High Meadows Environmental Institute

SEPTEMBER 16, 2022

Summer of Learning Symposium



Summer of Learning Symposium

High Meadows Environmental Institute (HMEI) welcomes faculty and friends to the 15th 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 124 Princeton students from 20 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. This year's symposium is the first to be held in person since 2019 and this summer marked the resumption of international travel and most fieldwork assignments. Students undertook research, scholarship and community work based in Madagascar, Kenya, Mozambique, Canada, Alaska and New Orleans, among other locations, as well as with off-campus organizations based in New Jersey. In all cases, students contributed meaningfully to research 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

8:45 AM – 10:40 AM **JRR 399**	Innovation and a New Energy Future (pp. 3-5)
9:05 AM – 11:05 AM **JRR 301**	Extreme Weather and Impacts (pp. 6-8)
9:15 AM – 10:40 AM **LAS 271**	Sustainable Food Systems and Health and Disease (pp. 9-11)
10:30 AM – 12:15 PM **JRR 397**	Disturbances in Biodiversity (pp. 12-14)
11:00 AM - 1:00 PM **LAS B60s (B LEVEL)**	Lunch *All participants and attendees welcome*
11:55 AM – 1:55 PM **LAS 271**	Biodiversity and Conservation (pp. 15-17)
12:00 PM – 2:05 PM **JRR 399**	Water and the Environment (pp. 18-20)
12:45 PM – 2:55 PM **JRR 301**	Urban Sustainability (pp. 21-23)
3:05 PM – 4:45 PM **JRR 397**	Climate and Environmental Science (pp. 24-26)

Front Cover:
Tobias Nguyen ’24 (left) and Dominic Dominguez ’25 (right)

Innovation and a New Energy Future

8:45 AM – 10:40 AM

MODERATOR: CLAIRE WHITE, ASSOCIATE PROFESSOR OF CIVIL AND ENVIRONMENTAL ENGINEERING AND THE ANDLINGER CENTER FOR ENERGY AND THE ENVIRONMENT

Confinement of Odd Parity RMF-heated Ions Inside the PFRC With Single-particle Trajectory Simulations

HYALINE CHEN '25, UNDECLARED

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

Small Clean Fusion Reactor: An Investigation of the PFRC's RF System

AHMAD ATEYEH '25, ELECTRICAL AND COMPUTER ENGINEERING

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

Calibrating the Charge-exchange Ion Energy Analyzer for the PFRC-2

DAVE SINGH '24, MECHANICAL AND AEROSPACE ENGINEERING

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

Cultivation of Sulfolobus acidocaldarius *to Enhance Olivine Dissolution Rates in Biocement*

DARIA FONTANI HERREROS '24, CIVIL AND ENVIRONMENTAL ENGINEERING

MENTOR: CLAIRE WHITE, ASSOCIATE PROFESSOR OF CIVIL AND ENVIRONMENTAL ENGINEERING AND THE ANDLINGER CENTER FOR ENERGY AND THE ENVIRONMENT

Composition and Properties of Alkali-activated Metakaolin

CALEB LUNSFORD '23, CIVIL AND ENVIRONMENTAL ENGINEERING

MENTOR: CLAIRE WHITE, ASSOCIATE PROFESSOR OF CIVIL AND ENVIRONMENTAL ENGINEERING AND THE ANDLINGER CENTER FOR ENERGY AND THE ENVIRONMENT

CO_2 Capture Materials

SIJBREN KRAMER '24, CHEMICAL AND BIOLOGICAL ENGINEERING

MENTORS: CLAIRE WHITE, ASSOCIATE PROFESSOR OF CIVIL AND ENVIRONMENTAL ENGINEERING AND THE ANDLINGER CENTER FOR ENERGY AND THE ENVIRONMENT; SUNXIANG (SEAN) ZHENG, POSTDOCTORAL RESEARCH ASSOCIATE, ANDLINGER CENTER FOR ENERGY AND THE ENVIRONMENT

OLED Optimization: Creating Bright Lights to Power Energy-efficient Processes

AMÉLIE LEMAY '24, CIVIL AND ENVIRONMENTAL ENGINEERING

MENTORS: BARRY RAND, ASSOCIATE PROFESSOR OF ELECTRICAL AND COMPUTER ENGINEERING AND THE ANDLINGER CENTER FOR ENERGY AND THE ENVIRONMENT; JESSE WISCH, PH.D. CANDIDATE, ELECTRICAL AND COMPUTER ENGINEERING

