-Altitude System

MADDIE MACHADO '25, ECOLOGY AND EVOLUTIONARY BIOLOGY
PEYTON SMITH '25, ECOLOGY AND EVOLUTIONARY BIOLOGY

MENTORS: C. JESSICA E. METCALF, ASSOCIATE PROFESSOR OF ECOLOGY AND EVOLUTIONARY BIOLOGY AND PUBLIC AFFAIRS; JULIANA JIRANEK, PH.D. CANDIDATE, ECOLOGY AND EVOLUTION OF INFECTIOUS DISEASE, THE UNIVERSITY OF VIRGINIA; KEENAN DUGGAL, RESEARCH ASSOCIATE, HIGH MEADOWS ENVIRONMENTAL INSTITUTE

The Coevolution of Life and Climate in Australia

STELLA SZOSTAK '26, GEOSCIENCES

MENTORS: ADAM MALOOF, PROFESSOR OF GEOSCIENCES; RYAN MANZUK, PH.D. CANDIDATE, GEOSCIENCES; JULIA WILCOTS, POSTDOCTORAL RESEARCH ASSOCIATE, GEOSCIENCES

Application of Image Segmentation to Trezona Formation Fossils

SENNE MICHIELSSEN '25, COMPUTER SCIENCE

MENTOR: ADAM MALOOF, PROFESSOR OF GEOSCIENCES

Metal Isotopes in Ancient Carbonates

BILL HAARLOW '25, GEOSCIENCES
NAISHA SYLVESTRE '25, MOLECULAR BIOLOGY

MENTORS: JOHN HIGGINS, PROFESSOR OF GEOSCIENCES; MATTHEW NADEAU, PH.D. CANDIDATE, GEOSCIENCES

Beyond Roughness: Statistical Characterization of Two-dimensional Random Fields via Convolutional Neural Networks

BENJAMIN LIU '24, COMPUTER SCIENCE

MENTOR: FREDERIK SIMONS, PROFESSOR OF GEOSCIENCES

Carbon Dioxide and Hydrogen Storage in Water-Saturated Bentonite Clay Systems

ISABEL LIU '26, COMPUTER SCIENCE
KAUSTUV MUKHERJEE '26, OPERATIONS RESEARCH AND FINANCIAL ENGINEERING

MENTORS: IAN BOURG, ASSISTANT PROFESSOR OF CIVIL AND ENVIRONMENTAL ENGINEERING AND THE HIGH MEADOWS ENVIRONMENTAL INSTITUTE; XIAOJIN ZHENG, POSTDOCTORAL RESEARCH ASSOCIATE, CIVIL AND ENVIRONMENTAL ENGINEERING

Coordinated Water Use Strategy in Plants

AIDAN MATTHEWS '24, CIVIL AND ENVIRONMENTAL ENGINEERING

MENTORS: AMILCARE PORPORATO, THOMAS J. WU '94 PROFESSOR OF CIVIL AND ENVIRONMENTAL ENGINEERING, PROFESSOR OF CIVIL AND ENVIRONMENTAL ENGINEERING AND THE HIGH MEADOWS ENVIRONMENTAL INSTITUTE; SARA CERASOLI, PH.D. CANDIDATE, CIVIL AND ENVIRONMENTAL ENGINEERING; GABRIEL KATUL, PAUL M. GROSS DISTINGUISHED PROFESSOR, DUKE UNIVERSITY; SAVIO PERRI, POSTDOCTORAL RESEARCH ASSOCIATE, HIGH MEADOWS ENVIRONMENTAL INSTITUTE

Ground-truthing Nitrogen Isotopes in Celtis Endocarps as a Paleoclimate Proxy

ERIN YOO '26, GEOSCIENCES

MENTORS: DANIEL SIGMAN, DUSENBURY PROFESSOR OF GEOLOGICAL AND GEOPHYSICAL SCIENCES, PROFESSOR OF GEOSCIENCES; MASON SCHER, PH.D. CANDIDATE, GEOSCIENCES