Investigating the Thermomechanical Behavior of Next-generation Chemically Recyclable Polyolefins

CALLIE ZHENG '24, CHEMICAL AND BIOLOGICAL ENGINEERING

MENTORS: EMILY DAVIDSON, ASSISTANT PROFESSOR OF CHEMICAL AND BIOLOGICAL ENGINEERING; SHAWN MAGUIRE, POSTDOCTORAL RESEARCH ASSOCIATE, CHEMICAL AND BIOLOGICAL ENGINEERING

Summer 2022: Forsterite and Background Subtraction

BRENDAN KEHOE '24, ELECTRICAL AND COMPUTER ENGINEERING

MENTORS: CLAIRE WHITE, ASSOCIATE PROFESSOR OF CIVIL AND ENVIRONMENTAL ENGINEERING AND THE ANDLINGER CENTER FOR ENERGY AND THE ENVIRONMENT; JORDAN HAMEL, PH.D. CANDIDATE, CIVIL AND ENVIRONMENTAL ENGINEERING

Increasing Chinese Renewable-energy Finance in Africa

KENNEDY BONIFACE '24, CHEMICAL AND BIOLOGICAL ENGINEERING
LEENA MEMON '25, OPERATIONS RESEARCH AND FINANCIAL ENGINEERING

MENTORS: DENISE MAUZERALL, PROFESSOR OF CIVIL AND ENVIRONMENTAL ENGINEERING AND PUBLIC AND INTERNATIONAL AFFAIRS; JING LIANG, POSTDOCTORAL RESEARCH ASSOCIATE, PRINCETON SCHOOL OF PUBLIC AND INTERNATIONAL AFFAIRS

Light-controlled Selective Protein Degradation

SEYI JUNG '24, CHEMICAL AND BIOLOGICAL ENGINEERING

MENTORS: JOSÉ AVALOS, ASSOCIATE PROFESSOR OF CHEMICAL AND BIOLOGICAL ENGINEERING AND THE ANDLINGER CENTER FOR ENERGY AND THE ENVIRONMENT; ALLISON TANG, PH.D. CANDIDATE, CHEMICAL AND BIOLOGICAL ENGINEERING

Extreme Weather and Impacts

9:05 AM – 11:05 AM

MODERATOR: MARIA GARLOCK, PROFESSOR OF CIVIL AND ENVIRONMENTAL ENGINEERING

Marine Heatwaves and Ocean Biochemistry

YI JIN TOH '25, UNDECLARED
EDWARD ZHANG '24, CIVIL AND ENVIRONMENTAL ENGINEERING

MENTORS: CURTIS DEUTSCH, PROFESSOR OF GEOSCIENCES AND THE HIGH MEADOWS ENVIRONMENTAL INSTITUTE; GRAEME MACGILCHRIST AND MARION ALBERTY, POSTDOCTORAL RESEARCH ASSOCIATES, PROGRAM IN ATMOSPHERIC AND OCEANIC SCIENCES

The Climate Footprint on Sea Surface Temperatures and Tropical Cyclones

DAVID BAN '24, GEOSCIENCES

MENTORS: DANIEL GILFORD, CLIMATE SCIENTIST, AND ANDREW PERSHING, DIRECTOR OF CLIMATE SCIENCE, CLIMATE CENTRAL

High Water Mark: Rain Gardens as a Tool for Flood Mitigation

SHELBY KINCH '23, ANTHROPOLOGY
KYUNG EUN LEE '25, UNDECLARED

MENTORS: CAROLYN ROUSE, RITTER PROFESSOR OF ANTHROPOLOGY; JEFFREY HIMPELE, DIRECTOR, VIZE LAB FOR ETHNOGRAPHIC DATA VISUALIZATION, ANTHROPOLOGY

Antarctic Ice Shelves and Neural Networks

WILEY KOHLER '25, MATHEMATICS

MENTOR: CHING-YAO LAI, ASSISTANT PROFESSOR OF GEOSCIENCES

How Early-warning Signals Affect Human Investment in Clean Energy

LAEO CRNKOVIC-RUBSAMEN '24, GEOSCIENCES

MENTORS: JONATHAN DONGES, VISITING RESEARCH COLLABORATOR, HIGH MEADOWS ENVIRONMENTAL INSTITUTE, AND CO-LEADER OF THE FUTURELAB AND WORKING GROUP LEADER, POTSDAM INSTITUTE FOR CLIMATE IMPACT RESEARCH; NIKLAS KITZMANN, ANN KRISTIN KLOSE, AND NICO WUNDERLING, PH.D. CANDIDATES, POTSDAM INSTITUTE FOR CLIMATE IMPACT RESEARCH

Modeling Interacting Tipping Elements in the Earth System and Social Interactions

JASMINE ZHANG '24, COMPUTER SCIENCE

MENTORS: JONATHAN DONGES, VISITING RESEARCH COLLABORATOR, HIGH MEADOWS ENVIRONMENTAL INSTITUTE, AND CO-LEADER OF THE FUTURELAB AND WORKING GROUP LEADER, POTSDAM INSTITUTE FOR CLIMATE IMPACT RESEARCH; NIKLAS KITZMANN, ANN KRISTIN KLOSE, AND NICO WUNDERLING, PH.D. CANDIDATES, POTSDAM INSTITUTE FOR CLIMATE IMPACT RESEARCH

Analyzing Urban Heat Islands and Green Spaces in American Cities

SAM MELTON '23, CIVIL AND ENVIRONMENTAL ENGINEERING

MENTORS: JENNIFER BRADY, MANAGER, ANALYSIS AND PRODUCTION, ANDREW PERSHING, DIRECTOR OF CLIMATE SCIENCE, AND KAITLYN TRUDEAU, DATA ANALYST, CLIMATE CENTRAL

Impacts of High-latitude Land-Climate Interactions on Arctic Climate Change

BEN BUCHOVECKY '23, GEOSCIENCES
MADELEINE BURNS '24, CIVIL AND ENVIRONMENTAL ENGINEERING

MENTORS: KYLE ARMOUR, ASSOCIATE PROFESSOR OF ATMOSPHERIC SCIENCES AND OCEANOGRAPHY, AND ABIGAIL SWANN, ASSOCIATE PROFESSOR OF ATMOSPHERIC SCIENCES AND BIOLOGY, UNIVERSITY OF WASHINGTON; LILY HAHN AND CLAIRE ZARAKAS, PH.D. CANDIDATES, UNIVERSITY OF WASHINGTON

Extreme Wind Effects on Kinetic Umbrellas

BRYAN BOYD '24, CIVIL AND ENVIRONMENTAL ENGINEERING
RUBY JACOBS '24, CIVIL AND ENVIRONMENTAL ENGINEERING

MENTORS: MARIA GARLOCK, PROFESSOR OF CIVIL AND ENVIRONMENTAL ENGINEERING; BRANKO GLISIC, PROFESSOR OF CIVIL AND ENVIRONMENTAL ENGINEERING

Real-time Forecasting System for Hurricane Hazards and Risk

BRENDAN ZELIKMAN '23, COMPUTER SCIENCE

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

Sustainable Food Systems and Health and Disease

9:15 AM – 10:40 AM

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

Role of Auxin Degradation in the Plant Microbiome

ASH REDDY '25, MOLECULAR BIOLOGY

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

Integrating Fisheries Into the Blue Economy as Data-collection Platforms

MATTHEW PICKERING '24, PRINCETON SCHOOL OF PUBLIC AND INTERNATIONAL AFFAIRS

MENTOR: CHRISTOPHER CUSACK, DIRECTOR, OCEANS TECHNOLOGY SOLUTIONS, ENVIRONMENTAL DEFENSE FUND

Small-scale Fisheries Hub Internship

JO GOLDMAN '25, ECOLOGY AND EVOLUTIONARY BIOLOGY

MENTOR: CARLITO TURNER, MANAGER, SMALL-SCALE FISHERIES INITIATIVES, ENVIRONMENTAL DEFENSE FUND

My Summer Internship with One Health Trust (OHT)

KRISHNA PARIKH '25, OPERATIONS RESEARCH AND FINANCIAL ENGINEERING

MENTORS: RAMANAN LAXMINARAYAN, FOUNDER AND DIRECTOR, ONE HEALTH TRUST (OHT), AND SENIOR RESEARCH SCHOLAR, HIGH MEADOWS ENVIRONMENTAL INSTITUTE; SIDDHI LAMA, SCIENCE COMMUNICATIONS ASSOCIATE; GEETANJALI KAPOOR, HEAD OF SOUTH ASIA; SAMANTHA SERRANO, SCIENCE COMMUNICATIONS MANAGER; AND ERTA KALANXHI, RESEARCH FELLOW, OHT