Oceans and Atmosphere

2:30 PM – 4:30 PM

MODERATOR: BESS WARD, WILLIAM J. SINCLAIR PROFESSOR OF GEOSCIENCES AND THE HIGH MEADOWS ENVIRONMENTAL INSTITUTE

Molecular Biology of the Marine Nitrogen Cycle

TIENNE YU '26, MOLECULAR BIOLOGY

MENTORS: BESS WARD, WILLIAM J. SINCLAIR PROFESSOR OF GEOSCIENCES AND THE HIGH MEADOWS ENVIRONMENTAL INSTITUTE; SAMANTHA FORTIN, POSTDOCTORAL RESEARCH ASSOCIATE, GEOSCIENCES

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LINDSAY PAGADUAN '26, CHEMISTRY

MENTORS: BESS WARD, WILLIAM J. SINCLAIR PROFESSOR OF GEOSCIENCES AND THE HIGH MEADOWS ENVIRONMENTAL INSTITUTE; WEIYI TANG, POSTDOCTORAL RESEARCH ASSOCIATE, GEOSCIENCES

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SARA AKIBA '26, GEOSCIENCES
SOPHIA VILLACORTA '24, GEOSCIENCES

MENTORS: DANIEL SIGMAN, DUSENBURY PROFESSOR OF GEOLOGICAL AND GEOPHYSICAL SCIENCES, PROFESSOR OF GEOSCIENCES; MATTHEW LACERRA, PH.D. CANDIDATE, GEOSCIENCES

Methods and Trends in Tropical Cyclone Forecasting

CLARA CONATSER '25, GEOSCIENCES
JAEDA WOODRUFF '25, GEOSCIENCES

MENTORS: NING LIN, PROFESSOR OF CIVIL AND ENVIRONMENTAL ENGINEERING; CHRISTINE BLACKSHAW, PH.D. CANDIDATE, CIVIL AND ENVIRONMENTAL ENGINEERING; AVANTIKA GORI, PH.D. CANDIDATE, GEOSCIENCES

A Geological Dive into an Archaeocyathid Reef

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MENTORS: ADAM MALOOF, PROFESSOR OF GEOSCIENCES; RYAN MANZUK, PH.D. CANDIDATE, GEOSCIENCES

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MENTORS: ALISON GRAY, ASSISTANT PROFESSOR, PHYSICAL OCEANOGRAPHY, UNIVERSITY OF WASHINGTON; CHANNING PREND, RESEARCH ASSOCIATE, PHYSICAL OCEANOGRAPHY, UNIVERSITY OF WASHINGTON

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HUGH SHIELDS '24, GEOSCIENCES

MENTORS: GEORGY MANUCHARYAN, ASSISTANT PROFESSOR, UNIVERSITY OF WASHINGTON; BRANDON MONTEMURO, RESEARCH ASSOCIATE, PHYSICAL OCEANOGRAPHY, UNIVERSITY OF WASHINGTON

A Sensitivity Analysis of Sea Surface Temperature on Global pCO_2 Predictions

CHARLOTTE MERCHANT '24, COMPUTER SCIENCE

MENTORS: PETER LANDSCHÜTZER, RESEARCH DIRECTOR, FLANDERS MARINE INSTITUTE (VLIZ), BELGIUM; ANNIKA JERSILD, POSTDOCTORAL RESEARCHER, MAX PLANCK INSTITUTE FOR METEOROLOGY

Reconstructing the Marine Environmental Changes Across the Cretaceous/Paleogene Mass Extinction with Nitrogen Isotopes in Planktonic Foraminifera

REBECCA CHO '26, GEOSCIENCES

MENTORS: DANIEL SIGMAN, DUSENBURY PROFESSOR OF GEOLOGICAL AND GEOPHYSICAL SCIENCES, PROFESSOR OF GEOSCIENCES; CRYSTAL RAO, PH.D. CANDIDATE, GEOSCIENCES

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Student Index

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