Data-intensive Analysis of the Climate-Water Crisis in India

MAX GONZALEZ SAEZ-DIEZ '23, PRINCETON SCHOOL OF PUBLIC AND INTERNATIONAL AFFAIRS
EZRA OSOFSKY '23, ECONOMICS

MENTOR: RAM FISHMAN, SENIOR LECTURER (WITH TENURE), PUBLIC POLICY, TEL AVIV UNIVERSITY

Growing in the Garden State: Understanding Factors That Impact Food Production in 2022

DAVID CHANG '25, ELECTRICAL AND COMPUTER ENGINEERING
LILLIAN FITZGERALD '25, ECOLOGY AND EVOLUTIONARY BIOLOGY
ALEC PIRONE '24, CIVIL AND ENVIRONMENTAL ENGINEERING
SOPHIA STEWART '24, PRINCETON SCHOOL OF PUBLIC AND INTERNATIONAL AFFAIRS

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

Climate-resilient Food Systems

PAIGE SILVERSTEIN '24, CIVIL AND ENVIRONMENTAL ENGINEERING

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

Disturbances in Biodiversity

10:30 AM – 12:15 PM

MODERATOR: JONATHAN LEVINE, PROFESSOR OF ECOLOGY AND EVOLUTIONARY BIOLOGY

Evolution and Species Diversity Maintenance of Orchard Flies

JAHIR MORRIS '24, ECOLOGY AND EVOLUTIONARY BIOLOGY

MENTOR: JONATHAN LEVINE, PROFESSOR OF ECOLOGY AND EVOLUTIONARY BIOLOGY

The Role of Multiple Interacting Disturbances in Dictating Savanna Plant Community Composition

KOJO BAIDOO '24, ECOLOGY AND EVOLUTIONARY BIOLOGY

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

Hydroponic Investigation of Isotopic Fractionation in Arabidopses

HEATHER LOUISE MADSEN '24, GEOSCIENCES

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

Analysis of Climate-driven Body-size Changes in the Marine Fossil Record

NOREEN HOSNY '25, MOLECULAR BIOLOGY
EVELYN McGONIGLE '25, OPERATIONS RESEARCH AND FINANCIAL ENGINEERING

MENTOR: CURTIS DEUTSCH, PROFESSOR OF GEOSCIENCES

Seasonality of Plant Interactions in a Changing Arctic

HELEN BRUSH '24, ECOLOGY AND EVOLUTIONARY BIOLOGY

MENTORS: JONATHAN LEVINE, PROFESSOR OF ECOLOGY AND EVOLUTIONARY BIOLOGY; RUBY AN, PH.D. CANDIDATE, ECOLOGY AND EVOLUTIONARY BIOLOGY

The Carolina Wren in Princeton, New Jersey

KATIE FARRELL '25, UNDECLARED

MENTORS: CHRISTINA RIEHL, ASSOCIATE PROFESSOR OF ECOLOGY AND EVOLUTIONARY BIOLOGY; TREY HENDRIX, PH.D. CANDIDATE, ECOLOGY AND EVOLUTIONARY BIOLOGY

Radar Data Analysis and the Phenology of Fall Bird Migration

DAVID DORINI '25, ECOLOGY AND EVOLUTIONARY BIOLOGY

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

Mesocarnivores in Gorongosa National Park, Mozambique

CATHERINE KEIM '23, ECOLOGY AND EVOLUTIONARY BIOLOGY

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

Health and Conservation at the Human-Domestic Animal-Wildlife Interface in Madagascar

JULIAN GOTTFRIED '24, ECOLOGY AND EVOLUTIONARY BIOLOGY
ALEX HEINE '24, ECOLOGY AND EVOLUTIONARY BIOLOGY
EVA JORDAN '24, CIVIL AND ENVIRONMENTAL ENGINEERING

MENTORS: C. JESSICA 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

Biodiversity and Conservation

11:55 AM – 1:55 PM

MODERATOR: DANIEL RUBENSTEIN, CLASS OF 1877 PROFESSOR OF ZOOLOGY, PROFESSOR OF ECOLOGY AND EVOLUTIONARY BIOLOGY

Developing Metrics for Community-scale Biodiversity Restoration and Management

CASEY BURTON '24, ECOLOGY AND EVOLUTIONARY BIOLOGY
BAILEY GLENETSKE '25, UNDECLARED
KAT McLAUGHLIN '25, UNDECLARED
FELICIA SANDERS '25, UNDECLARED

MENTORS: ANNA CORICHI, DIRECTOR OF NATURAL RESOURCES AND STEWARDSHIP, FRIENDS OF PRINCETON OPEN SPACE (FOPOS); ANDY DOBSON, PROFESSOR OF ECOLOGY AND EVOLUTIONARY BIOLOGY; ANNARIE LYLES, TRUSTEE, FOPOS

Why Did the Elephant Cross the River? The Ewaso Nyiro and Wildlife Corridors

MAX GOTTS '24, ECOLOGY AND EVOLUTIONARY BIOLOGY

MENTORS: DANIEL RUBENSTEIN, CLASS OF 1877 PROFESSOR OF ZOOLOGY, PROFESSOR OF ECOLOGY AND EVOLUTIONARY BIOLOGY; DINO MARTINS, CHIEF EXECUTIVE OFFICER, TURKANA BASIN INSTITUTE; KIMANI NDUNG'U, RESEARCHER AND FIELD INSTRUCTOR, MPALA RESEARCH CENTRE

Zebras, Water and Cattle: Farmers and Their Impact on Rural Kenya

MEERA BURGHARDT '24, PRINCETON SCHOOL OF PUBLIC AND INTERNATIONAL AFFAIRS
WES HIRSCHMAN '24, OPERATIONS RESEARCH AND FINANCIAL ENGINEERING

MENTOR: DANIEL RUBENSTEIN, CLASS OF 1877 PROFESSOR OF ZOOLOGY, PROFESSOR OF ECOLOGY AND EVOLUTIONARY BIOLOGY

Seed Preferences, Predation and Dispersal in Kenya by Messor *Harvester Ants*

ANNA PINKERTON '24, GEOSCIENCES

MENTORS: DINO MARTINS, CHIEF EXECUTIVE OFFICER, TURKANA BASIN INSTITUTE; IVY NG'IRU, PROJECT MANAGER AND SCIENTIFIC RESEARCHER, MPALA RESEARCH CENTRE

From Soil to Sunbirds: Interning With Northern Kenya Conservation Clubs

RIO BARAN '25, GEOSCIENCES
CONNIE GONG '25, ANTHROPOLOGY

MENTOR: DANIEL RUBENSTEIN, CLASS OF 1877 PROFESSOR OF ZOOLOGY AND PROFESSOR OF ECOLOGY AND EVOLUTIONARY BIOLOGY

Climate Change and Hummingbird Sensory Ecology in the Rocky Mountains

DOMINIC DOMINGUEZ '25, ECOLOGY AND EVOLUTIONARY BIOLOGY
TOBIAS NGUYEN '24, ECOLOGY AND EVOLUTIONARY BIOLOGY

MENTOR: MARY CASWELL STODDARD, ASSOCIATE PROFESSOR OF ECOLOGY AND EVOLUTIONARY BIOLOGY

Feathers Versus Weather: Modeling the Physiological Responses of Birds to Climate Change

BRACKLINN WILLIAMS '25, MATHEMATICS

MENTORS: DAVID WILCOVE, PROFESSOR OF ECOLOGY AND EVOLUTIONARY BIOLOGY AND PUBLIC AFFAIRS AND THE HIGH MEADOWS ENVIRONMENTAL INSTITUTE; LIANG MA, ASSOCIATE RESEARCH SCHOLAR, PRINCETON SCHOOL OF PUBLIC AND INTERNATIONAL AFFAIRS

Reserve and Forest Stewardship at The Watershed Institute

CHRISTOPHER DUGAN '23 , CHEMICAL AND BIOLOGICAL ENGINEERING
DANIELA MARTINEZ '24, CIVIL AND ENVIRONMENTAL ENGINEERING

MENTORS: STEVE TUORTO, DIRECTOR OF SCIENCE AND STEWARDSHIP, ERIN STRETZ, ASSISTANT DIRECTOR OF SCIENCE AND STEWARDSHIP, AND ALLISON JACKSON, STEWARDSHIP COORDINATOR, THE WATERSHED INSTITUTE

Plant Conservation in the Natural Areas of NYC Parks

ALLIYAH GREGORY '25, ECOLOGY AND EVOLUTIONARY BIOLOGY

MENTORS: CLARA HOLMES, PLANT ECOLOGIST, AND DESIREE YANES, VEGETATION MONITORING TECHNIC, NEW YORK CITY DEPARTMENT OF PARKS AND RECREATION

Water and the Environment

12:00 PM – 2:05 PM

MODERATOR: REED MAXWELL, PROFESSOR OF CIVIL AND ENVIRONMENTAL ENGINEERING AND THE HIGH MEADOWS ENVIRONMENTAL INSTITUTE

Microfluidics for Sustainability: Liquid Entrapment and Diffusiophoresis in Action

REESE KNOPP '24, MECHANICAL AND AEROSPACE ENGINEERING
MARIKO STOREY-MATSUTANI '25, MECHANICAL AND AEROSPACE ENGINEERING

MENTORS: HOWARD STONE, DONALD R. DIXON '69 AND ELIZABETH W. DIXON PROFESSOR OF MECHANICAL AND AEROSPACE ENGINEERING; SAMANTHA MCBRIDE, POSTDOCTORAL RESEARCH ASSOCIATE AND PRESIDENTIAL POSTDOCTORAL RESEARCH FELLOW, MECHANICAL AND AEROSPACE ENGINEERING; FERNANDO TEMPRANO COLETO, POSTDOCTORAL RESEARCH ASSOCIATE, ANDLINGER CENTER FOR ENERGY AND THE ENVIRONMENT

Understanding Watershed Processes in Complex Terrain: Mountain Hydrology at Snodgrass Hillslope

ASHLEY CAO '23, CIVIL AND ENVIRONMENTAL ENGINEERING
ISABEL RODRIGUES '23, GEOSCIENCES

MENTORS: REED MAXWELL, PROFESSOR OF CIVIL AND ENVIRONMENTAL ENGINEERING AND THE HIGH MEADOWS ENVIRONMENTAL INSTITUTE; JACKSON SWILLEY, PH.D. CANDIDATE, CIVIL AND ENVIRONMENTAL ENGINEERING

The Interface of Hydrology and Machine Learning

JANE CASTLEMAN '24, COMPUTER SCIENCE
AKHIL PAULRAJ '25, COMPUTER SCIENCE

MENTORS: REED MAXWELL, PROFESSOR OF CIVIL AND ENVIRONMENTAL ENGINEERING AND THE HIGH MEADOWS ENVIRONMENTAL INSTITUTE; LISA GALLAGHER, EDUCATION AND OUTREACH MANAGER, HIGH MEADOWS ENVIRONMENTAL INSTITUTE

Assessing Water Quality With the StreamWatch Bacterial Action Team

CAMILA CABRERA MARTINEZ '24, CHEMICAL AND BIOLOGICAL ENGINEERING

MENTORS: STEVE TUORTO, DIRECTOR OF SCIENCE AND STEWARDSHIP, ERIN STRETZ, ASSISTANT DIRECTOR OF SCIENCE AND STEWARDSHIP, AND JIAN SMITH, STREAMWATCH PROGRAM COORDINATOR, THE WATERSHED INSTITUTE

Engineers Without Borders

MENTORS: SIGRID ADRIAENSSENS, PROFESSOR OF CIVIL AND ENVIRONMENTAL ENGINEERING; MAHIRI MWITA, SENIOR LECTURER, PRINCETON INSTITUTE FOR INTERNATIONAL AND REGIONAL STUDIES; SCOTT GREGORY, PROGRAM ENGINEER, ENGINEERS WITHOUT BORDERS (EWB) USA; NATHAN PERREIRA, PROJECT MENTOR, EWB; ROGER PRICE, RESPONSIBLE ENGINEER IN CHARGE, EWB

ECUADOR TRAVEL TEAM:
RITI BHANDARKAR '23, CIVIL AND ENVIRONMENTAL ENGINEERING
DANIELA MARTINEZ '23, CIVIL AND ENVIRONMENTAL ENGINEERING
PARKER O'NEAL '24, MECHANICAL AND AEROSPACE ENGINEERING
YVETTE OLIVAS BIDDLE '24, CHEMICAL AND BIOLOGICAL ENGINEERING
LOREN ORMËNAJ '23, CHEMICAL AND BIOLOGICAL ENGINEERING
ARIANA RAUSCH '24, MECHANICAL AND AEROSPACE ENGINEERING
KLARA THIELE '24, CHEMICAL AND BIOLOGICAL ENGINEERING

KENYA TRAVEL TEAM:
FRANCESCA DiMARE '23, CHEMISTRY
KELLY GALLAGHER '23, CHEMICAL AND BIOLOGICAL ENGINEERING
HELENA FRUDIT '25, MECHANICAL AND AEROSPACE ENGINEERING
ISABELLA GOMES '25, CIVIL AND ENVIRONMENTAL ENGINEERING
DENIZ KUCUKERBAS '24, ELECTRICAL AND COMPUTER ENGINEERING
AIDAN MATTHEWS '24, CIVIL AND ENVIRONMENTAL ENGINEERING
JUSTIN ZHANG '24, CIVIL AND ENVIRONMENTAL ENGINEERING

PERU TRAVEL TEAM:
BRYAN ALFARO '23, MECHANICAL AND AEROSPACE ENGINEERING
VIVIAN CHEN '25, ELECTRICAL AND COMPUTER ENGINEERING
LUCY LEVENSON '25, OPERATIONS RESEARCH AND FINANCIAL ENGINEERING
ARIELLE RIVERA '23, ELECTRICAL AND COMPUTER ENGINEERING
ELLEN SU '23, COMPUTER SCIENCE
DANIEL TRUJILLO '23, CIVIL AND ENVIRONMENTAL ENGINEERING

Water Conservation Through Landscape Design in the Upper Gallatin River Watershed

NATALIE SWOPE '24, ECONOMICS

MENTOR: EMILY O'CONNOR, CONSERVATION DIRECTOR, GALLATIN RIVER TASK FORCE

Electrophoretic and Dielectric Spectroscopy Properties of Individual Clay Nanoparticles in Liquid Water

KELVIN GREEN '24, CIVIL AND ENVIRONMENTAL ENGINEERING

MENTORS: IAN BOURG, ASSOCIATE PROFESSOR OF CIVIL AND ENVIRONMENTAL ENGINEERING AND THE HIGH MEADOWS ENVIRONMENTAL INSTITUTE; THOMAS UNDERWOOD, POSTDOCTORAL RESEARCH ASSOCIATE, CIVIL AND ENVIRONMENTAL ENGINEERING; XINYI SHEN, PH.D. CANDIDATE, CIVIL AND ENVIRONMENTAL ENGINEERING

Rheological Properties of Clay-Alginate-Water Mixtures

JUAN PABLO ALVARADO '23, CIVIL AND ENVIRONMENTAL ENGINEERING

MENTORS: IAN BOURG, ASSOCIATE PROFESSOR OF CIVIL AND ENVIRONMENTAL ENGINEERING AND THE HIGH MEADOWS ENVIRONMENTAL INSTITUTE; AVERY AGLES, PH.D. CANDIDATE, CHEMICAL AND BIOLOGICAL ENGINEERING

Anthropogenic Impacts on Fluvial Organic-carbon Transport in Different Climates

ETHAN SONTARP '24, GEOSCIENCES

MENTORS: SATISH MYNENI, PROFESSOR OF GEOSCIENCES; JIANSHU DUAN, PH.D. CANDIDATE, GEOSCIENCES

Urban Sustainability

12:45 PM – 2:55 PM

MODERATOR: ALLISON CARRUTH, PROFESSOR OF AMERICAN STUDIES AND THE HIGH MEADOWS ENVIRONMENTAL INSTITUTE

Climate Story Incubator: Coastal Futures

NOA GREENSPAN '23, ENGLISH
CELINE HO '25, MOLECULAR BIOLOGY
MAGDALENA POOST '23, ANTHROPOLOGY

MENTORS: ALLISON CARRUTH, PROFESSOR OF AMERICAN STUDIES AND THE HIGH MEADOWS ENVIRONMENTAL INSTITUTE; DIANA LITTLE AND KYRA MORRIS, PH.D. CANDIDATES, ENGLISH; GEMMA SAHWELL, PH.D. CANDIDATE, GEOSCIENCES

Behavioral Science for Policy Lab

JONGNAM AHN '25, UNDECLARED
KATHERINE BRUBAKER '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; JORDANA COMPOSTO, PH.D. CANDIDATE, PSYCHOLOGY; POOJA RAMAMURTHI, PH.D. CANDIDATE, PRINCETON SCHOOL OF PUBLIC AND INTERNATIONAL AFFAIRS

Urban Tree Cover Distributions are Associated with Aggregate Development and Social Hierarchies: A Case Study of the City of Pune, India

ALEXANDRA JERDEE '25, COMPUTER SCIENCE

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